Relationship Between Social Media Use and Adolescent Mental Health – a Systematic Review

Dorota Anna Siemieniecka (iD), *Jolanta Jarczyńska* (iD)

CONTACT: *Dorota Anna Siemieniecka, Professor of UMK, Nicolaus Copernicus University, Toruń, Poland,*
E-mail: dsiemien@umk.pl
Jolanta Jarczyńska, PhD, Kazimierz Wielki University, Bydgoszcz, Poland,
E-mail: jolanta.jarczynska@ukw.edu.pl

Keywords:

media pedagogy, social media, youth mental health, media education

Abstract:

Social media has been inseparably linked to the daily lives of adolescents for several decades. In social and scientific discourse, we often hear that they are considered one of the significant factors responsible for the observed increase in mental health problems among young people in recent decades. Therefore, understanding the impact of these media on the mental well-being of young individuals has become a priority. For this purpose, a systematic review of research on the relationship between adolescents' use of social media and their mental health was conducted. The systematic review was carried out following the PRISMA standards. Its aim was to identify all studies exploring the association between adolescents' engagement in social media use and the state of their mental health, specifically targeting individuals aged 12-18 years. The EBSCOhost search engine was employed for this purpose, and databases such as Academic Search Ultimate, Education Source Ultimate, Applied Science & Technology Source Ultimate, Medline, Eric, and APA PsycArticle were searched from May to June 2023, aiming to identify studies published between 2013 and 2023. A total of 25 articles were identified from 16,787 records and subjected to evaluation. The results presented in these articles did not provide clear evidence for a linear, strong, and positive association between adolescents' use of social media and the occurrence of mental health problems. The majority of the evaluated research projects had several limitations, therefore it seems justified to conduct further studies with significantly improved measurement procedures, which could yield valuable and clinically relevant data on the relationship between social media use and the mental health of young individuals.

Introduction

Children's Mental Health

Protecting the mental health of children and adolescents is currently one of the most important challenges in the modern world. Alarming statistics show that mental health indicators in the child and adolescent population are deteriorating year on year. Mental disorders have become a major health problem in the 21st century. In particular, this issue gained prominence after the detection of the first case of COVID-19 in 2020, which set off a wave of pandemics whose development strongly affected the well-being and mental health of adolescents.

In May 2020, the United Nations issued a report on the relationship between COVID-19 and mental health. It noted that even before the SARS-CoV-2 coronavirus outbreak, global mental health statistics were already dramatic, and that the current epidemiological situation could make them much worse (Wojtczuk, 2020). A 2021 report issued by UNICEF on the condition of adolescents during the pandemic[1] reads that the

---

[1] The state of the world's children 2021. On my mind. Promoting, protecting and caring for children's mental health. United Nations Children's Fund (UNICEF), October 2021. https://www.unicef.org/media/108036/file/SOWC-2021-executive-summary.pdf
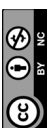
coronavirus epidemic has had many negative consequences for the mental health of children and adolescents. It is estimated that 89 million growing boys aged 10–19 and 77 million girls of that age suffer from mental disorders. The highest prevalence rates of these disorders are diagnosed in the Middle East, North Africa, North and West America and selected regions in Europe. Depression and anxiety disorders account for up to 40% of these. A report presenting the results of an analysis of the mental health situation of children and adolescents in Europe and the trends affecting their well-being shows that 19% of boys and more than 16% of girls in Europe aged 15 to 19 suffer from mental health disorders. 9 million adolescents in Europe (aged 10–19) manifest selected mental disorders, with anxiety disorders and depression accounting for more than half of them. Suicide is the second most common cause of death among adolescents in Europe. Only road traffic accidents are the cause of death of more children aged 15 to 19. The WHO focuses on adolescent mental health, as the data collected indicates that mental health problems are rather rare at the early school age stage. Around the age of 13, these problems are observed to emerge and grow dynamically. Analyses show that 50% of all mental health disorders originate in adolescence, just before the age of 14 (Kessler et al., 2007). Their presence often brings negative consequences for adolescents' development, being associated with lower educational attainment, school problems including dropping out of school, disrupted social relationships and increased risk of substance abuse and self-injurious behaviour (Gore et al., 2011; Copeland et al., 2014; Hetrick et al., 2016). Self-harm and suicide attempts are considered to be important indicators of adolescents' mental health. For example, the rate of self-harm in the UK has increased by 68% among girls aged 13–16 in the last decade (Morgan et al., 2017). In turn, Germany followed by Poland have been leading the way in recent years in terms of fatal suicide attempts by teenagers aged 10–19[2]. The fact that adolescents' mental health is drastically deteriorating is also indicated by the data in the research report "Spotlight on Adolescent Health and Well-being"[3] published in 2020 by the international research network HBSC (Health Behaviour in School-age Children). Polish teenagers rank second to last in assessing their health and life satisfaction among 45 countries. It turns out that they are the most critical when it comes to their perception of their own bodies. The results of this study and its earlier editions clearly indicate that their self-assessment of health and life satisfaction deteriorates with age. Girls are more often dissatisfied with their lives than boys. The older the age of the teenager, the greater the level of dissatisfaction. Meanwhile, a study by Chinese researchers (Wang et al., 2016) found that adolescents' life satisfaction correlates with their use of social networks. The lower the level of satisfaction with life among adolescents, the more excessive their use of Facebook was.

The results of numerous studies show that social media are an important source of tension and psychological problems for adolescents (Jenaro et al., 2007; Sampasa-Kanyinga& Lewis 2015;Jarczyńska, 2016; 2021; 2022). Researchers point out that, through the mechanism of social comparison, adolescents often develop emotional problems and low self-esteem. This was confirmed by research conducted in 2017 by The Royal Society of Public Health[4] among others. It shows that seven out of ten people aged between 11 and 25 feel worse about their bodies under the influence of Instagram. Half of respondents aged 14–24 reported that Instagram and Facebook make them feel anxious, and two-thirds of respondents said that Facebook leads to increased cyberbullying. A systematic review of up to 70 studies by Seabrook et al. (2016) confirms these findings. It turns out that adolescents who make upward social comparisons on social networks (comparing themselves to people with higher scores) are more likely to exhibit mood disorders (depression) and anxiety disorders. The same results were pointed out by Appel, Gerlach and Crusius (2016), investigating the passive use of Facebook by adolescents, accompanied by upward social comparisons.

Social media can also be looked at from a clear perspective, treating it as a protective factor. A number of studies show that they can make it easier for adolescents to cope with mental health problems. They enable them to share personal experiences, seek help from people who are experiencing similar difficulties, and build

---

[2] *Dzieci się liczą 2017. Raport o zagrożeniach bezpieczeństwa i rozwoju dzieci w Polsce*, „Dziecko Krzywdzone. Teoria, badania, praktyka", 2017, nr 1. http://fdds.pl/_Resources/Persistent/e/d/9/e/ed9e604bde6479d99dcefb12244d1fa0bca5ac6c/Raport-Dzieci-si%C4%99-licz%C4%85-2017.pdf

[3] World Health Organization. Regional Office for Europe. *Spotlight on adolescent health and well-being. Findings from the 2017/2018 Health Behaviour in School-aged Children (HBSC) survey in Europe and Canada. International report*. Volume 2. Key data. World Health Organization. Regional Office for Europe 2020. https://apps.who.int/iris/handle/10665/332104.

[4] *#StatusOfMind. Social media and adolescents' mental health and wellbeing. Youn health movement*. Royal Society for Public Health, May 2017. See: www.rsph.org.uk/static/uploaded/d125b27c-0b62-41c5-a2c0155a8887cd01.pdf

social interactions with peers and support groups (Ellison et al., 2007; Reid-Chassiakos et al., 2016). However, the impact of this online social support seems to be more determined not by its quantity (the number of people networking) but by its quality (Teo et al., 2013).

Social Media

Social media is defined as any digital tools or applications that allow their users to interact socially and that can be easily distinguished from traditional media by the fact that their users not only receive their content, but also create it (Moreno et al., 2014). According to this definition, social media encompasses a wide range of applications and social networks (e.g. Instagram, Facebook, TikTok, Snapchat) that allow users to share content, interact online and build communities. More than 4.7 billion people worldwide use social media, equivalent to around 60% of the global population. It is estimated that by 2027, the number of people using it worldwide will increase to around 5.85 billion. The average usage time of social media worldwide is 147 minutes a day, and the average person visits social media for 2½ hours a day. The country whose population spends the most time per day on social media is the Philippines. Their average daily use of social media is as much as 3 hours and 53 minutes. The demographic most involved in social media use are teenagers. This is a trend that is observed around the world. For example, in the US, 90% of teenagers aged 13 to 17 use social media, and 51% visit at least one social media site or app every day. The most used social media platform among US teens is YouTube (used by up to 95% of US teens in 2022), immediately followed by TikTok (67%), then Instagram (62%), Snapchat (59%), then Facebook (32%) (Digital 2023: Global overview report[5]).

Social Media and Adolescent Mental Health – Current Research

In recent years, there has been an increase in research aiming to establish the link between adolescents' social media use and their mental health (Moreno & Jolliff, 2022). This research primarily aims to determine whether frequent use of social media by adolescents is associated with the occurrence of various mental health problems, such as depression, anxiety disorders, eating disorders due to disturbed body image perception and externalising disorders. Unfortunately, the results of these studies are inconclusive. It is therefore necessary to approach them with great care, which is certainly influenced by the research methodology used and the selection of research samples of varying sizes. The literature review by Odgers and Jensen (2020) noted that most of the reports published to date are from correlational, cross-sectional and mixed studies.

The results of the analyses only indicate the presence of small, often weak associations between social media use and adolescents' mental health. These relationships do not allow clear inferences about the causal nature and actual impact of social media on mental health. Moreover, as Odgers and Jensen (2020) point out, the results of such studies rarely yield significant clinical or practical value. Similar conclusions are expressed by Moreno and Jolliff (2022), who point out that when analysing the links between social media use and mental health disorders in adolescents, it is important to consider other potential factors that may influence the relationship. Therefore, research that takes into account mediating variables, such as ruminations or self-esteem, is increasingly being undertaken to better understand the mechanisms of this relationship.

Research indicates that the effects of social media use on adolescents' mental health are mixed. Some studies highlight the potential dangers of heavy social media use for adolescents' psychological well-being. This concern stems from the fact that the use of these platforms can become habitual and lead to problematic behaviour (cf. Siemieniecka et al., 2020; Majewska, 2021). Unfortunately, parents' and teachers' knowledge is not sufficient to prevent and respond to the ever-increasing cyber threats (Siemieniecka&Majewska, 2022).

Being on social networks can become a favourite escape mechanism for modifying unpleasant moods in adolescents. However, there are also concerns about the harmful effects of social media on the psychosocial functioning of adolescents. Problems reported include loss of control over time spent using social media, loss of interests, emotional problems and even the possibility of developing an addiction (Beard & Wolf, 2001; Kuss & Griffiths, 2011; Satici& Uysal, 2015; Jarczyńska, 2021).

---

[5] www://datareportal.com/reports/digital-2023-global-overview-report (accessed 29.06.2023)

Research suggests that the negative association between adolescents' use of social networks and their observed mental health problems is revealed by an overall decline in adolescent mental well-being as illustrated by increased rates of depression, anxiety disorders, eating disorders and suicide attempts (Best et al., 2014; Hoare et al., 2016; McCrae et al., 2017; Marino et al., 2018; Keles et al., 2019; Twenge, 2019; Ivie et al., 2020; Ohannessian et al., 2021).

In contrast, key benefits of social media use reported in adolescent research include the opportunity to enhance self-esteem (Valkenburg et al., 2006), gain social capital, increased life satisfaction and social trust (Ellison et al., 2007; Park et al., 2009; Wang et al., 2015), involving sharing opinions, building alliances and receiving social support (O'Keeffe & Clarke-Pearson, 2011; Rosen, 2011; Deters & Mehl, 2013; Lilley et al., 2014; Lenhart et al., 2015; Clark et al.,2018).

Keles et al. (2019) in the face of these reports indicate that social media can be viewed as a kind of double-edged sword that can protect, but also threaten the mental health of adolescents. However, in order for us to be able to adjudicate with greater certainty on the impact of social media on adolescents' mental health, we should, as recommended by Odgers and Jensen (2020), conduct experimental and quasi-experimental research in this area of cognition, which will focus on the diversity of online experiences versus time spent in front of a digital device screen and also take into account the heterogeneity of effects in different adolescent populations.

Method

The method used in the study was a systematic literature review, which summarises the current state of knowledge on a specific topic (Uman, 2011). The main aim of this review was to identify studies that present findings on the relationship between adolescents aged 12-18 years old's engagement in social media use and their mental health condition. The review was conducted in accordance with the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) standards (Page et al., 2020; 2021), which serve to enhance the methodological quality and reliability of the empirical data obtained and produced (Moher et al., 2009a; 2009b).

The review aimed to provide answers to the following research question: *Is there a relationship between adolescents' engagement in social media use and their mental health and what is this relationship?* The EBSCO host search engine was used to identify studies publishing results on the relationship in question (it was used to search databases such as: Academic Search Ultimate, Education Source Ultimate, Applied Science & Technology Source Ultimate, Medline, Eric, APA PsycArticle). It was used to search for publications in May–June 2023 using the following set of keywords/phrases: "adolescence", "adolescent", "teen" "youth" "juvenile", "high school student", "secondary school student", "school youth", "social media"; "social networks", "Instagram", "Facebook", "TikTok", "Internet usage", "mental health"; "psychological well-being", "mental disorders", "mood disorders", "anxiety", "anxiety disorders", "psychological distress" "depression", "internalising problems". The adopted time frame for the publication search covered the last decade, i.e. 2013-2023.

Eligibility criteria

The following eligibility criteria were adopted a priori, including inclusion criteria (covering publications eligible for analysis) and exclusion criteria (disqualifying publications from analysis):

The formal inclusion criteria were:

(1) academic articles in peer-reviewed journals, articles in English; published between January 2013 and June 2023;
(2) research following a quantitative and qualitative research strategy published in peer-reviewed journals with full text available in English;
(3) study participants: adolescents aged 12 to 18 years;
(4) exposure: measuring adolescents' use of social media;

The substantive inclusion criteria were:

(1) peer-reviewed publications describing empirical research on the relationship between social media use by adolescents aged 12–18 and their mental health status;

(2) outcome: mental health status (depression, anxiety disorders, mental suffering, self-harm, eating disorders, internalising disorders were assessed using validated tools).

The exclusion criteria were as follows:

— crossing the age limit >12 – <18;

— exposure of adolescents to other online activities, such as playing video games;

— a description of the relationship or impact of social media on other domains of adolescents' activity, e.g. physical health, cognitive development, etc.

First, a search and selection of research material was carried out, taking into account the eligibility criteria and using the keywords mentioned above. A total of 16,787 records were obtained. In the next step, duplicate records were automatically removed (N=6,321). The removal of duplicates resulted in 10,466 records. Titles and abstracts were then reviewed for eligibility criteria (inclusion and exclusion criteria). A total of 125 works qualified for further review. A selection of the full content of the articles was carried out based on the inclusion/exclusion criterion. The subject of the research, the purpose of the research, the research questions, the research model, the research group, the results of the research, conclusions and implications for practice were reported. 100 items were excluded from further analysis. These included articles without access to the full version and items that did not meet the substantive eligibility criteria. Thus, 25 items were finally selected for synthesis. Diagram 1 illustrates the stages of the systematic literature review carried out.
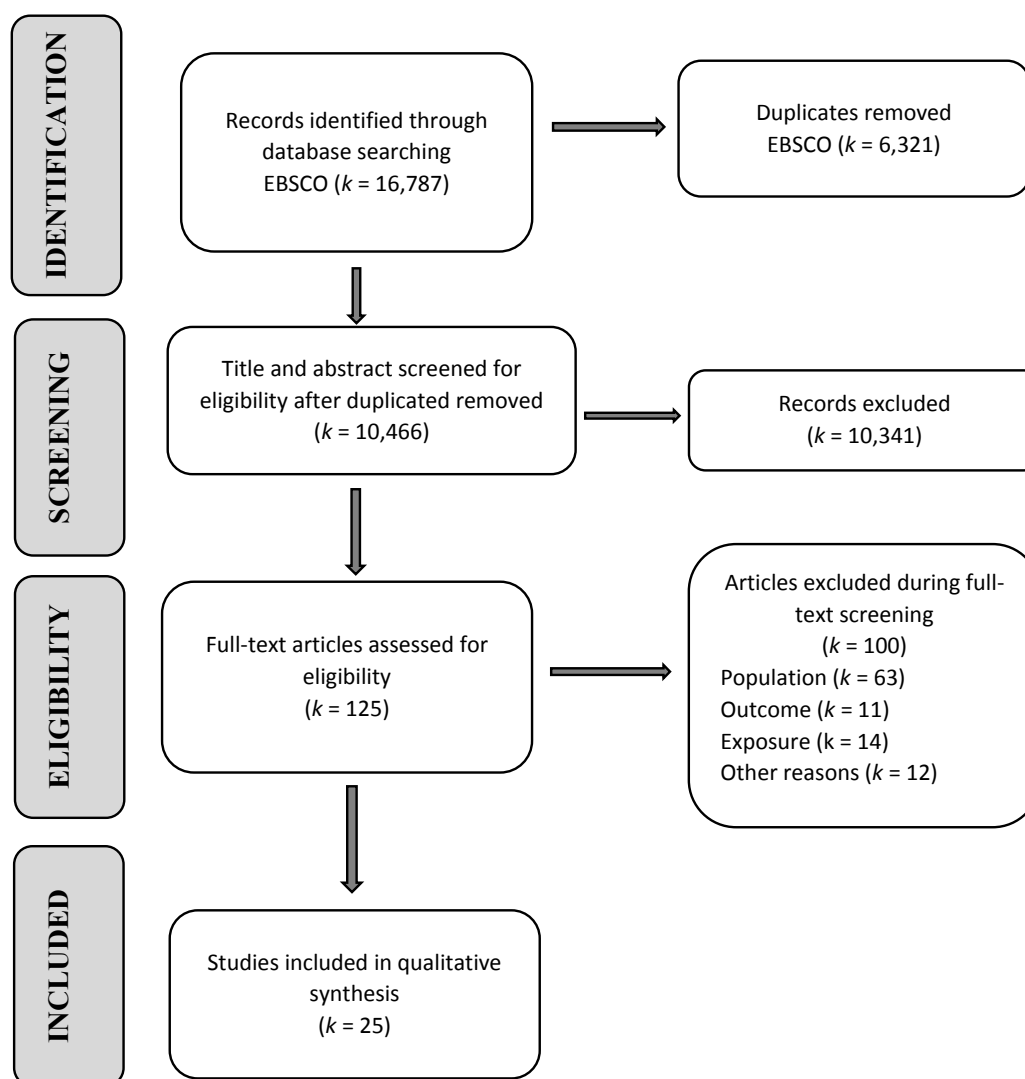
Figure 1. PRISMA flowchart. Stages of the systematic literature review.

Description of eligible articles

Table 1 provides a description of the review performed, i.e. the 25 studies that qualified for assessment. Studies were conducted in the United States (Ehrenreich & Underwood 2016; Barry et al., 2017; Riehm et al., 2019), Australia (Neira & Barber, 2014; Vernon et al., 2017), China (Li et al., 2017; Yan et al., 2017; Wang et al., 2018; Li et al., 2021), South Korea (Kim, 2017), Malaysia (Naeemi & Tamam, 2017), Thailand (Hanprathet et al., 2015), Canada (Sampasa-Kanyinga& Lewis, 2015), Turkey (Alpaslan et al., 2016; Ucar et al. 2018; Onat et al., 2019; Ucar et al., 2020), the United Kingdom (Kelly et al., 2018), Northern Ireland (Best et al., 2014; Best et al., 2015), Switzerland (Werling et al., 2022), Belgium (Frison &Eggermont, 2016), Serbia (Banjanin et al., 2015) and Hungary (Meszaros et al., 2020). One study was a comparative study carried out in six European countries: Greece, Spain, Poland, the Netherlands, Romania and Iceland (Tsitsika et al., 2014). Most of the research was conducted in a quantitative research strategy, mainly in a cross-sectional survey design. Three studies had longitudinal designs and one study was in a mixed research orientation. The total sample for the quantitative survey was 49 193 people, while the mixed survey was 521 people. The age of the study participants ranged from 12 to 18 years. Most of the studies looked at social media use in general, with a few focusing specifically on Facebook use. In addition to measuring mental health disorders such as depression, anxiety and mental stress, some studies analysed confounding variables (e.g. age and gender) and mediating and moderating variables (e.g. insomnia, ruminations and self-esteem).

Quality assessment

Finally, 25 studies meeting the eligibility criteria were selected for the analyses and were subjected to a review-specific qualitative assessment using the so-called Weight of Evidence (WoE) framework (Gough, 2007). Each research report was rated on a scale of 1 to 3, where 1 indicates poor quality, 2 satisfactory and 3 good. Three criteria were considered for evaluation. The following was assessed: (1) the overall quality and execution of the study, e.g. information on how the group was selected for the study; (2) the measurement and analysis of the results obtained relating to the variables studied related to adolescent mental health; (c) the measurement and analysis of adolescents' involvement in social media use. The overall average score that could be assigned to each of the projects assessed ranged from 1 to 3 (see Tab. 1).

Analyses and Results

Analysis of the 25 studies reviewed led to the identification of three main domains related to social media use:
(1) adolescents' activity related to their use, by which is meant the daily time devoted to their use;
(2) type of involvement in social media use, e.g. active creation of numerous profiles on social networks, posting selfie photos, writing posts, communicating with peers vs. passive (mainly observing material published by others);
(3) the way they are used, i.e. normative vs. problematic symptoms of addiction to them.
Each domain is discussed in terms of analysing its relationship to mental health, both to mental health disorders (depression, anxiety disorders, mental suffering, self-harm, eating disorders, internalising disorders) and to well-being.The research was also intended to answer the question: *Is there a relationship between adolescents' engagement in social media use and their mental health and what is this relationship?*

The literature review showed that identifying a clear link between young people's involvement in social media use and their mental health is difficult. There is a diversity of results in studies that do not always confirm the presence of such a relationship. Where a relationship exists, its direction and strength can vary. Some studies show positive correlations between social media use and adolescent mental health, while other studies show negative correlations ranging from weak to strong.

Dorota Anna Siemieniecka , Jolanta Jarczyńska

Relationship Between Social Media Use and Adolescent Mental Health – a Systematic Review

Table 1. Studies included in the review broken down by mental health condition

No	Reference	Date published	Country	Type studies – design	Sample – size and characteristics	Findings	Rate
1.	Neira & Barber	2014	Australia	Quantitative studies Cross-sectional	N=1,819 Aged: 13–17 (55% female)	Meaningful relationship between SM use frequency & self-esteem & depressed mood.	3
2.	Best, Manktelow & Taylor	2014	Northern Ireland	Quantitative studies Cross-sectional	N=527 Aged: 14–16 (100% male)	Young males who reported speaking to online friends regarding personal problems recorded statistically higher levels of mental well-being ($p<0.02$).	3
3.	Tsitsika et al.	2014	Six European countries: Greece, Spain, Poland, the Netherlands, Romania, and Iceland.	Quantitative studies Cross-sectional	N=10,930 Aged: 14–17 (52.3% female)	Positive association between heavier SM use (more than 2 h/day) and internalising problems (anxiety and depression).	2
4.	Banjanin et al.	2015	Serbia	Quantitative studies Cross-sectional	N=336 Mean age = 18 years (66% female)	Internet use and level of internet addiction measured with IAT scale are positivelycorrelated with depressive symptoms. No such relationship existed between the time spent on socialnetworking sites and depression, as well asbetween depression symptoms and SNS-related activitiessuch as the number of Facebook friends. Neither the time spent on SNSs nor SNS-related activities hadsignificant effect on the observed relationship between level of internet addiction anddepression.	1
5.	Hanprathet et al.	2015	Thailand	Quantitative studies Cross-sectional	N=832 Mean age = 16.7 years (63.5% female)	Positive association between Facebook addiction and depression.	2

No	Reference	Date published	Country	Type studies – design	Sample – size and characteristics	Findings	Rate
6.	Sampsa-Kanyinga & Lewis	2015	Canada	Quantitative studies Cross-sectional	N=753 Mean age = 14.1 years (48.5% female)	The use of SNSs more than 2 hours per day was related to increased level of psychological distress.	3
7.	Best, Manktelow & Taylor	2015	Northern Ireland	Mixed method studies	N=521 (ON) N=8 (QL) Aged: 14-15 (100% male)	A positive relationship was found between the number of online friends and well-being score.	2
8.	Frison & Eggermont	2016	Belgium	Quantitative studies Cross-sectional	N=910 Mean age = 15.44 years (51.9% female)	Positive correlation between passive FB use and depressed mood as well as between active FB use and depressed mood. Perceived online social support mediated this relationship; and gender influenced this association.	2
9.	Alpaslan, Soylu, Kocak, and Guzel	2016	Turkey	Quantitative studies Cross-sectional	N=120 Mean age = 15 years (62.5% girls) and N=100 controls Mean age = 15 years (58% girls)	PIU was higher in adolescents with MDD and hopelessness was more prevalent among MDD patients with PIU, but no links with potential suicide were found.	3
10.	Naeemi & Tamam	2017	Malaysia	Quantitative studies Cross-sectional	N=401 Aged:13–16 (48% female)	Emotional dependence on Facebook negatively affected adolescents' overall psychological wellbeing.	3

No	Reference	Date published	Country	Type studies – design	Sample – size and characteristics	Findings	Rate
11.	Ehrenreich & Underwood	2016	USA	Quantitative studies Cross-sectional	N=125, Aged: 18 (n=56 female)	Relations between internalising symptoms and Facebook communication differed for girls and boys. For girls, internalising symptoms predicted several types of Facebook content: negative affect, somatic complaints and eliciting support. In contrast, internalising symptoms were not related to boys' Facebook posts. Relations between internalising symptoms and peers' responses on Facebook also differed by gender. For girls, internalising symptoms positively predicted receiving more peer comments expressing negative affect, and peer responses offering support. For boys, internalising symptoms did not predict any of the measured peer responses.	3
12.	Barry, Sidoti, Briggs, Reiter, and Lindsey	2017	USA	Quantitative studies Cross-sectional	N=226 (113 adolescent-parent dyads), Aged 14–17 (N=51 female) (N=55 (males) (N = 7 did not report gender)	SM activity(of accounts,frequency of checking)was moderately, positivelycorrelated with anxietyand depression asreported by parents.	1
13.	Li et al.	2017	China	Quantitative studies Cross-sectional	N=1,015 Grade 7th-9th (41.2% female)	Significant association between SM addiction and depression and insomnia partially mediated thisrelationship	2
14.	Vernon et al.	2017	Australia	Quantitative studies longitudinal cohort study	N=874 Mean age = 14.4 years (59% female)	Increased investment in SM predicted higher depressed mood in adolescents, which was explained by the impact of higher levels of sleep disruptions.	2

No	Reference	Date published	Country	Type studies – design	Sample – size and characteristics	Findings	Rate
15.	Yan et al.	2017	China	Quantitative studies Cross-sectional	N=2,625 Aged: 13–18 (46.9% female)	Positive association between time spent on SM and the level of anxiety. More than 2 hours/day and &anxiety level.	1
16.	Kim	2017	South Korea	Quantitative studies Cross-sectional	N=2,099 Aged: 12–15	Strong & negative relationship between online activities and self-reported mental health. Online social networking is adversely related to the self-reported wellbeing.	3
17.	Wang et al.	2018	China	Quantitative studies Cross-sectional	N=365 Aged: 14–18 (52% female)	SM addiction and depression were positively associated. Rumination mediated this relationship and self-esteem moderated this mediation	1
18.	Ucar et al.	2018	Turkey	Quantitative studies Cross-sectional	N=273 Aged: 12–18	The perceived value of SNSs explained an additional 37.8% of variation in symptom sharing on SNSs above and beyond the control variables, which are gender, age, type of disorder, and amount of internet and SNS use. The findings suggested that adolescents share symptoms on SNSs only if they attribute value to the SNSs that they use. We also found that 72% of adolescents in our sample shared their symptoms on SNSs.	3

No	Reference	Date published	Country	Type studies – design	Sample – size and characteristics	Findings	Rate
19.	Kelly et al.	2018	United Kingdom	Quantitative studies longitudinal cohort study	N=10.904 Mean age = 14.3 years (N=5496 female) (N=5408 males)	The magnitude of association between social media use and depressive symptoms was larger for girls than for boys. Compared with 1-3 h of daily use: 3 to b5 h 26% increase in scores vs 21%; ≥5 h 50% vs 35% for girls and boys respectively. Greater social media use related to online harassment, poor sleep, low self-esteem and poor body image; in turn these related to higher depressive symptom scores. Multiple potential intervening pathways were apparent, for example: greater hours social media use related to body weight dissatisfaction (≥5 h 31% more likely to be dissatisfied), which in turn linked to depressive symptom scores directly (body dissatisfaction 15% higher depressive symptom scores) and indirectly via self-esteem.	3
20.	Onat, Ozyurt, Ozturk, and Akay	2019	Turkey	Quantitative studies cross-sectional study with a control group	N=97 Aged:12–18 (N=73 female) (N=24 male) mean age 14.70±1.48)	It was determined that the total scores of BIS-11 scale, PSQI and IAT were statistically and significantly higher in the depression group than controls. In addition, a positive correlation was found between IAT and BIS-11 score and between IAT and PSQI. A positive correlation was also found between BIS-11 and PSQI.	2

No	Reference	Date published	Country	Type studies – design	Sample – size and characteristics	Findings	Rate
21.	Riehm et al.	2019	USA	Quantitative studies longitudinal cohort study From waves 1 (September 12, 2013, to December 14, 2014), 2 (October 23, 2014, to October 30, 2015), and 3 (October 18, 2015, to October 23, 2016) Data analysis was performed from January 14, 2019, to May 22, 2019.	N=6,595 Aged: 12–15 During wave 1; N=3400 (51.3% male)	Adolescents who spend more than 3 hours per day using social media may be at heightened risk for mental health problems, particularly internalizing problems. A total of 6595 adolescents (aged 12–15 years during wave 1; 3400 [51.3%] male) were studied. In unadjusted analyses, spending more than 30 minutes of time on social media, compared with no use, was associated with increased risk of internalising problems alone (30 minutes: relative risk ratio [RRR], 1.30; 95% CI, 0.94-1.78; >30 minutes to 3 hours: RRR, 1.89; 95% CI, 1.36-2.64; >3 to 6 hours: RRR, 2.47; 95% CI, 1.74-3.49; >6 hours: RRR, 2.83; 95% CI, 1.88-4.26) and comorbid internalising and externalizing problems (30 minutes: RRR, 1.39; 95% CI, 1.06-1.82; >30 minutes to 3 hours: RRR, 2.34; 95% CI, 1.83-3.00; >3 to 6 hours: RRR, 3.15; 95% CI, 2.43-4.09; >6 hours: RRR, 4.29; 95% CI, 3.22-5.73); associations with externalizing problems were inconsistent. In adjusted analyses, use of social media for more than 3 hours per day compared with no use remained significantly associated with internalising problems alone (>3 to 6 hours: RRR, 1.60; 95% CI, 1.11-2.31; >6 hours: RRR, 1.78; 95% CI, 1.15-2.77) and comorbid internalising and externalizing problems (>3 to 6 hours: RRR, 2.01; 95% CI, 1.51-2.66; >6 hours: RRR, 2.44; 95% CI, 1.73-3.43) but not externalizing problems alone.	3
22.	Ucar et al.	2020	Turkey	Quantitative studies semi-structured interviews	N=273 Aged: 12–18 (N=132 female) (N=92 male)	The perceived value of SNSs explained an additional 37.8% of variation in symptom sharing on SNSs above and beyondthe control variables, which are gender, age, type of disorder, and amount of internet and SNSuse. The findingssuggested that adolescents sharesymptoms on SNSsonly if they attribute value to the SNSs that they use. 72% of adolescents in the sample shared their symptoms on SNSs.	3

No	Reference	Date published	Country	Type studies – design	Sample – size and characteristics	Findings	Rate
23.	Meszaros et al.	2020	Hungary	Quantitative studies Cohort study	N=363 Mean age: 15.12 years (N=183 female) (N=145 male)	High NSSI frequency (39.9%-71% of them were girls) in the sample. NSSI was significantly more frequent among those who showedthreshold symptoms onSDQ than in the subthreshold group [H(3) = 53.293, p <.001]. In the NSSI frequency, therewas also a significant difference between 'normal' internet users and both 'maladaptive' and 'pathological' internet users [H(2) = 10.039, p <.05 p = .007]. According to the mediatormodels, the relationship between PIU and NSSI is not a direct association; it is mediated by allexamined psychopathological factors (M.I.N.I. kid diagnoses) except for obsessivecompulsive disorder (OCD), alcohol abuse and dependence, and adjustment disorder. Conclusions: We found a high frequency of NSSI. PIU in itself is not a risk factor for NSSI but might become a risk factor in the presence of comorbid psychiatric disorders.	3
24.	Li et al.	2021	China	Quantitative studies Cross-sectional	N=6,553 secondary school students	Of the total, 14.4% (946/6553) were classified as addicted Internet users (YDQ ≥5). The risk of IA was higher among students of older age (OR=1.17) and with poorer subjective sleep quality (OR=1.27-2.56). Urban household registration (OR=0.80), high level of physical activity (OR=0.68), 1-2 hours of outdoor activity per day (OR=0.69), long sleep duration (OR=0.60), and normal sleep duration (OR=0.74) were protective factors of IA. Age, household registration, outdoor activity time, level of physical activity, subjective sleep quality, and sleep duration were the key factors affecting IA.	2

No	Reference	Date published	Country	Type studies – design	Sample – size and characteristics	Findings	Rate
25.	Werling, Walitza, Gerstenberg, Grunblatt, and Drechsler	2022	Switzerland	Quantitative studies Cross-sectional	N=178 Aged: 12–18	Patients with ID reported higher emotional distress during the lockdown, and a larger number of patients with ID indicated a deterioration of pre-existing symptoms compared to non-ID patients. Although more patients with ID than with non-ID indicated spending a large amount of time on social media, social media time per day in hours was not significantly higher in ID. Patients with ID indicated a higher impact of media use on well-being and mood in everyday life during the lockdown. Social media time was higher in worsened than in improved non-ID patients, while the opposite was found in ID patients, indicating a possible protective effect of media use at least for some ID patients. The results confirm positive as well as negative associations between mental health, emotional well-being and media use for adolescents with ID during the lockdown.	2

Adolescent Activity Related to Social Media Use: Time Spent Using Social Media

The review of studies did not provide conclusive data on the relationship between time spent on social media and mental health problems in adolescents aged 13–18 years. The results of a study with a sample of 10,930 adolescents from six European countries (Tsitsika et al., 2014) indicated a positive association between heavy social media use and depression and anxiety. This study found that spending more than two hours per day using social media was associated with internalising problems in young people, such as depression and anxiety disorders. The researchers analysed this relationship in terms of the age of the adolescents studied. They found that internalising symptoms (anxiety and depression) were more frequently experienced by younger adolescents using social media for more than two hours a day compared to older adolescents using them in the same way. In contrast, research conducted on a population of US adolescents (N=6,595) shows that the risk of developing mental health problems related to internalising disorders increases when the threshold for daily social media use is 3 hours (Riehm et al., 2019). The same result was obtained in a study of Turkish adolescents (N=97) (Onat et al., 2019). They found that spending three hours or more per day on social media use was associated with an increase in internalising problems, including depression. A study of a sample of 2,625 Chinese adolescents (Yan et al., 2017), on the other hand, found that spending 2 hours a day on social media use promotes anxiety disorders in adolescents.

A Canadian study, admittedly conducted on a smaller sample of young people (N=753), yielded similar results (Sampasa-Kanyinga& Lewis, 2015). It was found that using social media for more than two hours a day or more positively correlates with adolescent psychological distress. A study conducted on a sample of South Korean youth (N=2,099) found a strong negative association between active Facebook use and lowered mood (Kim, 2017). A longitudinal study conducted in the UK (N=10,904) found that social media use for 5 hours or more per day was associated in adolescents with a greater likelihood of body weight dissatisfaction, which in turn directly promoted increased depressive symptoms and indirectly also lower self-esteem (Kelly et al., 2018). A study conducted on a sample of Australian adolescents (N=1,819) confirmed a positive association between time spent using social media and lowered mood and low self-esteem (Neira & Barber, 2014). In contrast, the results of a study by Serbian researchers (Banjanin et al., 2015) yielded yet different results. It turned out that in the group of adolescents surveyed (N=336), no association was established between time spent using social networking sites and depression.

Adolescent Activity Related to Social Media Use. Type of Engagement: Active vs. Passive

A review of the research yielded conflicting results on the relationship between the activity undertaken by adolescents on social media and their disclosed mental health problems. A Belgian study of a sample of 910 teenagers found that there were no statistically significant differences between how they used Facebook. A positive correlation between Facebook use and lowered mood was noted in both actively and passively using adolescents (Frison &Eggermont, 2016). In a US study led by Barry et al. (2017), which examined 113 adolescent-parent diads (N=226) using data from parents of adolescents aged 14–17 years, found a positive correlation between activity undertaken by adolescents on social media (i.e. number of accounts held, frequency of checking notifications) and depression and anxiety. Analysis of this relationship in terms of the gender share of the adolescents surveyed showed no statistically significant variation.

The results of a study by Serbian researchers (Banjanin et al., 2015), on the other hand, indicate the absence of such a relationship. They found no statistically significant correlation between social media activity undertaken by secondary school students (N=336) (i.e. the number of selfies published) and depression. Research by Australian researchers (Neira & Barber, 2014; Vernon et al., 2017) using secondary data from the Youth Activity programme found that increased engagement in social media use by young people increases their risk of lowering their mood. In a study by Neira and Barber (2014), it was found that female adolescents' greater involvement in social media activities promotes feelings of depressed mood and worsens their self-esteem, whereas such media use represents a positive leisure activity for male adolescents. Vernon et al. (2017) conducting a study with a sample of 874 adolescents showed that a mediating variable accompanying this relationship is sleep problems.In contrast, two studies in Northern Ireland showed that the type of social media activity undertaken can promote

adolescents' mental well-being. The study by Best et al. (2014) on a sample of 527 male adolescents aged 14–17 found that engaging in an activity such as using social media to talk to friends about personal problems was statistically significantly associated with higher levels of psychological well-being. And another study by these researchers published in 2015 showed that there is a positive correlation between adolescents' psychological well-being and the number of social media friends they have.

A study by American researchers (Ehhrenreich& Underwood, 2016) provided interesting results. They show that the associations between Facebook communication and internalising symptoms are different for the female and male sexes. The increase in internalising disorders for girls was related to the content available on Facebook and the reactions of peers to the content they posted, as well as the responses they received offering them support. Receiving more comments with clear negative emotional colouring was associated with an increase in internalising disorders in girls, while no such relationship was noted in boys. Furthermore, for girls, it was noted that internalising disorders positively correlated with receiving messages from peers on social media in which they offered their help. The researchers comment that girls are possibly more likely to exhibit internalising disorders (depression and anxiety) by using Facebook in a way similar to co-rumination, i.e. by sharing their problems with a friend on Facebook, they are likely to receive reinforcing feedback in return, which exacerbates the risk of developing internalising disorders.

Social Media Use: Normative vs. Problematic

The research reports analysed also yield conflicting information on the relationship between adolescents' social media use and their mental health. A study in Thailand with a sample of 832 adolescents confirmed a statistically significant association between Facebook addiction and adolescent depression (Hanprathet et al., 2015). Similar results were obtained in a Turkish study (Alpaslan et al., 2016). They found that problematic social media use was higher in adolescents with major depressive disorder, who were more likely to have feelings of hopelessness. However, a link to a potential suicide has not been confirmed. A Malaysian study on Facebook addiction conducted among pupils aged 13–16 years (N=401) found an association with generally poorer mental health among adolescents (Naeemi & Taman, 2017). A Chinese study (Li et al., 2017) among high school students (N=1,015) confirmed the presence of a statistically significant association between social media addiction and depression. It was detected that insomnia was a mediating factor.

Another study conducted in China (Wang et al., 2018) on a sample of 365 adolescents aged 14–18 found a positive correlation between social media addiction and depression. Ruminations were a mediating variable in this relationship, and self-esteem moderated this mediating effect such that low self-esteem exacerbated depression through ruminations. A Turkish study (Onat et al., 2019) found that there is a statistically significant positive association between social media addiction and depression. In addition, variable sleep problems were measured in the study. A positive correlation was also found between poor sleep quality and problematic social media use. In contrast, the results of a Swiss study conducted to assess the impact of the COVID-19 pandemic on the psychological well-being of adolescents aged 12–18 in the first six weeks of the pandemic showed that adolescents presenting higher levels of internalising disorders (depression and anxiety disorders) indicated a greater impact of social media on their psychological well-being and mood in daily life during the lockdown period. The results of this study confirmed both positive and negative associations between mental health, emotional well-being and social media use among young people with internalising disorders during lockdown.

Discussion and Limitations

The systematic review of research was conducted to establish the state of knowledge on the prevalence of the association between social media use and mental health problems in adolescents. Although the results of the 25 studies analysed are inconsistent with each other, the research review presented here allows us to conclude that it is difficult to make a definite statement about the existence of an association between social media use and mental health problems in adolescents, and if there is an association,

we can rather speak of its weak strength. Most of the authors of the studies who reported on the occurrence of interdependence between the study variables indicated that it was too complex to be formulated explicitly.

A major limitation that sheds light on the study results obtained is that the vast majority of the studies (22 out of 25 studies) were cross-sectional studies and only three were longitudinal studies (Vernon et al., 2017; Kelly et al., 2018 and Riehm et al., 2019). Because of this, only co-occurring problems and not a cause-and-effect relationship can be identified. It is therefore not possible to determine whether adolescents' use of social media causes mental health disorders (e.g. mood disorders, anxiety disorders), or whether it is the presence of such mental health problems that causes their increased and problematic use of social media.Among the studies were those whose results indicated that the risk of developing mental health problems in adolescents (mood and anxiety disorders) occurs when the threshold for daily use time of 2 hours is met (Sampasa-Kanyinga& Lewis, 2015; Yan et al., 2017) or 3 (Riehm et al., 2019; Onat et al., 2019), or even 5 or more hours (Kelly et al., 2018) and those that argued that the daily time of social media use by adolescents is not associated with co-occurring mental health problems (Banjanin et al., 2015).

Another limitation observed in most of the studies analysed was the small sample size and the way in which the sample was selected, which limited its representativeness and at the same time did not allow the conclusions to be generalised to a larger population of adolescents.

Finally, few of the studies analysed were designed to be able to explore the contribution of mediating and moderating variables to the relationship between the activity of adolescent on social networks and their mental health status. For example, studies that considered the contribution of mediating and moderating factors, e.g. insomnia and ruminations, were those by Li et al. (2017), Vernon et al. (2017) and Kelly et al. (2018). Knowing that the analysed relationship between social media and mental health problems is complex, further research should be conducted to clarify the underlying factors that will help determine the contribution of social media to adolescent mental health. At the same time, this population is not a homogeneous group, which means that some of them may be positively influenced by social media (cf. Jarczyńska, 2022), while other negatively (cf. Jarczyńska, 2016), and for some it may remain irrelevant to their mental health.

From the review, it appears that findings on the role of gender and age in assessing the association between adolescents' social media use and their experience of mental health problems also remain unclear. It has been established that there are studies that have confirmed that these variables differentiate this relationship, e.g. studies by Ehhrenreich and Underwood (2016), Neira and Barber (2014), and those that do not, e.g. Barry et al. (2017). It therefore seems reasonable to conduct further research to establish the relevance of age and gender to the relationship analysed.

Another limitation identified was that some studies only looked at the use of Facebook compared to other social networks, which also causes significant bias and limits the generalisability of the results to other social networks (e.g. those that are much more popular among young people today, such as TikTok and Instagram).

Another limitation of the research is the procedure used for most of the questionnaire surveys analysed, which was self-reporting in nature. It is apparent that this method is characterised by imperfections. It bears the risk that the respondents' answers to the questionnaire may have been distorted by confounding variables such as, for example, fear of evaluation or their subjective interpretation of the degrees of response on the measurement scales. The risk of adolescents giving inaccurate data may also have been caused by a mechanism well known in questionnaire studies related to the need for social approval. For this reason, respondents may have wanted to demonstrate positive self-presentation by over- or under-reporting their social media use and reporting symptoms of mental health disorders.

Conclusions

The review of the 25 research projects carried out allows the conclusion to be drawn that there was no clear linear, strong and positive relationship between adolescents' social media use and the occurrence of mental health problems. Rather, it can be said to be weak and, in the case of some research reports, even reversed (negative). As Moreno and Joliff (2022) write, investigating the relationship between social media and young people's mental health is a difficult area of research, and this was confirmed by the research review. The

aforementioned researchers indicate that these difficulties are due to several reasons. Firstly, mental health disorders and their symptoms, like the symptoms of other illnesses, are sometimes difficult to grasp at a specific time. Sometimes it is possible to observe their intensity, sometimes not, as they may be latent. It is therefore crucial to measure them properly, using tools to identify them that will result in an accurate diagnosis of mental health disorders. However, it should be borne in mind that a distorting factor in assessing the mental health status of young people may be the developmental age itself, which promotes inadequate recognition of mental health problems. Secondly, the use of the right instrumentation to measure the use of social media by young people plays an important role. To date, most of the research conducted in this area has tended to focus on the evaluation of young people's social media use time, which is assessed in terms of hours and minutes. Furthermore, this time is measured in a self-reported manner, i.e. based on respondent-reported estimates, which are often inaccurate (Moreno et al., 2012).

Another procedure used in research to assess adolescents' engagement with social media use is passive observation, which involves the research participant downloading a phone app that monitors their ongoing media activity (Messner et al., 2019). Unfortunately, this measurement tends to record time spent on a single device, and it is known that young people use numerous devices simultaneously to participate in social media. Hence, it is recommended that future research should focus on other aspects of adolescents' experiences of new media, such as assessing their quality and meaning, which result in a strong attachment to them. An interesting proposal seems to be the recently developed survey tool Adolescents' Digital Technology Interactions and Importance Scale (Moreno et al., 2020), which allows for such a measurement. It is therefore worth using this tool in future research, as a review of the research done clearly showed that this approach to assessing the relationship between social media and adolescent mental health is not very common. Thirdly, much of the research on evaluating these relationships does not focus on assessing the normative use of social media. Most of the research in this area is concerned with problematic, non-adaptive use. The result of such research is the development of conclusions and further recommendations that are unjustifiably directed at the general population of adolescents, who, after all, use the media in a variety of ways (harmful vs. harmless).

It is hoped that the systematic review of research presented in this text has contributed to filling the gap in knowledge about the relationship between adolescents' social media use and the incidence of mental health problems. On the basis of the analyses presented, it can be concluded that this area requires further and in-depth research.

References

Alpaslan, A.H., Soylu, N., Kocak, U., & Guzel, H.I. (2016). Problematic internet use was more common in Turkish adolescents with major depressive disorders than controls. *Acta Paediatrica, 105*, 695–700.

Appel, H., Gerlach, A. L., & Crusius, J. (2016). The interplay between Facebook use, social comparison, envy, and depression. *Current Opinion in Psychology, 9*, 44–49.

Banjanin, N., Banjanin, N., Dimitrijevic, I., &Pantic, I. (2015). Relationship between internet use and depression: Focus on physiological mood oscillations, social networking and online addictive behavior. *Computers in Human Behavior, 43*, 308–312.

Barry, C. T., Sidoti, C. L., Briggs, S. M., Reiter, S. R., & Lindsey, R. A. (2017). Adolescent social media use and mental health from adolescent and parent perspectives. *Journal of Adolescence,61*, 1–11.

Beard, K. W., & Wolf, E. M. (2001). Modification in the proposed diagnostic criteria for Internet addiction. *CyberPsychology&Behavior, 4*(3), 377–383. https://doi.org/10.1089/109493101300210286

Best, P., Manktelow, R., & Taylor, B. (2014). Online communication, social media and adolescent wellbeing: A systematic narrative review. *Children and Youth Services Review*, 41, 27–36. https://doi.org/10.1016/j.childyouth.2014.03.001

Best, P., Taylor, B., &Manktelow, R. (2015). I've 500 friends, but who are my mates? Investigating the influence of online friend networks on adolescent wellbeing. *Journal of Public Mental Health, 14*(3), 135–148. https://doi.org/10.1108/JPMH-05-2014-0022

Clark, J. L., Algoe, S. B., & Green, M. C. (2018). Social network sites and well-being: The role of social connection. *Current Directions in Psychological Science, 27*(1), 32-37. https://doi.org/10.1177/0963721417730833

Copeland, W. E., Angold, A., Shanahan, L., & Costello, E. J. (2014). Longitudinal patterns of anxiety from childhood to adulthood: The great smoky mountains study. *Journal of the American Academy of Child & Adolescent Psychiatry, 53*(1), 21–33.

Deters, F. G., & Mehl, M. R. (2013). Does posting facebook status updates increase or decrease loneliness? An online social networking experiment. *Social Psychological and Personality Science, 4*(5), 579–586.

Dzieci się liczą 2017. Raport o zagrożeniach bezpieczeństwa i rozwoju dzieci w Polsce, „*Dziecko Krzywdzone. Teoria, badania, praktyka", 2017*, 1. http://fdds.pl/_Resources/Persistent/e/d/9/e/ed9e604bde6479d-99dcefb12244d1fa0bca5ac6c/Raport-Dzieci-si%C4%99-licz%C4%85-2017.pdf

Ehrenreich, S. E., & Underwood, M. K. (2016). Peer coercion and electronic messaging. In Dishion, T. J. & Snyder, J. (Eds.), *The Oxford handbook of coercive relationship dynamics* (pp. 140–153). Oxford University Press.

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends": Social capital and college students' use of online social network sites. *Journal of Computer-mediated Communication*, *12*(4), 1143–1168. https://doi.org/10.1111/j.1083-6101.2007.00367.x

Frison, E., & Eggermont, S. (2016). "Harder, better, faster, stronger": Negative comparison on Facebook and adolescents' life satisfaction are reciprocally related. „*Cyberpsychology, Behavior, and Social Networking",19*(3), 158–164. https://doi.org/10.1089/cyber.2015.0296

Gore, F. M., Bloem, P. J., Patton, G. C., Ferguson, J., Jospeh, V., Coffey, C.,& Mathers, C. D. (2011). Global burden of disease in young people aged 10–24 years: A systematic analysis. *Lancet, 377*, 2093–2102.

Gough, D. (2007). Weight of evidence: A framework for the appraisal of the quality and relevance of evidence. *Research Papers in Education, 22*, 213–228.

Grant, M. J., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal, 26*, 91–108.

Hanprathet, N., Manwong, M., Khumsri, J., Yingyeun, R., & Phanasathit, M. (2015). Facebook addiction and its relationship with mental health among Thai high school students. *Journal of the Medical Association of Thailand, 98*, S81–S90.

Hetrick, S. E., Cox, G. R., Witt, K. G., Bir, J. J., & Merry, S. N. (2016). Cognitive behavioural therapy (CBT), third-wave CBT and interpersonal therapy (IPT) based interventions for preventing depression in children and adolescents. *Cochrane Database of Systematic Reviews (Online), 9*, 8.

Hoare, E., Milton, K., Foster, C., & Allender, S. (2016). The associations between sedentary behaviour and mental health among adolescents: A systematic review. *International Journal of Behavioral Nutrition and Physical Activity*. BioMed Central Ltd. https://doi.org/10.1186/s12966-016-0432-4

Ivie, E. J., Pettitt, A., Moses, L. J., Allen, N.B. (2020). A meta-analysis of the association between adolescent social media use and depressive symptoms. *Journal of Affective Disorders, 275*, 165–174. https://doi.org/10.1016/j.jad.2020.06.014

Jarczyńska J. (2016). Nadmierne korzystanie z sieci społecznościowych przez młodzież szkolną: charakterystyka zjawiska. *Studia Edukacyjne, 41*, 237-260.

Jarczyńska J. (2021). Tożsamość młodzieży w świecie mediów cyfrowych. Znaczenie i funkcje mediów cyfrowych w procesie kreowania tożsamości dorastających osób. Wydawnictwo Uniwersytetu Kazimierza Wielkiego.

Jarczyńska J. (2022). Potencjał i sprawczość technologii informacyjno-komunikacyjnych w ograniczaniu stygmatu niepełnosprawności. *Niepełnosprawność i Rehabilitacja, 4*, 149-159. https://doi.org/10.5604/01.3001.0016.1885

Jenaro, C., Flores, N., Gomez-Vela, M., Gonzalez-Gil, F., & Caballo, C. (2007). Problematic internet and cellphone use: Psychological, behavioral, and health correlates. *Addiction Research & Theory, 15*(3), 309-320.

Keles, B., McCrae, N., & Grealish, A. (2019). A systematic review: the influence of social media on depression, anxiety and psychological distress in adolescents. *International Journal Of Adolescence And Youth,* 25(1), 79–93. https://doi.org/10.1080/02673843.2019.1590851

Kelly, Y., Zilanawala, A., Booker, C., & Sacker, A. (2018). Social media use and adolescent mental health: Findings from the UK Millennium Cohort Study. *EClinical Medicine, 6*, 59–68. https://doi.org/10.1016/j.eclinm.2018.12.005

Kessler, R. C., Amminger, G. P., Aguilar-Gaxiola, S., Alonso, J., Lee, S., & Üstün, T. B. (2007). Age of onset of mental disorders: A review of recent literature. *Current Opinion in Psychiatry, 20*(4), 359-364. http://dx.doi.org/10.1097/YCO.0b013e32816ebc8c

Kim, H. H. (2017). The impact of online social networking on adolescent psychological well-being (WB): A population-level analysis of Korean schoolaged children. *International Journal of Adolescence and Youth, 22*(3), 364–376.

Kuss, D. J., & Griffiths, M. D. (2011). Online social networking and addiction—A review of the psychological literature. *International Journal of Environmental Research and Public Health, 8*(9), 3528–3552.

Lenhart, A., Smith, A., Anderson, M., Duggan, M., & Perrin, A. (2015). Teens, technology and friendships. http://www.pewinternet.org/2015/08/06/teens-technology-and-friendships/

Li, J. B., Lau, J. T. F., Mo, P. K. H., Su, X.-F., Tang, J., Qin, Z.-G., & Gross, D. L. (2017). Insomnia partially mediated the association between problematic Internet use and depression among secondary school students in China. *Journal of Behavioral Addictions, 6*(4), 554–563.

Li, Z.L., Liu, R., He, F., Li, S.Y., Zhao, Y.J., Zhang, W.Y., & Xiang, Y.T. (2021). Prevalence of internet addiction disorder and its correlates among clinically stable adolescents with psychiatric disorders in China during the COVID-19 outbreak. *Frontiers in Psychiatry*, *12*, 686177. https://doi.org/10.3389/fpsyt.2021.686177

Lilley, C., Ball, R., & Vernon, H. (2014). The experiences of 11–16 year olds on social networking sites. NSPCC. https://www.nspcc.org.uk/globalassets/documents/research-reports/experiences-11-16-year-olds-socialnetworking-sites-report.pdf

Majewska, K. (2021). *Nauczanie i uczenie się w przestrzeni mediów wirtualnych. Rzeczywistość wirtualna w edukacji wczesnoszkolnej*. Wydawnictwo Adam Marszałek.

Marino, C., Gini, G., Vieno, A., & Spada, M. M. (2018). The associations between problematic Facebook use, psychological distress and well-being among adolescents and young adults: A ystematic review and meta-analysis. *Journal of Affective Disorders, 226*, 274–281.

McCrae, N., Gettings, S., &Purssell, E. (2017). Social media and depressive symptoms in childhood and adolescence: A systematic review. *Adolescent Research Review, 2*, 315-330. https://doi.org/10.1007/s40894-017-0053-4

Meszaros, G., Gyori, D., Horvath, L.O., Szentivanyi, D., & Balazs, J. (2020). Nonsuicidal self-injury: Its associations with pathological internet use and psychopathology among adolescents. *Frontiers in Psychiatry, 11*, 814. https://doi.org/10.3389/fpsyt.2020.00814

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Annals of Internal Medicine, 151*, 264–269.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009a). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine, 6*(7), e1000097.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G.; The PRISMA Group. (2009b). PRISMA 2009 Flow Diagram. *PLoS Medicine, 6*(7), e1000097.

Moreno, M. A., Binger, K., Zhao, Q., & Eickhoff, J. (2020). Measuring interests not minutes: Development and validation of the Adolescents' Digital TechnologyInteractions and Importance Scale (ADTI). *Journal of Medical InternetResearch, 22*(2), e16736. https://doi.org/10.2196/16736

Moreno, M. A., Jelenchick, L., Koff, R., & Eickhoff, J. (2012). Depression andinternet use among older adolescents: An experience sampling approach.*Psychology, 3*(9), 743–748. https://doi.org/10.4236/psych.2012.329112

Moreno, M. A., & Jolliff, A. F. (2022). Depression and anxiety in the context of digital media. In Nesi, J., Telzer, E. H., & Prinstein, M. J. (Eds.), *Handbook of adolescent digital media use and mental health* (pp. 217–241). Cambridge University Press

Moreno, M. A., &Whitehill, J. M. (2014). Influence of social media on alcohol use in adolescents and young adults. Alcohol Research. *Current Reviews, 36*(1), 91–100.

Morgan, C., Webb, R. T., Carr, M. J., Kontopantelis, E., Green, J., Chew-Graham, C. A., & Ashcroft, D. M. (2017). Incidence, clinical management, and mortality risk following self harm among children and adolescents: Cohort study in primary care. *BMJ* (Online), 359. https://doi.org/10.1136/bmj.j4351

Naeemi, S., & Tamam, E. (2017). The relationship between emotional dependence on Facebook and psychological well-being in adolescents aged 13–16. *Child Indicators Research*, *10*, 1095–1106. https://doi.org/10.1007/s12187-016-9438-3

Neira, B. C. J., & Barber, B. L. (2014). Social networking site use: Linked to adolescents' social self-concept, self-esteem, and depressed mood. *Australian Journal of Psychology*, *66*(1), 56–64.

O'Keeffe, G. S., Clarke-Pearson, K., & Council on Communications & Media. (2011). The impact of social media on children, adolescents, and families. *Pediatrics, 127*(4), 800–804. https://doi.org/10.1542/peds.2011-0054

Odgers, C. L., & Jensen, M. R. (2020). Annual research review: Adolescent mental health in the digital age: Facts, fears, and future directions. *Journal of Child Psychology and Psychiatry, 61*(3), 336–348. https://doi.org/10.1111/jcpp.13190

Ohannessian C. M., Fagle T., & Salafia C. (2021). Social media use and internalizing symptoms during early adolescence: The role of co-rumination. *Journal of Affective Disorders, 280*, 85–88.

Onat, M., Ozyurt, G., Ozturk, Y., & Akay, A.P. (2019). The relationship between problematic internet use, sleep quality and impulsivity in adolescents with major depressive disorder. *Anatolian Journal of Psychiatry, 20*, 491–498.

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseerh, & L., Moher. D. (2020). Mapping of reporting guidance for systematic reviews and meta-analyses generated a comprehensive item bank for future reporting guidelines. *Journal of Clinical Epidemiology, 118*, 60-68.

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron I., Hoffmann, T. C., Mulrow C. D., Shamseerh, L., Tetzlaff, J., M., & Moher, D. (2021). Updating guidance for reporting systematic reviews: development of the PRISMA 2020 statement. *Journal of Clinical Epidemiology, 134*, 103-112. https://doi.org/10.1016/j.jclinepi.2021.02.003

Park, N., Kee, K. F. & Valenzuela, S. (2009). Being immersed in social networking environment: Facebook groups, uses and gratifications, and social outcomes. *CyberPsychology&Behavior,* 12 (6), 729-733.

Peters, M. D. J., Godfrey, C. M., McInerney, P., et al. (2015). *Methodology for JBI scoping reviews. The Joanna Briggs Institute Reviewers' Manual 2015*. The Joanna Briggs Institute.

Reid-Chassiakos, Y., Radesky, J., Christakis, D., & Moreno, M. A. (2016). From the American Academy of Pediatrics. Children and adolescents and digital media. Council on Communications and Media. *Pediatrics, 138*, 5.

Riehm, K. E., Feder, K. A., Tormohlen, K. N., Crum, R. M., Young, A.S., Green, K. M., Pacek, L. R., La Flair, L. N., &Mojtabai, R. (2019). Associations between time spent using social media and internalizing and externalizing problems among US youth. JAMA*Psychiatry, 76*(12), 1266-1273. https://doi.org/10.1001/jamapsychiatry.2019.2325

Royal Society for Public Health, & Young Health Movement. (2017). *#StatusOfMind. Social media and young people's mental health and wellbeing. Youn health movement.* https://www.rsph.org.uk/static/uploaded/d125b27c-0b62-41c5-a2c0155a8887cd01.pdf

Sampasa-Kanyinga, H., & Lewis, R. F. (2015). Frequent use of social networking sites is associated with poor psychological functioning among children and adolescents. *Cyberpsychology, Behavior, and Social Networking, 18*(7), 380–385

Seabrook, E. M., Kern, M. L., & Rickard, N. S. (2016). Social networking sites,depression, and anxiety: A systematic review. *JMIR Mental Health, 3*(4),e50. https://doi.org/10.2196/mental.5842

Satici, S. A., & Uysal, R. (2015). Well-being and problematic Facebook use. *Computers in Human Behavior, 49*, 185–190. http://10.0.3.248/j.chb.2015.03.005

Siemieniecka, D., & Majewska, K. (2022). The state of knowledge of teachers and educators in primary and secondary education on cyber threats challenging students on a daily basis-proposal of prevention and training areas. *ICERI2022 Proceedings, IATED*, 2781-2789.

Siemieniecka, D., Skibińska, M., & Majewska, K. (2020). *Cyberagresja – zjawisko, skutki, zapobieganie*. Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika.

Teo, A., Choi, H., & Valenstein, M. (2013). Social relationships and depression: Ten-year follow-up from a nationally representative study. *PloS one, 8*(4), e62396.

The state of the world's childen 2021. On my mind. Promoting, protecting and caring for children's mental health. United Nations Children's Fund (UNICEF), October 2021. https://www.unicef.org/media/108036/file/SOWC-2021-executive-summary.pdf

Tsitsika, A. K., Tzavela, E. C., Janikian, M., Ólafsson, K., Iordache, A., Schoenmakers, T. M., &Richardson, C. (2014). Online social networking in adolescence: Patterns of use in six European countries and links with psychosocial functioning. *Journal of Adolescent Health, 55*(1), 141–147.

Twenge, J. M., & Campbell, W. K. (2019). Media use is linked to lower psychological well-being: Evidence from three datasets. *Psychiatric Quarterly, 90*(2), 311–331.

Valkenburg, P. M., van Driel, I. I., &Beyens, I. (2021). The associations of active and passive social media use with well-being: A critical scoping review. *New Media* & *Society, 24*, 530–549.

Valkenburg, P. M. (2022). Social media use and well-being: What we know and what we need to know. *Current Opinion in Psychology, 45*, 101294. https://doi.org/10.1016/j.copsyc.2021.12.006

Valkenburg, P. M.. Peter, J., & Schouten, A. P. (2006). Friend networking sites and their relationship to adolescents' well-being and social self-esteem *Cyberpsychology* &*Behavior, 9*(5), 584-590.

Vernon, L., Modecki, K. L., & Barber, B. L. (2017). Tracking effects of problematic social networking on adolescent psychopathology: The mediating role of sleep disruptions. *Journal of Clinical Child and Adolescent Psychology, 46*(2), 269–283. https://doi.org/10.1080/15374416.2016.1188702

Wang, P., Wang, X., Wu, Y., Xie, X., Wang, X., Zhao, F., & Lei, L. (2018). Social networking sites addiction and adolescent depression: A moderated mediation model of rumination and self-esteem. *Personality and Individual Differences,127*, 162–167.

Werling, A.M., Walitza, S., Gerstenberg, M., Grunblatt, E., & Drechsler, R. (2022). Media use and emotional distress under COVID-19 lockdown in a clinical sample referred for internalizing disorders: A Swiss adolescents' perspective. *Journal of Psychiatric Research, 147*, 313–323.

Wojtczuk, A. (2020). Pandemia koronowirusa – zmiana w świecie. Zagrożenia dla zdrowia psychicznego i szanse rozwojowe. *Student Niepełnosprawny. Szkice i Rozprawy, 20*, 101-113.

World Health Organization. Regional Office for Europe. *Spotlight on adolescent health and well-being. Findings from the 2017/2018 Health Behaviour in School-aged Children (*HBSC) survey in Europe and Canada. International report. Volume 2. Key data. World Health Organization. Regional Office for Europe 2020. https://apps.who.int/iris/handle/10665/332104

Ucar, H.N., Cetin, F.H., Ersoy, S.A., Guler, H.A., Kilinc, K., & Turkoglu, S. (2020). Risky cyber behaviors in adolescents with depression: A case control study. *Journal of Affective Disorders, 270*, 51–58.

Ucar, H.N., Eray, S., Kocael, O., Ucar, L., Kaymak, M., Lettieri, E., & Vural, A.P. (2018). Big data in adolescent psychiatry: Do patients share their psychiatric symptoms on social networking sites? *PsychiatriaDanubina, 30*, 395–403.

Uman, L. S. (2011). Systematic reviews and meta-analyses. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 20*(1), 57–59.

Yan, H., Zhang, R., Oniffrey, T. M., Chen, G., Wang, Y., Wu, Y., Zhang, X., Wang, Q., Ma, L., Li, R. & Moore, J. B. (2017). Associations among screen time and unhealthy behaviors, academic performance, and well-being in Chinese adolescents. *International Journal of Environmental Research and Public Health, 14*(6), 596. https://doi.org/10.3390/ijerph14060596

www://datareportal.com/reports/digital-2023-global-overview-report