Examining the Relation Among Internet Addiction, Cyberbullying, and Cyber Victimization in Adolescents: A Systematic Review

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Abstract

Internet addiction, cyberbullying, and cyber victimization are serious public health issues that are highly prevalent among adolescents. Research addressing the aforementioned concepts has significantly increased in the recent years. Using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines, this paper presents the first systematic review of studies examining the relation among internet addiction, cyberbullying, and cyber victimization. A literature review was conducted through Web of Science, PubMed, ScienceDirect, Google Scholar, and Yöktez. A search of five electronic databases indicated 2648 studies published between 2010 and 2024. The following inclusion criteria were considered for articles: (i) they made an objective assessment of cyberbullying and/or cyberbullying victimization and internet addiction, (ii) they were conducted on adolescents, (iii) they were articles and theses published between 2010 and 2024, (iv) they were written in Turkish or English, (v) they were published theses or articles published in an academic refereed journal, and (vi) they were empirical studies with primary data. Accordingly, 32 empirical studies were included in the current review, involving 55.923 participants. The results revealed that internet addiction was positively associated with cyberbullying and cyber victimization, despite many methodological limitations. In this context, taking the relevant variables together in the research, education and intervention programs to be conducted on these variables will allow more accurate and effective results to be obtained.

Keywords: Adolescents, cyberbullying, cyber victimization, internet addiction, systematic review

Ergenlerde İnternet Bağımlılığı, Siber Zorbalık ve Siber Mağduriyet İlişkisinin İncelenmesi: Sistematik Derleme

Öz

İnternet bağımlılığı, siber zorbalık ve siber mağduriyet ergenler arasında oldukça yaygın olan ciddi halk sağlığı sorunlarıdır. Bu kavramları ele alan araştırmalar son yıllarda önemli ölçüde artmıştır. Bu çalışma, Sistematik İncelemeler ve Meta-Analiz için Tercih Edilen Raporlama Öğelerini (PRISMA) kullanan internet bağımlılığı, siber zorbalık ve siber mağduriyet arasındaki ilişkileri inceleyen çalışmaların ilk sistematik incelemesini içermektedir. Web of Science, PubMed, ScienceDirect, Google Scholar ve Yöktez aracılığıyla bir literatür taraması yapılmıştır. Beş elektronik veri tabanında yapılan arama sonucunda 2010 ile 2024 yılları arasında yayınlanmış 2648 çalışma tespit edilmiştir. Dahil edilme kriterleri (i) siber zorbalık ve/veya siber mağduriyet ile internet bağımlılığı üzerinde nesnel bir değerlendirme yapması, (ii) ergenler üzerinde yürütülmüş olması, (iii) 2010-2024 tarihleri arasında yayınlanmış makale veya tezler olması, (iv) İngilizce veya Türkçe dillerinde yazılmış olması, (v) yayınlanmış bir tez veya bilimsel hakemli bir dergide yayınlanmış makale olması ve (vi) birincil verileri toplayan ampirik bir çalışma olması şeklindedir. Sonuç olarak toplam 55.923 katılımcıyı içeren mevcut derlemede 32 ampirik çalışma ele alınmıştır. Sonuçlar, pek çok metodolojik sınırlılığa rağmen, internet bağımlılığının, siber zorbalık ve siber mağduriyet ile pozitif yönde ilişkili olduğunu göstermektedir. İnternet bağımlılığı, siber zorbalık ve siber mağduriyetle ilgili yapılması planlanan araştırma ve müdahale programların bu değişkenlerin birlikteliğini ele alacak biçimde planlanması önerilmektedir.

Anahtar Sözcükler: Ergenler, internet bağımlılığı, siber mağduriyet, siber zorbalık, sistematik derleme

INTRODUCTION

Undoubtedly, the internet, one of the most important tools of our age, facilitates access to information. There are countless conveniences that the internet has brought to our lives in almost all areas of life, such as communication, education, socialization, shopping, entertainment, and so on. All these conveniences have made the use of the internet more widespread day by day. However, in addition to all the conveniences, there are many negative aspects that may arise from the misuse of the internet. The most important of these negative aspects are internet addiction, cyberbullying, and cyber victimization variables, which have been the subject of many studies.

Internet addiction is a problem characterized by spending time on the internet intensively, not being able to prevent the desire to use it, experiencing negative emotions when the internet is inaccessible; and experiencing problems in work, family, and social life (Young, 2004). Young (1998) created an 8-item diagnostic form for internet addiction by modeling the criteria for gambling addiction defined in DSM IV for the first time. Having five of the criteria written below is considered sufficient for the diagnosis of internet addiction:

1.Feeling preoccupied with online activities (previous or next online activities).

2.Using the internet in increasing amounts to achieve satisfaction.

3.Repeated unsuccessful efforts to control, reduce, or stop internet use.

4.Feeling moody, restless, irritable, or depressed when internet use is reduced or tried to be stopped.

5.Staying online longer than intended.

6.Jeopardize or risk losing an important relationship, educational, job or career opportunity due to the internet use.

7.Lying to others in an attempt to hide the extent of your internet involvement.

8.Using the internet to avoid problems or relieve dysphoric mood.

Examining the literature indicates that internet addiction is named in different ways such as problematic internet use, pathological internet use, obsessive internet use and excessive Internet use. However, the terms internet addiction and problematic internet use are more commonly used (Doğan, 2013). Although there is no disorder called "Internet addiction" in DSM 5, a disorder called "Internet gaming disorder" is defined in the third section, which includes disorders requiring advanced research (American Psychiatric Association [APA], 2013). It has been stated that internet addiction is associated with online gambling and online pornography viewing (Siomos et al., 2012), social anxiety (Torrente et al., 2014; Weinstein et al., 2015; Zorbaz and Dost, 2014), cyberbullying, cyber victimization (Nurtan et al., 2022; Şimşek et al., 2019), depression (Chang et al., 2015; Jung et al., 2014), and loneliness (Yao and Zhong., 2014). When considered in this context, internet addiction is an important variable in terms of adolescents' mental health.

Another risk factor related to internet use is cyberbullying. Cyberbullying is defined as the use of information and communication technologies by a person or group to harm others (Belsey, 2006). Cyberbullying can take many forms, including sending harassing or threatening messages, sharing inappropriate photos, and making negative comments on social media accounts (Hinduja and Patchin, 2014). In addition, it poses a serious risk due to its prevalence, especially among young people, in the recent period. The results of a study conducted by UNICEF in 2019 with more than 170.000 participants aged between 12 and 24 years from 30 countries indicated that one in three young people are exposed to cyberbullying and one in five children are unable to attend school from time to time due to bullying (UNICEF, 2019). Cyberbullying has a different impact compared to traditional bullying because people's identities are hidden, cannot be controlled, the victims are not visible, and the potential effects cannot be easily predicted (Slonje and Smith, 2008). Van Geel et al. (2014) observed that cyberbullying was associated with higher levels of suicidal thoughts in children and adolescents compared to traditional bullying. The literature indicates that cyberbullying is associated with smoking and alcohol use (Chang et al., 2015), irregular and aggressive behaviors (Jung et al., 2014), and negative emotional symptoms. Individuals exposed to cyberbullying exhibit more depressive symptoms and psychoactive substance use (Zsila et al., 2018), have low self-esteem (Wachs et al., 2020), exhibit psychological and physiological symptoms (Lin et al., 2020), and have low well-being (Eroğlu et al., 2022). In addition, they experience many emotional, social, and behavioral problems such as decreased interest in classes, failure in their course grades, absenteeism, and bringing of weapons to school (Gürhan, 2017).

As observed, internet addiction, cyberbullying, and cyber victimization can negatively affect individuals. internet-addicted individuals spend a large part of their time in online environments. This situation increases the possibility of individuals being exposed to cyberbullying. Furthermore, people who spend excessive time on the internet are prevented from acquiring appropriate social skills and learning social norms due to their withdrawal from social environments (Chou et al., 2016; Naeim et al., 2020; Torrente et al., 2014). This situation increases the likelihood of individuals engaging in bulling behaviors in online environments. Problem behavior theory suggests that involvement in any problem behavior increases the possibility of involvement in other problem behaviors because of their connection in the social opportunities to learn and to practice them together. According to this theory, an adolescent who engages in one problem behavior is more likely to engage in another risky behavior (Jessor, 1987, 1991). In this context, it can be said that internet addiction, cyberbullying, and cyber victimization are interrelated concepts. The literature indicates that numerous research articles have addressed these variables. These studies have identified the relationships between internet addiction, cyberbullying, and cyber victimization, as well as risk factors for these variables and factors associated with healthy internet use. Many studies found positive and significant relationships among internet addiction, cyberbullying, and cyber victimization (Altundağ, 2016; Chang et al., 2015; Efe et al., 2021; Jung et al., 2014; Şimşek et al., 2019). A study conducted in Turkey found that the inability to socialize, negative affect, and social attitude are risk factors for cyberbullying and cyber victimization. Additionally, parental lack of control over a child's internet use is identified as a risk factor for cyberbullying (Peker, 2015). In a study conducted in Hungary, it was determined that cyber victims had significantly higher levels of problematic internet use, depressive symptoms, and psychoactive substance use. Perceived social support has been found to be an important protective factor against traditional bullying and cyberbullying (Zsila et al., 2018). In a study conducted on Spanish adolescents, cyber victimization has been found to predict depressive symptoms and problematic internet use longitudinally (Gámez-Guadix et al., 2013). In another study, problematic internet use predicted an increase in cyberbullying at the longitudinal level (Gámez-Guadix et al., 2016). In this context, it can be said that internet addiction, cyberbullying, and cyber victimization have serious negative effects on adolescents' mental health. Studies addressing the relevant variables are needed to detect these problems at an early stage and to develop the necessary education, intervention, and prevention programs. Literature indicates that many research articles have addressed these variables. However, no study has examined and summarized the research conducted in the context of cyberbullying, cyber victimization and internet addiction in adolescents. In conclusion, this study synthesizes the existing literature using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA).

METHOD

Eligibility Criteria

In this review, researches conducted between 2010-2024 on cyber bullying, cyber victimization, and internet addiction in adolescents are included. The following inclusion and exclusion criteria were considered for the articles and theses included in the scope of the research: (i) they made an objective assessment of cyberbullying and/or cyberbullying victimization and internet addiction, (ii) they were conducted on adolescents, (iii) they were articles and theses published between 2010 and 2024, (iv) they were written in Turkish or English, (v) they were published theses or articles published in an academic refereed journal, and (vi) they were empirical studies with primary data. Studies that did not address internet addiction and cyberbullying and/or cyber victimization variables were not included.

Information Sources and Search

In the literature review, the studies in Web of Science, PubMed, Science Direct, Google Scholar, and Yöktez databases between 2010 and 2024 were examined. Searches were conducted using various variants of the following keywords: Adolescent AND cyberbullying OR bulling OR cyber victimization OR cyber victim AND internet addiction OR (pathological OR excessive OR problematic OR obsessive) internet use. The first search was conducted between October 2022 and November 2022, and a second search was conducted between January 2024 and February 2024.

Data Collection

The titles and abstracts of the studies were assessed in term of inclusion criteria after the literature review. The information about the evaluation process is presented in the Figure 1. The included studies were evaluated in terms of sampling bias and measurement bias to assess the risk of bias.

Study Quality Assessment

A modified version of Newcastle-Ottowa Scale (Wells et al., 2012) was used to evaluate quality of selected studies (See Appendix 1). The following criteria were used for the quality assessment of the studies: representativeness of sample (0-2 stars), sample size (0-1 star), measurement of internet addiction (0-2 stars), measurement of cyberbullying/cyber victimization (0-2 stars), comparability (0-1 star), outcome (0-2 stars), and statistical analyzes (0-1 star). The scale score range was from 0 to 10 points. The classification of the studies is as follows: unsatisfactory studies (0-4), satisfactory studies (5-6), good studies (7-8), and very good studies (9-10).

RESULTS

Selection of Studies

A total of 2648 studies were identified in the initial search process (Web of Science = 364, PubMed = 251, ScienceDirect = 526, Yöktez = 128, Google Scholar = 1379). After reviewing the titles and abstracts of the studies, 27 studies were excluded as they did not meet the inclusion criteria. In addition, 9 more studies were excluded based on text content and as a result 32 studies were included.
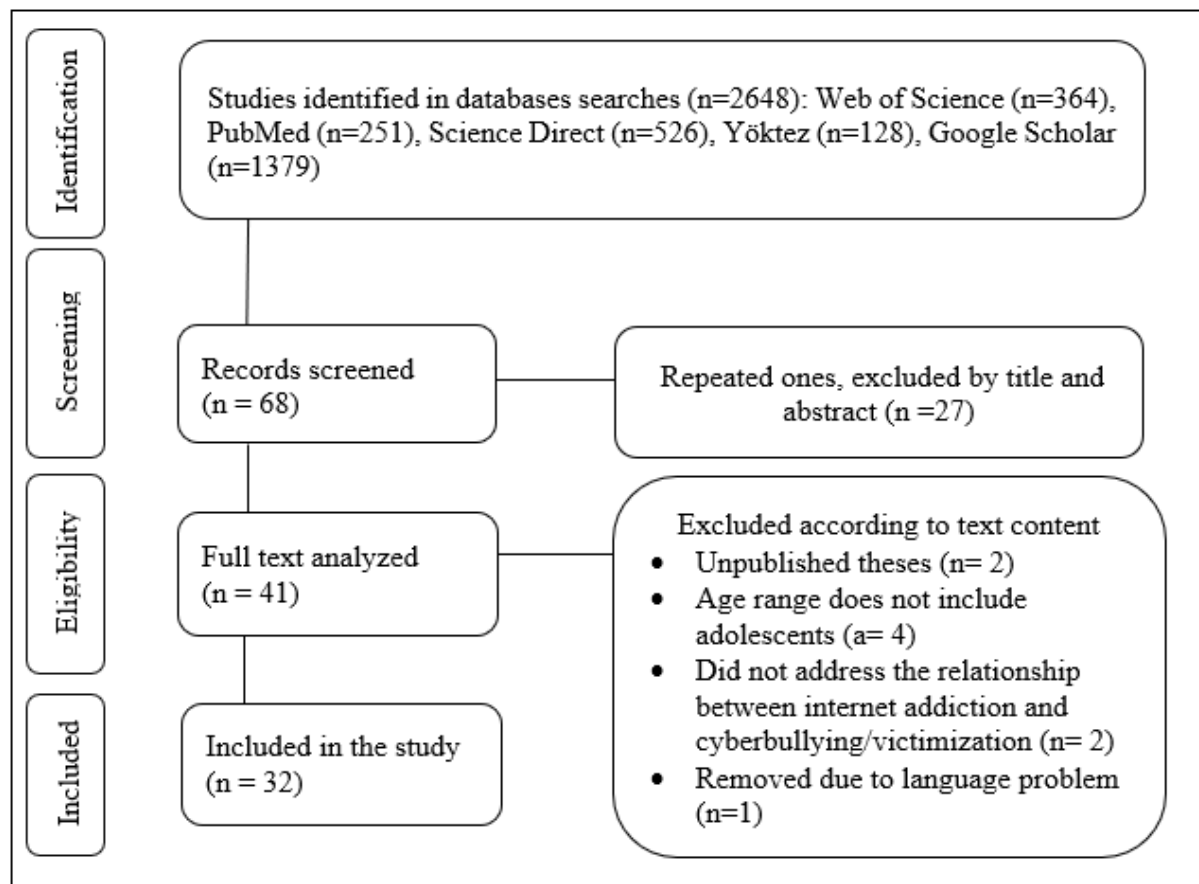

Figure 1. PRISMA flowchart

Study Quality Evaluation

The quality classification of studies used for this review was as follows: 13 good studies, (Blinka et al., 2023; Cebollero-Salinas et al., 2022; Cicioğlu, 2014; Efe et al., 2021; Ergüder, 2019; He et al., 2023; Liu et al., 2020; Nurtan et al., 2022; Şimşek et al., 2019; Tsimtsiou et al., 2018; Türkoğlu, 2013; Xin et al., 2021; Zsila et al., 2018) and 19 satisfactory studies (Altundağ, 2016; Arpacı et al., 2020; Aytaç et al., 2022; Boniel-Nissim and Sasson, 2018; Brighi et al., 2019; Chang et al., 2015; Cinar et al., 2017; Çiçek, 2019; Erdoğan, 2023; Gámez-Guadix et al., 2013; Gámez-Guadix et al., 2016; Gencer, 2017; Jung et al., 2014; Lin et al., 2020; Machimbarrena et al., 2018; Ünver and Koç, 2017; Wachs et al., 2020; Yudes-Gómez et al., 2018; Yudes et al., 2021). Results from quality assessment are presented in Table 1.

Features of the Studies

The findings regarding the general characteristics and methodological features of the 32 studies presented in Table 1 and Table 2.

Table 1. *Main features of the studies (N=32)*

Study	Sample Size	Gender (%)	Age range and mean range (SD)	Sample features	Operationalization of Internet Addiction	Operationalization of Cyberbullying/ Cyber Victimization	Quality Assessment
Şimşek et al. (2019)	2.422	48.50% male	Range = 14-21 M_{age} = 16.23 ± 1.11	High school students (adolescents)	Internet Addiction Scale	Cyber Victim and Bullying Scale	1 = *, 2 = *, 3 = **, 4 =**, 5 = -, 6 = *, 7 = *, TS = 8.
Arpacı et al. (2020)	665	30.5% male	Range = 17-19 M_{age} = 17.94 ± 1.12	University student (adolescents)	Internet Addiction Scale	The Cyberbullying Scale	1 = -, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 6.
Chang et al. (2015)	1917	45.9% male	Range = N/R M_{age}= N/R	High school students (adolescents)	Chen Internet Addiction Scale	An eight-item self-report questionnaire	1 = -, 2 = *, 3 = **, 4 = *, 5 = *, 6 = *, 7 = *, TS = 6.
Lin et al. (2020)	1854	49.3% male	Range = N/R M_{age} = 15 ± 1.6	Middle and high school students (adolescents)	Young Internet Addiction Test	An item was used.	1 = *, 2 = -, 3 = **, 4 = -, 5 = *, 6 = *, 7 = *, TS = 6.
Xin et al. (2020)	1006	48.2% male	Range = 12-15 M_{age} = 13.16 ± .67	Middle school students (adolescents)	Internet Gaming Disorder Questionnaire	Cyber Bullying Inventory	1 = -, 2 = -, 3 = **, 4 = **, 5 = *, 6 = *, 7 = *, TS = 7.
Jung et al. (2014)	4531	51.1% male	Range = 11-14 M_{age} = N/R	Elementary and middle school students (adolescents)	Internet Addiction Proneness Scale for Youth Short From	A nine-item self-report questionnaire	1 = -, 2 = -, 3 = **, 4 = *, 5 = -, 6 = *, 7 = *, TS = 5.
Liu et al. (2020)	661	61.4% male	Range = N/R M_{age} = 14.02 ± 1.50	Middle school students (adolescents)	Adolescents Problematic Internet Use Scale	Chinese version of Revised Cyberbullying Subscale	1 = *, 2 = -, 3 = **, 4 = **, 5 = *, 6 = *, 7 = *, TS = 7.
Zsila et al. (2018)	6237	51.13% male	Range = 15-22 M_{age} = 16.62 ± .95	High school students (adolescents)	Problematic Internet Use Questionnaire	Two items were used.	1 = *, 2 = -, 3 = **, 4 = *, 5 = *, 6 = *, 7 = *, TS = 7.
Brighi et al. (2019)	3602	56% male	Range = 11-20 M_{age} = 14.64 ± 1.70	Middle and high school students (adolescents)	Five items were used.	European Cyberbullying Intervention Project Questionnaire Lodz Electronic Aggression Prevalence Questionnaire	1 = -, 2 = -, 3 = *, 4 = **, 5 = *, 6 = *, 7 = *, TS = 6.
Yudes et al. (2021)	2039	46% male	Range = 12-18 M_{age} = 14.57 ± 1.58)	Middle and high school students (adolescents)	Internet Addiction Test	European Cyberbullying Intervention Project Questionnaire	1 = -, 2 = -, 3 = **, 4 = **, 5 = *, 6 = *, 7 = *, TS = 6.
Gámez-Guadix et al. (2016)	888	40% male	Range = 13-18 M_{age} = 15.42 ± 1.01	Middle school students (adolescents)	Generalized and Problematic Internet Use Scale 2	Cyberbullying Questionnaire	1 = -, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 6.
Gámez-Guadix et al. (2013)	845	39% male	Range = 13-17 M_{age} = 15.2 ± 1.2	Middle school students (adolescents)	Generalized Problematic Internet Use Scale 2	Cyberbullying Questionnaire	1 = *, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 6.

Table 2. *(Continued)*

Study	Sample Size	Gender (%)	Age range and mean range (SD)	Sample features	Operationalization of Internet Addiction	Operationalization of Cyberbullying/ Cyber Victimization	Quality Assessment
Boniel-Nissim and Sasson (2018)	1000	47% male	Range = 12-17 M_{age} = 14.19 ± 1.34	Middle and high school students (adolescents)	The Short Problematic Internet Use Test	Five-item self-report questionnaire	1 = -, 2 = -, 3 = **, 4 = *, 5 = -, 6 = *, 7 = *, TS = 5.
Wachs et al. (2020)	1.442	51.5% male	Range = 12-17 M_{age} = 14.17 ± 1.38	Students (adolescents)	The Internet-Related Experiences Questionnaire	Four-item self-report questionnaire	1 = -, 2 = -, 3 = **, 4 = 1, 5 = *, 6 = *, 7 = *, TS = 6.
Cinar et al. (2017)	239	N/R	Range = 14-19 M_{age} =N/R	High school students (adolescents)	Internet Addiction Scale	Cyber Bullying Scale	1 = -, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 6.
Machimbarrena et al. (2018)	3212	46.6% male	Range = 11-21 M_{age} = 13.92 ± 1.44	Middle and high school students (adolescents)	Generalized and Problematic Internet Use Scale	Victimization Subscale of the Cyberbullying Questionnaire, Victimization Scale, Questionnaire for Online Sexual Solicitation and Interaction of Minors with Adults	1 = -, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 6.
Altundağ (2016)	310	48.1% male	Range =N/R M_{age} =N/R	High school students (adolescents)	Internet Addiction Scale	Cyber Bullying/Victim Questionnaire	1 = -, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 6.
Efe et al. (2021)	546	41% male	Range = 12-19 M_{age} = 15.26 ± 1.19	High school students (adolescents)	Internet Addiction Scale	Cyber Bullying and Aggressiveness on the Internet Scanning Scale	1 = *, 2 = *, 3 = **, 4 = **, 5 = 0, 6 = *, 7 = *, TS = 8.
Nurtan et al. (2022)	550	40.9% male	Range = 13-17 M_{age} =N/R	High school students (adolescents)	Young Internet Addiction Test Short Form	Cyberbullying Scale, Cyber Victimization Scale	1 = *, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 7.
Ergüder (2019)	513	32.7% male	Range =N/R M_{age} =N/R	High school students (adolescents)	Internet Addiction Scale	Revised version of Cyber Bullying İnventory-II	1 = *, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 7.
Çiçek (2019)	2060	46.6% male	Range =N/R M_{age} =N/R	High school students (adolescents)	Problematic Internet Use Scale-Adolescent	Cyber Victims and Bullying Scale	1 = -, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 6.
Cicioğlu (2014)	563	55.8% male	Range =N/R M_{age} =N/R	High school students (adolescents)	Problematic Internet Use Scale	Cyber Bullying Scale	1 = -, 2 = *, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 7.
Tsimtsiou et al. (2018)	8053	46.7% male	Range = 12-18 M_{age} = 14.37 ± 1.94	Middle and high school students (adolescents)	Internet Addiction Test	Questions adapted from the 2013 National Youth Risk Behavior Survey were used	1 = *, 2 = *, 3 = **, 4 = *, 5 = *, 6 = *, 7 = *, TS = 8.

Table 3. *(Continued)*

Study	Sample Size	Gender (%)	Age range and mean range (SD)	Sample features	Operationalization of Internet Addiction	Operationalization of Cyberbullying/ Cyber Victimization	Quality Assessment
Gencer (2017)	779	47.4% male	Range = 12-15 M_{age} = 13.14 ± .83	Middle school students (adolescents)	Internet Addiction Scale	Cyber Bullying Scale	1 = -, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 6.
Türkoğlu (2013)	540	56.9% male	Range = 14-18 M_{age} = N/R	High school students (adolescents)	Problematic Internet Use Scale	Cyber Bullying Attitude Scale	1 = *, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 7.
Cebollero-Salinas et al. (2022)	1013	43.6% male	Range = 12-18 M_{age} =14.0 ± 1.42	Elementary and middle school students (adolescents)	The Internet-Related Experiences Questionnaire	Cyberbullying Scale	1 = *, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 7.
Aytaç et al. (2022)	320	49.9% male	Range = 14-19 M_{age} = 16.25 ± 1.13	High school students (adolescents)	Young Internet Addiction Scale	Revised Cyberbullying Inventory	1 = -, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 6.
He et al. (2023)	831	50.8% male	Range = 13-15 M_{age} =14 ± .55	High school students (adolescents)	Adolescent Pathological Internet Use Scale	Cyber Bullying Inventory	1 = *, 2 = -, 3 = **, 4 = **, 5 = *, 6 = *, 7 = *, TS = 8.
Yudes-Gómez et al. (2018)	2.653	50.8% male	Range = 10–18 M_{age}. = 14.48	High school students (adolescents)	Revised Generalized and Problematic Internet Use Scale	Cyberbullying aggression Scale, Cyberbullying/ victim scale	1 = -, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 6.
Blinka et al. (2023)	3939	49.4% male	Range= 13-15 M_{age} =13.90	Elementary students (adolescents)	Excessive Internet Use Scale	Four items were used.	1 = *, 2 =* -, 3 = **, 4 = *, 5 = -, 6 = *, 7 = *, TS = 7.
Erdoğan (2023)	150	47.3% male	Range = 11-13 M_{age} = 11.92	Elementary students (adolescents)	Young Internet Addiction Test Short Form	Cyber Bullying Scale, Cyber Victimization Scale	1 = -, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 6.
Ünver and Koç (2017)	523	41.1% male	Range = 14-20 M_{age} = 16.43	Middle school students (adolescents)	Cognitive Position on Internet Scale	Cyberbullying Scale	1 = -, 2 = -, 3 = **, 4 = **, 5 = -, 6 = *, 7 = *, TS = 6.

Countries Where Research is Conducted

An analysis of the studies that 14 studies were conducted in Turkey (Altundağ, 2016; Arpacı et al., 2020; Aytaç et al., 2022; Cicioğlu, 2014; Cinar et al., 2017; Çiçek, 2019; Efe et al., 2021; Ergüder, 2019; Gencer, 2017; Nurtan et al., 2022; Şimşek et al., 2019; Türkoğlu, 2013; Ünver and Koç, 2017), five studies in Spain (Cebollero-Salinas et al., 2022; Gámez-Guadix et al., 2013; Gámez-Guadix et al., 2016; Machimbarrena et al., 2018; Yudes et al., 2021), four studies in China (He et al., 2023; Lin et al 2020; Liu et al., 2020; Xin et al., 2021), one study in Taiwan (Chang et al., 2015), one study in Hungary (Zsila et al., 2018), one study in the Republic of Korea (Jung et al., 2014), one study in Israel (Boniel-Nissim and Sasson, 2018), one study in Italy (Brighi et al., 2019), one study in Slovakia (Blinka et al., 2023), and one study in Greece (Tsimtsiou et al., 2018). In addition, two studies were conducted cross-culturally. One of these studies was conducted in Germany, the Netherlands, and the United States (Wachs et al., 2020), and the other in Spain, Uruguay, and Colombia (Yudes-Gómez et al., 2018).

Participants

In the studies included in the systematic review, 55.923 participants were included. As observed, 45.9% of the participants were males (n = 25.664) and 49.1% were females (n = 27.455). All participants were adolescent students. The age range of the participants was determined as 10–22. In these studies, the minimum sample size was 150 (Erdoğan, 2023) and the maximum sample size was 8053 (Tsimtsiou et al., 2018). Examination of the sample groups indicated that the studies were mostly carried out on middle school and high school students. Six of the studies were conducted in middle schools (Gámez-Guadix et al., 2013; Gámez-Guadix et al., 2016; Gencer, 2017; Liu et al., 2020; Ünver and Koç, 2017; Xin et al., 2021), 13 in high schools (Altundağ, 2016; Aytaç et al., 2022; Chang et al., 2015; Cicioğlu, 2014; Cinar et al., 2017; Çiçek, 2019; Efe et al., 2021; Ergüder, 2019; He et al., 2023; Nurtan et al., 2022; Şimşek et al., 2019; Türkoğlu, 2013; Zsila et al., 2018), two in elementary schools (Blinka et al., 2023; Erdoğan, 2023), one in university (Arpacı et al., 2020), two in primary and middle schools (Cebollero-Salinas et al., 2022; Jung et al., 2014), and six in middle and high schools (Boniel-Nissim and Sasson, 2018; Brighi et al., 2019; Lin et al., 2020; Machimbarrena et al., 2018; Tsimtsiou et al., 2018; Yudes et al., 2021). In two studies, the educational levels of the participants were not specified (Wachs et al., 2020; Yudes-Gómez et al., 2018).

Operationalization of Internet Addiction

Operationalization refers to the objective measurement of a variable (Dantzker and Hunter 2011). Although the scales previously used in the literature were largely used to measure the relevant variables, it is observed that self-reporting questionnaire forms created by researchers were used in some studies. Measurement tools used to measure internet addiction are as follows: Internet Addiction Scale (Altundağ, 2016; Arpacı et al., 2020; Cinar et al., 2017; Efe et al., 2021; Ergüder, 2019; Gencer, 2017; Şimşek et al., 2019), Chen Internet Addiction Scale (Chang et al., 2015), Young Internet Addiction Test (Lin et al., 2020), Internet Gaming Disorder Questionnaire (Xin et al., 2021), Internet Addiction Proneness Scale for Youth-Short Form (Jung et al., 2014), Adolescents Problematic Internet Use Scale (Çiçek, 2019; Liu et al., 2020), Problematic Internet Use Questionnaire (Cicioğlu, 2014; Zsila et al., 2018), Internet Addiction Test (Tsimtsiou et al., 2018; Yudes et al. 2021), Generalized and Problematic Internet Use Scale 2 (Gámez-Guadix et al., 2013; Gámez-Guadix et al., 2016; Yudes-Gómez et al., 2018), The Short Problematic Internet Use Test (Boniel-Nissim and Sasson 2018), Internet-Related Experiences Questionnaire (Cebollero-Salinas et al., 2022; Wachs et al., 2020), Generalized and Problematic Internet Use Scale (Machimbarrena et al., 2018), Adolescent Pathological Internet Use Scale (He et al., 2023), Young Internet Addiction Test- Short Form (Erdoğan, 2023; Nurtan et al., 2022). Young's Internet Addiction Scale (Aytaç et al., 2022), Problematic Internet Use Scale (Türkoğlu, 2013), Excessive Internet Use Scale (Blinka et al., 2023), and Cognitive Position on Internet Scale (Ünver and Koç, 2017).

Operationalization Cyberbullying and Cyber Victimization

The following measurement tools were used to measure cyber bullying and cyber victimization in the studies included in the review: Cyber Victim and Bullying Scale (Çiçek, 2019; Şimşek et al., 2019), Cyberbullying Scale (Arpacı et al., 2020; Cebollero-Salinas et al., 2022; Cicioğlu, 2014; Cinar et al., 2017; Erdoğan, 2023; Gencer,2017; Nurtan et al., 2022; Ünver and Koç, 2017), Cyber Bullying Inventory (He et al., 2023; Xin, 2021), Revised Cyber Bullying Inventory-Cyberbullying Subscale (Liu et al., 2020), European Cyberbullying Intervention Project Questionnaire (Brighi et al., 2019; Yudes et al., 2021), Lodz Electronic Aggression Prevalence Questionnaire (Brighi et al., 2019), Cyberbullying Questionnaire (Gámez-Guadix et al., 2013; Gámez-Guadix et al., 2016), Victimization Scale of the Cyberbullying Questionnaire (Machimbarrena et al., 2018), Cyber Bullying/Victim Questionnaire (Altundağ, 2016), Cyber Bullying and Aggressiveness on the Internet Scanning Scale (Efe, 2021), Cyber Bullying Attitude Scale (Türkoğlu, 2013), Revised Cyberbullying Inventory (Aytaç et al., 2022; Ergüder, 2019), Cyberbullying Aggression Scale (Yudes-Gómez et al., 2018), Cyberbullying Victim Scale (Yudes-Gómez et al., 2018), and Cyber Victimization Scale (Nurtan et al. 2022).

The Relationships Between Internet Addiction, Cyberbullying and Cyber Victimization

All of the studies included in the systematic review examined the relationship between internet addiction, cyber bullying and cyber victimization. An analysis of these studies indicated that 24 studies addressed the relation between cyberbullying and internet addiction. In 20 studies, internet addiction positively correlated with cyberbullying (Altundağ, 2016; Arpacı et al., 2020; Blinka et al., 2023; Brighi et al., 2019; Cebollero-Salinas et al., 2022; Cicioğlu, 2014; Cinar et al., 2017; Çiçek, 2019; Efe et al., 2021; Erdoğan, 2023; Ergüder, 2019; Gencer, 2017; He et al., 2023; Nurtan et al., 2022; Şimşek et al., 2019; Tsimtsiou et al., 2018; Türkoğlu, 2013; Ünver and Koç, 2017; Yudes et al., 2021; Yudes-Gómez et al., 2018). In a study, internet addiction levels of adolescents in the cyberbullying group were significantly higher than the levels of those not in that group (Jung et al., 2014). In another study, adolescents with internet addiction were more likely to engage in cyberbullying (Chang et al., 2015). Gámez-Guadix et al. (2016) determined that internet addiction predicted the increase in cyberbullying at the longitudinal level. In another study, internet addiction and daily internet usage of more than 5 hours significantly predicted cyberbullying (Aytaç et al., 2022).

In this review, 22 studies addressed the relation between internet addiction and cyber victimization. Furthermore, in 16 studies, internet addiction positively correlated with cyberbullying (Altundağ, 2016; Arpacı et al., 2020; Blinka et al., 2023; Brighi et al., 2019; Cebollero-Salinas et al., 2022; Cicioğlu, 2014; Cinar et al., 2017; Çiçek, 2019; Efe et al., 2021; Erdoğan, 2023; Ergüder, 2019; Nurtan et al., 2022; Şimşek et al., 2019; Tsimtsiou et al., 2018; Yudes et al., 2021; Yudes-Gómez et al., 2018). In one study, a negative relation was observed between internet addiction and cyberbullying (Nurtan et al., 2022). In a study, internet addiction levels of adolescents in the cyber victimization group were significantly higher than non-victimized adolescents (Jung et al., 2014; Lin et al., 2020; Zsila et al., 2018). In another study, internet-addicted adolescents experienced more cyber victimization (Chang et al., 2015). In a study, cyber victimization predicted the increase in internet addiction at the longitudinal level (Gámez-Guadix et al., 2013). In another study, internet addiction significantly predicted cyber victimization (Aytaç et al., 2022). Finally, in a study conducted on participants from three different countries, cyber victimization and internet addiction were directly related and indirectly related through alexithymia in all three country samples (Wachs et al., 2020).

Table 4. *Main findings, limitations, recommendations and risks of bias (N=32)*

Study	Key Findings	Limitations	Recommendations	Risks of Bias
Simsek et al. (2019)	Cyberbullying and cyber victimization were associated with internet addiction and internet usage characteristics. A positive relationship was found between cyber victimization and cyberbullying. Internet addiction does not differ according to gender. Males had significantly higher levels of cyberbullying and cyber victimization than females.	The study covers only one province in the Black Sea Region. A single question was asked about the participants' internet usage purposes and time intervals. The participants were asked about the purposes of using the internet and the time they spend in the internet in the form of "most," and a single answer was requested.	Conducting research on cyber victimization and factors that may be related to cyberbullying; conducting studies to raise awareness of family and school health professionals about inappropriate use of the internet	Exclusion of clinical samples.
Arpaci et al. (2020)	A significant positive correlation was observed between cyberbullying and internet addiction. Individuals with horizontal individualism were found to be more vulnerable to internet addiction. Females were found to have significantly lower levels of internet addiction than males. Cyberbullying does not differ according to gender.	The fact that the study consists of a limited age group and a monocultural sample; the fact that the study was conducted with a single external factor and mediator variable	Conducting studies involving different age groups and cultures; examining different factors and mediators that may be related	Use of non-probability sampling methods (convenience sampling) and the exclusion of clinical samples.
Chang et al. (2015)	The internet-addicted group had higher levels of cyberbullying, cyber victimization, online sexual harassment victimization, smoking and alcohol use, depression, and low self-esteem. It was determined that cyberbullying and cyber victimization were associated with male gender, lower internet literacy, parental attachment, parental restrictive mediation, and internet addiction. In addition, cyberbullying was associated with smoking and alcohol consumption, while cyber victimization was associated with depression. The proportion of females in the internet addicted group was significantly lower than in the non-addicted group.	Cross-sectional research design; the likelihood that participants tended to give socially acceptable responses; the fact that one fifth of the participants refused to respond may have caused a possible bias.	Conducting longitudinal studies to examine the long-term effects of study variables	Use of an excessively abbreviated measurement tool in the measurement of cyberbullying and victimization (only 4 items); sampling bias due to the exclusion of clinical samples.

Table 5. *(continued)*

Study	Key Findings	Limitations	Recommendations	Risks of Bias
Lin et al. (2020)	It was determined that internet addiction, psychological and physiological symptoms were significantly higher in the cyber victimization group. Internet addiction has a mediating effect on the relationship between cyber victimization and psychological and physical symptoms.	Cross-sectional design; assessment of cyber victimization with a single item; recall bias caused by the fact that all the scales were filled in by the participants; participants were asked to rate cyber victimization for the last year, psychological and physical symptoms for the last month, and internet addiction in general, so it is not known which variable emerged earlier.	Conducting studies on the regulatory effect of physical exercise; using more detailed questionnaires or scales.	Use of an excessively shortened measurement tool in the measurement of cyber victimization (only 1 item); exclusion of clinical samples.
Xin et al. (2021)	It has been found that cyber victimization, internet addiction, impulsivity, and rejection sensitivity were positively related.	Cross-sectional design; self-reported assessments; data collected from individuals living in a specific region.	Collecting data from different sources of information such as parents, peers, teachers; addressing different variables that may have a mediating effect (teacher-student relationships, etc.); conducting longitudinal or experimental studies; conducting research on individuals from different cultures, developmental stages, and regions.	Use of non-probability sampling methods and the exclusion of clinical samples.
Jung et al. (2014)	It has been determined that students who were victims and/or perpetrators of cyberbullying had significantly higher internet addiction scores than other students. Cyberbullying was associated with irregular and aggressive behavior. Cyber victimization was associated with depressive symptoms. It was determined that the number of boys who were perpetrators/victims of cyberbullying was significantly higher than that of girls.	Cross-sectional design; self-reported assessments; data collected from individuals living in a specific region.	Conducting studies to raise the awareness of parents, educators, and public health officials.	Use of non-probability sampling methods and the exclusion of clinical samples.

Table 6. *(continued)*

Study	Key Findings	Limitations	Recommendations	Risks of Bias
Liu et al. (2020)	Problematic internet use, cyber victimization, and depression were found to be positively related. Mindfulness was negatively associated with problematic internet use, cyber victimization, and depression. Mindfulness and depression had a mediating effect on the relationship between cyber victimization and problematic internet use.	The use of scales based on self-reporting; the study findings do not reveal causal inferences	Data collection by more than one method.	Exclusion of clinical samples.
Zsila et al. (2018)	It has been determined that students who were victims of cyberbullying had significantly higher problematic internet use, depressive symptoms, and psychoactive substance use. It has been found that perceived social support was an important protective factor against traditional bullying and cyberbullying. It was determined that cyber victimization did not differ according to gender.	Cross-sectional design; findings obtained through regression analysis; limited measurement of cyber victimization (only two items); low explanatory power of the tested research model.	Using alternative research models; using more comprehensive measurement tools; addressing different concepts that may be related to cyber victimization.	Use of an excessively shortened measurement tool in the measurement of cyber victimization (only 2 items); exclusion of clinical samples.
Brighi et al. (2019)	Problematic internet use and cyberbullying were found to be positively related. Negative emotional symptoms and low levels of parental monitoring were risk factors for problematic internet use and cyberbullying, and this effect was mediated by time spent online.	The use of scales based on self-report; the probability that participants tend to give socially acceptable answers; cross-sectional design	Conducting longitudinal studies; developing intervention programs that address relevant variables.	Use of an excessively shortened measurement tool in measuring problematic internet use (only 5 items); Sampling bias due to the use of non-probability-based sampling methods and the exclusion of clinical samples.
Yudes et al. (2021)	Cyberbullying was positively associated to problematic internet use and negatively associated to emotional intelligence. Emotional intelligence had a moderating effect on the relationship between problematic internet use and cyberbullying in males. Problematic internet use and cyberbullying did not differ according to gender.	Cross-sectional design; use of self-report scales.	Conducting longitudinal studies on relevant variables; using alternative assessment criteria (e.g., peer review); planning activities to obtain qualitative information.	Use of non-probability-based sampling methods and the exclusion of clinical samples.

Table 7. *(continued)*

Study	Key Findings	Limitations	Recommendations	Risks of Bias
Gámez-Guadix et al. (2016)	Problematic internet use predicted an increase in cyberbullying and online dating with strangers at the longitudinal level.	The use of scales based on self-report: short-term longitudinal study; evaluation of meeting strangers online, assessed in a short time frame (daily) with a single item.	Use different data sources (teachers, parents, peers, etc.); conduct longer-term longitudinal studies; include younger participants; address different online behaviors (e.g., cyber victimization)	Use of non-probability-based sampling methods and the exclusion of clinical samples.
Gámez-Guadix et al (2013)	Cyber victimization predicted depressive symptoms and problematic internet use at the longitudinal level. High depressive symptoms and substance use predicted cyber victimization.	Measuring cyber victimization with a broad frequency criterion (only once or twice)	Addition of strategies aimed at preventing cyberbullying to interventions aimed at behavioral problems in adolescence; providing counseling services for problematic internet addiction; mental health professionals taking into account depressive symptoms and problematic internet use in the treatment of cyberbullying.	Exclusion of clinical samples.
Boniel-Nissim and Sasson (2018)	It has been determined that poor parent-child communication and cyber victimization were related to problematic internet use. Bullying and/or cyberbullying victimization mediated the relationship between poor parent-child communication and problematic internet use. Positive mother-child and father-child communication had an indirect negative impact on problematic internet use through bullying and/or cyberbullying victimization.	Cross-sectional design; assessment of parental communication with only three variables; limited collection of information about participants' internet usage characteristics; failure to control random effects caused by data clustering.	Conducting longitudinal studies; evaluating parent-child communication more comprehensively; conducting studies that take into account the internet use characteristics of adolescents.	Use of an excessively shortened measurement tool in the measurement of cyber victimization (only 5 items); Use of non-probability-based sampling methods and exclusion of clinical samples.

Table 8. *(continued)*

Study	Key Findings	Limitations	Recommendations	Risks of Bias
Wachs et al. (2020)	In the Dutch sample, there was a direct relation between cyber victimization and self-esteem and an indirect relation mediated by alexithymia. In the German and US samples, an indirect relation was found only through alexithymia, but no direct effect of cyber victimization on self-esteem was found. In the three country samples, cyber victimization and internet addiction were found to be directly related and indirectly related through alexithymia.	Cross-sectional design; self-reported data collection; relatively small number of schools included in the study despite the large sample size.	Conducting longitudinal studies with at least three measurements; collecting data from different information sources.	Use of an excessively abbreviated measurement tool in the measurement of cyber victimization (only 4 items); use of non-probability-based sampling methods and the exclusion of clinical samples.
Cinar et al. (2017)	Cyberbullying was significantly associated with internet addiction.	The majority of the sample consists of female participants; the participants were students living in a certain region and in a certain age range; the data were collected through quantitative data collection method	Creating a balanced sample in terms of gender variables; conducting studies on students of different ages, cultures, regions, and levels; conducting qualitative studies; providing trainings to students to raise awareness about the relevant variables	Use of non-probability-based sampling methods and the exclusion of clinical samples.
Machimbarrena et al. (2018)	It has been determined that problematic internet use, cyber victimization, online sexual abuse, cyber flirting victimization, and sexually explicit messaging were positively related It was determined that cyber victimization, online sexual abuse, and problematic internet usage of girls were significantly higher than that of boys.	Cross-sectional design; collection of data based on self-reporting; sampling procedure is not based on probability; the sample does not statistically represent the entire population of Spain; the study is limited to some important internet risks	Conducting longitudinal studies; collecting data from additional sources of information such as sociograms and parents/peers/teachers; conducting studies on other important internet risks such as nomophobia, online gaming disorder, fear of missing updates, etc.	Use of non-probability-based sampling methods and the exclusion of clinical samples.

Table 9. *(continued)*

Study	Key Findings	Limitations	Recommendations	Risks of Bias
Altundağ (2016)	Problematic internet use, cyberbullying, and cyber victimization were found to be significantly related. It has been determined that adolescents who had a social media tool without the knowledge of their parents were more at risk in terms of problematic internet use, cyberbullying, and victimization. Males had higher levels of cyberbullying and victimization than females. Problematic internet use did not differ according to gender.	Cross-sectional design; small sample size.	Conducting longitudinal studies; including more participants; considering the association of relevant variables in prevention and intervention studies.	Use of non-probability-based sampling methods (convenience sampling) and the exclusion of clinical samples.
Efe et al. (2021)	Cyberbullying, cyber victimization, and internet addiction were found to be positively correlated.	The fact that the study was conducted on high school students living in a specific region; collection of data online	Conducting studies on individuals from different regions; conducting awareness-raising intervention studies that address the relevant variables; organizing informative seminars for students and families in cooperation with school management/staff, health professionals and school guidance services	Exclusion of clinical samples.
Nurtan et al. (2022)	Internet addiction and cyberbullying were positively related. A significant negative relation was found between internet addiction and cyber victimization. A significant negative relation was found between cyberbullying and cyberbullying victimization. It was determined that the cyberbullying levels of boys were higher than those of girls. On the other hand, it was determined that girls had higher levels of cyber victimization.	The fact that the obtained data are limited to the measurement tools used and the sample size.	Development of training and intervention programs for families, students and teachers;	Exclusion of clinical samples.

Table 10. *(continued)*

Study	Key Findings	Limitations	Recommendations	Risks of Bias
Ergüder (2019)	There were significant positive relationships between internet addiction, cyberbullying and cyber victimization. It was determined that boys performed more cyberbullying behaviors than girls. It was determined that cyber victimization and internet addiction did not differ according to gender.	Collecting data from individuals from a specific region, level, and age range; limiting the data obtained to the measurement tools used.	Conducting studies on students of different ages, regions, and levels; working with samples of cyberbullies or victims; developing intervention programs for students.	Exclusion of clinical samples.
Cicek (2019)	Problematic internet use, cyberbullying, and cyber victimization were found to be positively related. Girls had lower levels of problematic internet use, cyberbullying, and cyber victimization than boys.	Data were obtained from individuals living in a specific region.	Addressing different variables that may be related to similar concepts; conducting studies on individuals from different regions; organizing seminars to inform students and raise their awareness.	Use of non-probability-based sampling methods (convenience sampling) and the exclusion of clinical samples.
Cicioğlu (2014)	Problematic internet use and cyberbullying were positively correlated. As the time spent on the internet increased, cyberbullying attitudes increased significantly. Girls had lower levels of cyberbullying and problematic internet use than boys.	Obtaining data from individuals of a certain age group living in a certain region; the data obtained being limited to the measurement tools used.	Organizing group guidance, individual interviews or seminars for students; conducting studies on individuals from different ages, levels, and regions	Use of non-probability-based sampling methods and the exclusion of clinical samples.
Tsimtsiou et al. (2018)	Internet addiction was positively associated with cyberbullying and cyber victimization. While the cyberbullying levels of males were higher compared to those of females, the cyber victimization levels of females were higher compared to those of males. It was determined that internet addiction did not differ according to gender.	Obtaining data based on self-reporting.	Providing trainings to families and adolescents on safe internet use; developing mass communication campaigns for individuals	Exclusion of clinical samples
Gencer (2017)	Internet addiction and cyberbullying were positively correlated. Male students had higher cyberbullying and internet addiction scores than female students.	Obtaining data from individuals of a certain age group living in a certain region; the data obtained being limited to the measurement tools used.	Organizing informative trainings for schools and school staff; conducting research on individuals of different ages, regions, and levels.	Use of non-probability-based sampling methods and the exclusion of clinical samples.

Table 11. *(continued)*

Study	Key Findings	Limitations	Recommendations	Risks of Bias
Türkoglu (2013)	Internet addiction was positively and significantly associated with cyberbullying. The cyberbullying and internet addiction levels of males were higher than females	Selecting the sample with appropriate sampling method; obtaining the data from individuals from a certain age group living in a certain region; limiting the data to the measurement tools used	Conducting studies on individuals of different ages, regions, and levels; addressing different variables that may be similar to the related variables; organizing trainings for students, teachers, and families on cyberbullying and internet addiction.	Exclusion of clinical samples.
Cebollero-Salinas et al. (2022)	For all age and gender groups, cyberbullying, cyber victimization, cybergossip, and problematic internet use were found to have a significant positive relation. Girls had lower levels of cyberbullying cyber victimization than boys.	Cross-sectional design; relatively low reliability index of the internet-Related Experiences Questionnaire and Cyberbullying Scale; inclusion of participants from only one region although the sample was large; obtaining data based on self-reporting.	Training children and young people on the use of communication tools and prevention of problematic internet use; planning studies with individuals from different regions, conducting longitudinal studies.	Exclusion of clinical samples.
Aytaç et al. (2022)	It has been determined that internet addiction, lack of parental supervision, and daily internet use for more than 5 hours significantly predicted cyberbullying and victimization. It was found that cyberbullying and cyber victimization were significantly related to the type of family that free their child and act protectively toward their child. It was found that male students showed more cyberbullying. On the other hand, it was determined that cyber victimization did not differ according to gender.	The fact that the study was conducted on individuals living in a specific region; the data were limited to the measurement tools used.	Assigning personnel such as social workers who can conduct intervention programs for relevant variables in schools.	Use of non-probability-based sampling methods and the exclusion of clinical samples.

Table 12. *(continued)*

Study	Key Findings	Limitations	Recommendations	Risks of Bias
He et al. (2023)	There were significant positive relationships between problematic internet use, negative emotions, and cyberbullying. Negative emotions had a partial mediating and moderating effect on the relationship between problematic internet use and cyberbullying. Females had lower levels of problematic internet use and cyberbullying than males.	Cross-sectional design; general measurement of participants' emotions under the title of "negative emotions"; collection of data through self-report questionnaires.	Conducting experimental or longitudinal studies; addressing different variables; addressing specific emotions, collecting data from different information sources (teachers, students, parents, etc.); conducting prevention programs for online risks; organizing trainings emotion regulation skills in schools.	Exclusion of clinical samples.
Yudes-Gómez et al. (2018)	Problematic internet use was positively associated with cyberbullying and cyber victimization for all samples. There was no significant difference between all samples in terms of problematic internet use.	Obtaining data based on self-reporting; use of convenience sampling; small sample size in Uruguay compared with those of the other two countries; sample consists of only students with low/middle socioeconomic status.	Collecting data from sources such as families, teachers, parents, etc.; conducting longitudinal studies, conducting studies with different countries and cultures.	Use of non-probability-based sampling methods and the exclusion of clinical samples.
Blinka et al. (2023)	There were significant positive relationships between problematic internet use, cyberbullying and cyber victimization.	Cross-sectional design; obtaining data based on self-reporting.	Conducting longitudinal studies; Conducting prevention and intervention studies for adolescents	Use of an excessively abbreviated measurement tool in the measurement of cyber victimization (only 4 items) and exclusion of clinical samples.
Erdoğan (2023)	There were significant positive relationships between problematic internet use, cyberbullying and cyber victimization. Females had lower levels of cyberbullying than males. Parental adjustment was negatively associated to cyberbullying.	Cross-sectional design; small sample size; sampling procedure is not based on probability.	Conducting longitudinal studies; including more participants; conducting studies (seminars, short films, educational books, etc.) to raise the awareness of students and parents.	Use of non-probability-based sampling methods and the exclusion of clinical samples.
Ünver and Koç (2017)	There were significant positive relationships between problematic internet use, cyberbullying and risky internet behaviors. Adolescents who shared internet activities with their parents had lower levels of problematic internet use, cyberbullying and risky internet behaviors.	Obtaining data based on self-reporting; data collected from individuals living in a specific region.	Conducting prevention and intervention studies on safe internet and technology use for adolescents	Use of non-probability-based sampling methods and the exclusion of clinical samples.

Methodological Characteristics of the Studies

All studies included in the systematic review were quantitative studies. Quantitative cross-sectional design was used in 30 studies (Altundağ, 2016; Arpacı et al., 2020; Aytaç et al., 2022; Boniel-Nissim and Sasson, 2018; Blinka et al., 2023; Brighi et al., 2019; Cebollero-Salinas et al., 2022; Chang et al., 2015; Cicioğlu, 2014; Cinar et al., 2017; Çiçek, 2019; Efe et al., 2021; Erdoğan, 2023; Ergüder, 2019; Gencer, 2017; He et al., 2023; Jung et al., 2014; Lin et al., 2020; Liu et al., 2020; Machimbarrena et al., 2018; Nurtan et al., 2022; Şimşek et al., 2019; Tsimtsiou et al. 2018; Türkoğlu, 2013; Ünver and Koç, 2017; Wachs et al., 2020; Xin et al., 2021; Yudes et al., 2021; Yudes-Gómez et al., 2018; Zsila et al., 2018). Two studies used longitudinal design (Gámez-Guadix et al., 2016; Gámez-Guadix et al., 2016).

Self-report scales were used in all studies to measure internet addiction. Self-report questionnaires created by researchers were used in 8 studies to measure cyberbullying and victimization (Blinka et al., 2023; Boniel-Nissim and Sasson, 2018; Chang et al., 2015; Jung et al., 2014; Lin et al., 2020; Tsimtsiou et al., 2018; Wachs et al., 2020; Zsila et al., 2018). However, 24 studies used self-report scales previously used in the literature (Altundağ, 2016; Arpacı et al., 2020; Aytaç et al., 2022; Brighi et al., 2019; Cebollero-Salinas et al., 2022; Cicioğlu, 2014; Cinar et al., 2017; Çiçek, 2019; Efe et al., 2021; Erdoğan, 2023; Ergüder, 2019; Gencer, 2017; Gámez-Guadix et al., 2013; Gámez-Guadix et al., 2016; He et al., 2023; Liu et al., 2020; Machimbarrena et al., 2018; Nurtan et al., 2022; Şimşek et al., 2019; Türkoğlu, 2013; Ünver and Koç, 2017; Xin et al., 2021; Yudes et al., 2021; Yudes-Gómez et al., 2018).

Table 2 indicates that different explanations have been made in terms of limitations. These limitations can be categorized into 3 groups in general: limitations related to the sample, limitations related to measurement tools, and the preponderance of cross-sectional studies (Longitudinal design was used in only 2 studies). With regard to limitations related to sampling, studies were conducted on adolescents from a certain region, age range, or grade level; non-probability-based sampling methods were used; and sample sizes were small. Limitations related to measurement included the self-reported nature of the measurements in all studies and the use of previously unvalidated measurements in some studies.

As observed in Table 2, many suggestions have been made in the studies included in the systematic review study. These can be summarized as recommendations for researchers and practitioners. Suggestions for researchers include conducting experimental and longitudinal studies, (Altundağ, 2016; Blinka et al., 2023; Boniel-Nissim and Sasson, 2018; Brighi et al., 2019; Cebollero-Salinas et al., 2022; Chang et al., 2015; Erdoğan, 2023; Gámez-Guadix et al., 2016; He et al., 2023; Machimbarrena et al., 2018; Yudes et al., 2021; Yudes-Gómez et al., 2018; Wachs et al., 2020; Xin et al., 2021), including more participants (Altundağ, 2016; Erdoğan, 2023), collecting data from different information sources (teachers, peers, parents, etc.) (Gámez-Guadix et al., 2016; He et al., 2023; Machimbarrena et al., 2018; Wachs et al., 2020; Xin et al., 2021; Yudes-Gómez et al., 2018), conducting studies with different sample groups (age, region, level, etc.) (Arpaci et al., 2020; Cebollero-Salinas et al., 2022; Cicek, 2019; Cicioğlu, 2014; Cinar et al., 2017; Efe et al., 2021; Ergüder, 2019; Gámez-Guadix et al., 2016; Gencer, 2017; He et al., 2023; Türkoglu, 2013; Yudes-Gómez et al., 2018), and addressing different variables that may be related to internet addiction and cyberbullying (Arpaci et al., 2020; Cicek, 2019; Gámez-Guadix et al., 2016; Machimbarrena et al., 2018; Türkoglu, 2013; Zsila et al., 2018). Recommendations for practitioners include strategies that can be used to prevent or reduce internet addiction, cyber bullying, and cyber victimization. The recommendations for practitioners are as follows: (i) conducting educational and preventive studies (individual interviews, seminars, group guidance, etc.) for students and families on safe internet use and online risks (Blinka et al., 2023; Cebollero-Salinas et al., 2022; Cicioğlu, 2014; Cinar et al., 2017; Çiçek, 2019; Efe et al., 2021; Erdoğan, 2023; Ergüder, 2019; He et al., 2023; Jung et al., 2014; Şimşek et al., 2019; Tsimtsiou et al., 2018; Türkoğlu, 2013), (ii) conducting informative and awareness-raising activities for school personnel (teachers, school administrators, guidance services, etc.)(Jung et al., 2014; Gencer, 2017; Nurtan et al., 2022; Şimşek et al., 2019; Türkoğlu, 2013), (iii) conducting awareness-raising intervention studies that address the relevant variables, (iv) organizing awareness-raising activities such as mass communication campaigns (Tsimtsiou et al., 2018), seminars, educational books, short films, etc. for the public (Ünver and Koç, 2017), (v) assigning personnel such as social workers who can conduct intervention programs for relevant variables in schools (Aytaç et al., 2022), (vi) organizing trainings on regulation skills in schools (He et al. (2023), and (vii) mental health professionals

taking into account depressive symptoms and problematic internet use in the treatment of cyberbullying (He et al., 2023).

Risks of Bias

Sampling bias and measurement bias were examined to assess the risk of bias in the studies included in the systematic review. Regarding these biases, not including clinical samples in all studies and using non-probability-based sampling techniques in 18 studies posed a risk in terms of sampling bias (Altundağ, 2016; Arpacı et al., 2020; Aytaç et al., 2022; Boniel-Nissim and Sasson, 2018; Brighi et al., 2019; Cicioğlu, 2014; Cinar et al., 2017; Çiçek, 2019; Erdoğan, 2023; Gencer, 2017; Gámez-Guadix et al., 2016; Jung et al., 2014; Machimbarrena et al., 2018; Wachs et al., 2020; Ünver and Koç, 2017; Xin et al., 2021; Yudes et al., 2021; Yudes-Gómez et al., 2018). In addition, the use of internet gaming disorder scales to assess internet addiction in one study (Xin et al., 2021) and the use of excessively abbreviated instruments to assess variables in seven studies were considered high risk for measurement bias (Blinka et al., 2023; Boniel-Nissim and Sasson, 2018; Brighi et al., 2019; Chang et al., 2015; Lin et al., 2020; Wachs et al., 2020; Zsila et al., 2018).

DISCUSSION AND CONCLUSION

In the current systematic review study, published articles and theses addressing the relation between internet addiction, cyberbullying, and cyber victimization were examined. The included studies were reviewed for the following criteria: Countries where the studies were conducted, participants, operationalization of internet addiction, operationalization of cyberbullying and victimization, relation among internet addiction, cyberbullying and victimization, methodological features of the studies, and risks of bias.

Within the scope of the research, 32 studies addressing the relation between cyberbullying and/or cyberbullying victimization and internet addiction in adolescents were included. Of these, two were longitudinal studies (Gámez-Guadix et al., 2013; Gámez-Guadix et al., 2016) and 30 were cross-sectional studies. The scarcity of longitudinal studies leads to the fact that the effect of relevant variables on adolescents is not fully understood, and it can be said that there is a need to increase longitudinal research on this topic. The studies were conducted on adolescent students from many different countries. The studies included in the review were mostly carried out on middle and high school students. This situation limits our knowledge about how the relevant variables may affect individuals, especially in early and late adolescence. Accordingly, it can be said that the studies to be conducted with primary school and university students may contribute to the literature.

Regarding the operationalization of internet addiction, cyberbullying, and victimization, it is observed that all the studies reviewed were quantitative, and data were collected on the basis of the self-reporting of individuals. The fact that all of the studies were quantitative causes the findings to be limited to the measurement tools used. In addition, the collection of data based on self-reporting may have caused a tendency for individuals to give socially acceptable responses. In this context, using qualitative research methods in future studies and collecting data from alternative information sources (family, teacher, peer, etc.) will contribute to the literature.

This study aimed at examining the studies evaluating the relation among internet addiction, cyberbullying, and cyber victimization. When the findings of the studies examining the relation between internet addiction and cyberbullying are reviewed, all studies report a positive relation between internet addiction and cyberbullying. In one study, it was determined that internet-addicted adolescents engaged in cyberbullying more than non-addicted adolescents (Chang et al., 2015). In addition, it was determined that adolescents who were cyberbullies had higher internet addiction scores than non-cyberbullies (Jung et al., 2014), and internet addiction predicted the increase in cyberbullying at the longitudinal level (Gámez-Guadix et al., 2016). In this context, it is seen that internet addiction and cyberbullying are clearly related concepts. Internet-addicted individuals spend most of their time on online activities. Since individuals carry out their socialization processes only in online environments, they are able to learn behavioral patterns that are valid only in online environments. As a result, they have difficulty forming a social identity and have difficulty adapting to the norms of society (Ögel, 2012). This situation promotes the development of individuals' social skills (Chou et al. 2016; Torrente et al., 2014) and adaptation to social norms and rules (Naeim et al. 2020), causing an inhibiting effect on their learning to express their feelings and thoughts correctly. In addition, internet addiction is associated with many concepts like social anxiety (Torrente et al., 2014; Weinstein et al. 2015), depression (Chang et al., 2015; Jung et al., 2014), low self-esteem (Chang et al., 2015), and loneliness (Yao and Zhong, 2014). This situation leads to individuals becoming more introverted, which causes

their social skills to be more negatively affected. When evaluated in this context, it can be said that internet addiction is an important factor in adolescents' cyberbullying.

When the studies on the relation between cyber victimization and internet addiction were examined, significant positive relations were found in almost all studies. Only one study found a negative relation (Nurtan et al., 2022). In one study, it was determined that internet-addicted adolescents were exposed to cyberbullying more than non-addicted adolescents (Chang et al., 2015). In another study, it was determined that adolescents who were victims of cyberbullying had higher internet addiction scores than non-victims (Jung et al., 2014). In addition, it has been found that cyber victimization at the longitudinal level predicted an increase in internet addiction (Gámez-Guadix et al., 2013). Internet-addicted individuals spend most of their time on online environment and activities. This increases the likelihood of being exposed to cyberbullying. Furthermore, because they do not have sufficient social skills (Chou et al. 2016; Torrente et al., 2014), it can be said that they have difficulty in taking measures and fighting against cyberbullying. For this reason, it is expected that internet-addicted individuals are exposed to cyberbullying more than non-addicted individuals. However, in a study, it was determined that there is a negative relationship between internet addiction and cyber victimization (Nurtan et al., 2022). It is thought that this may be due to the sample group in which the relevant research was conducted as well as that internet-addicted individuals may have had a protective effect on their exposure to cyberbullying, albeit rarely, due to their mastery of online activities over time.

When analyzing the included studies, it is observed that gender differences are addressed in many of them. It has been determined that in the vast majority of studies where cyberbullying is considered in the context of gender, boys engage in cyberbullying more frequently than girls (Altundağ, 2016; Aytaç et al., 2022; Cebollero-Salinas et al., 2022; Chang et al., 2015; Cicioğlu, 2014; Çiçek, 2019; Erdoğan, 2023; Ergüder, 2019; Gencer, 2017; He et al., 2023; Jung et al., 2014; Nurtan et al., 2022; Şimşek et al., 2019; Tsimtsiou et al., 2018). Furthermore, cyberbullying did not differ according to gender in two studies (Arpacı et al., 2020; Yudes et al., 2021). When examining studies that considered cyber victimization in the context of gender, it was found that boys experienced cyber victimization more than girls in six studies (Altundağ, 2016; Cebollero-Salinas et al., 2022; Chang et al., 2015; Çiçek, 2019; Jung et al., 2014; Şimşek et al., 2019), and girls experienced cyber victimization more than boys in three studies (Machimbarrena et al., 2018; Nurtan et al., 2022; Tsimtsiou et al., 2018). Additionally, cyber victimization did not differ according to gender in three studies (Aytaç et al., 2022; Ergüder, 2019; Zsila et al., 2018). When the studies examining internet addiction in the context of gender were analyzed, it was determined that in seven studies (Arpacı et al., 2020; Chang et al., 2015; Cicioğlu, 2014; Çiçek, 2019; Gencer, 2017; He et al., 2023; Türkoğlu, 2013), boys had a higher level of internet addiction than girls, while in only one study (Machimbarrena et al., 2018), girls had a higher level of internet addiction than boys. In five studies, it was found that internet addiction did not differ according to gender (Altundağ, 2016; Ergüder, 2019; Şimşek et al., 2019; Tsimtsiou et al. 2018; Yudes et al., 2021). When the existing findings are examined, it is seen that in most of the studies, male adolescents engage in cyberbullying more frequently than girls. However, in the studies that deal with internet addiction and cyber victimization, it is concluded that there are different research findings related to gender. Thus, no consensus has been reached in the literature. In this context, it can be said that there is no consensus in the literature about the effect of gender on cyber victimization and internet addiction.

Many personal and interpersonal variables have been addressed in the studies examined within the scope of the systematic review. When these studies were examined, internet addiction was found to be positively associated with smoking, alcohol use (Chang et al., 2015), depression (Chang et al., 2015; Liu et al., 2020), low self-esteem (Chang et al., 2015; Wachs et al., 2020), psychological and physical symptoms (Lin et al, 2020), negative emotional symptoms (Brighi et al., 2019; He et al., 2023), alexithymia (Wachs et al., 2020), risky internet behaviors (Ünver and Koç, 2017), impulsivity, and rejection sensitivity (Xin et al., 2021). Additionally, factors related to parent-adolescent interaction, such as a low level of parental monitoring (Brighi et al., 2019), poor parent-child communication (Boniel-Nissim and Sasson, 2018), not sharing internet activities with their parents (Ünver and Koç, 2017), and having a social media tool without parental knowledge (Altundağ, 2016), were reported to be important risk factors in the development of internet addiction. Furthermore, positive mother-child and father-child communication (Boniel-Nissim and Sasson, 2018), high levels of awareness (Liu et al., 2020), and emotional intelligence (Yudes et al., 2021) were negatively associated with internet addiction.

When the studies on cyberbullying were examined, it was found that cyberbullying was positively associated with negative emotional symptoms (Brighi et al., 2019; He et al., 2023), low internet literacy, smoking, alcohol use (Chang et al., 2015), risky internet behaviors (Ünver and Koç, 2017), illegal and aggressive behaviors

(Jung et al., 2014). Additionally, variables related to parent-adolescent communication, such as low parental attachment, parental restrictive mediation (Chang et al., 2015), a low level of parental supervision (Aytaç et al., 2022; Brighi et al., 2019), having a social media tool without parental knowledge (Altundağ, 2016), not sharing internet activities with their parents (Ünver and Koç, 2017), and permissive and protective family type (Aytaç et al., 2022), were reported to be positively related to cyberbullying. By contrast, higher emotional intelligence (Yudes et al., 2021), positive mother-child, and father-child communication were reported to be negatively associated with cyberbullying. Finally, when the studies on cyber victimization were examined, it was found that cyber victimization was positively associated with depression (Chang et al., 2015; Gámez-Guadix et al., 2013; Jung et al., 2014; Liu et al., 2020; Zsila et al., 2018), psychological and physical symptoms (Lin et al, 2020), psychoactive substance use (Zsila et al., 2018), alexithymia and low self-esteem (Wachs et al., 2020), low internet literacy (Chang et al., 2015), and impulsivity and rejection sensitivity (Xin et al., 2021). In addition, variables related to parent-adolescent communication, such as low parental commitment, parental restrictive mediation (Chang et al., 2015), having a social media tool without parental knowledge (Altundağ, 2016), and protective family type (Aytaç et al., 2022), were reported to be risk factors associated with cyber victimization. By contrast, higher levels of awareness (Liu et al., 2020), perceived social support (Zsila et al., 2018), and positive mother-child and father-child communication (Boniel-Nissim and Sasson, 2018) were reported as negatively associated with cyber victimization. In light of the current findings, it can be said that internet addiction, cyberbullying, and cyber victimization are serious risk factors that impact adolescents' health and psychological well-being. Furthermore, it is observed that negative parent-adolescent interaction is an important risk factor in terms of related variables.

When the included studies were examined, it is seen that there are many methodological strengths and weaknesses. The methodological strengths of the included studies are as follows: the use of validated measurement tools, adequate sample size, and application of appropriate statistical analysis. However, all studies were considered at high risk for sampling bias, and seven studies (Boniel-Nissim and Sasson, 2018; Brighi et al., 2019; Chang et al., 2015; Lin et al., 2020; Wachs et al., 2020; Xin et al., 2021; Zsila et al., 2018) were considered high risk for measurement bias. Self-report questionnaires were used in all studies to measure variables. Additionally, due to the limited number of longitudinal and experimental studies, causality cannot be established in almost all studies. These findings restrict the generalizability of the results of the studies included in the review. The use of longitudinal or experimental designs, clinical sample groups, clinical interviews, and probability-based sampling methods in future studies can aid in generalizing study findings.

Many suggestions have been made in the studies included. These can be summarized as recommendations for researchers and practitioners. Suggestions for researchers include conducting longitudinal studies, collecting data from different information sources, conducting studies with different sample groups (age, region, level, etc.), and addressing different variables that may be related to internet addiction and cyberbullying. In addition, the recommendations for practitioners are as follows: organizing seminars and trainings aimed at increasing the level of awareness and knowledge of students, families, and teachers, as well as organizing prevention programs for online risks.

LIMITATIONS, RECOMMENDATIONS, AND CONCLUSIONS

Research findings clearly reveal the relation among cyberbullying, cyber victimization, and internet addiction. The internet is a tool with many functions such as access to information, education, socialization, shopping, etc., which facilitates many of our daily tasks. This important tool, like many other tools in our age, has positive and useful functions as well as some negative effects due to improper use. Internet addiction, cyberbullying, and cyber victimization are some of the negative consequences of improper internet use, especially among adolescents. Based on the relevant study findings, it is seen that internet addiction, cyberbullying, and cyberbullying victimization are interrelated concepts. From this point of view, taking the relevant variables together in the research, education and intervention programs to be conducted on these variables will allow more accurate and effective results to be obtained.

The current study has some limitations. Firstly, only studies published in Turkish and English between 2010 and 2024 were included. In addition, within the scope of the study, only studies conducted on adolescents were addressed. This situation limits the generalizability of the present findings. In future studies, it would be beneficial to include individuals from different age groups to obtain more comprehensive findings. The studies covered in the research were identified by analyzing five different databases. Additionally, the majority the included studies

were cross-sectional. However, survey method was used in all discussed studies. In future studies, examining different databases and addressing studies conducted using different research methods may contribute to the literature.

Ethical Approval

Not applicable

Competing interests

The authors declare no conflicts of interest

Authors' contributions

The authors contributed equally to this study.

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Availability of data and materials

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APPENDIX

Appendix 1: Newcastle-Ottawa Scale (Adapted Version for the Purposes of the Review)

Selection: (Maximum 6 stars)

    1) Representativeness of the sample:

        a) Truly representative of the average in the target population. * (all subjects or random sampling)

        b) Somewhat representative of the average in the target population. * (nonrandom sampling)

        c) Selected group of users/convenience sample.

        d) No description of the sampling strategy.

    2) Sample size:

        a) Justified and satisfactory. * b) Not justified. c) No information provided.

    3) Measurement of internet addiction

        a) Using a validated measurement tool. ** b) non-validated measurement tool, but well described in methods section * c) No description or insufficient description in methods section.

    4) Measurement of cyberbullying/cyber victimization:

        a) Validated measurement tool. ** b) non-validated measurement tool, but the tool is available or described. *

        c) No description of the measurement tool.

Comparability: (Maximum 1 star)

    5) Confounding factors controlled.

        a) Data/ results adjusted for relevant predictors/risk factors/confounders e.g. age, sex, time, etc. *

        b) Data/results not adjusted for all relevant confounders/risk factors/information not provided.

        Outcome: (Maximum 3 stars)

    6) Assessment of the outcome:

        a) Independent or blind assessment. ** b) Record linkage. ** c) Self report or no blind assessment. *

        d) No description.

    7) Statistical test:

        a) The statistical test used to analyze the data is clearly described and appropriate, and the measurement of the association (including confidence intervals and/or the probability level) are presented. *

        b) The statistical test is not appropriate, not described or incomplete.

Scoring legend:

    Very Good Studies: 9-10 stars, Good Studies: 7-8 stars, Satisfactory Studies: 5-6 stars, Unsatisfactory Studies: 0 to 4 stars

    This scale has been adapted from the Newcastle-Ottawa Quality Assessment Scale for cohort studies to provide quality assessment of cross-sectional studies.