



The Use of Social Networking Sites and Its Impact on Adolescents' Emotional Well-Being: a Scoping Review

Rossella Bottaro¹ · Palmira Faraci¹

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Abstract

Purpose of Review The rapid development of social networking sites (SNSs) has affected adolescents' well-being with great impact on social experience. In this scoping review, we aimed to map out what is known from the most recent literature about adolescents' emotional well-being and the role of emotional regulation skills in preventing problematic SNS use. We used the Arksey and O'Malley methodological framework, and we based the study selection procedure on the PRISMA process. Then, we selected 52 English and peer-reviewed papers from PubMed, MEDLINE, PsycARTICLES, PsycINFO, Psychology and Behavioral Sciences Collection, Wiley Online Library, and Web of Science.

Recent Findings We found both positive and negative effects of SNS use on adolescents' emotions with online self-presentation and social comparison as key mechanisms to explain differences in subjective well-being. The risk of developing problematic use of SNSs is influenced by time spent on SNSs, active or passive use, and adolescents' social and emotional skills.

Summary This review suggested the importance of emotional experiences and social support in both in-person and online interactions. Future research is needed to provide the basis for a better forthcoming classification of problematic SNS use.

Keywords Adolescents · Social networking sites · Emotions · Self-presentation · Emotion regulation · Social comparison

Introduction

With the rapid development of information technologies, social networking sites (SNSs) play an increasingly important role in providing new interpersonal communication channels [1]. According to Kuss and Griffiths [2], SNSs are «virtual communities where users can create individual public profiles, interact with real-life friends, and meet other people based on shared interests.» For the “digital native” [3] generation, online interaction and support may be as effective as face-to-face contact [4••], and life without digital communication is inconceivable [5]. The first SNS was SixDegrees in 1997, but it would not be until 2003 that the first social network, MySpace, would be known worldwide.

Despite the large number of studies that have investigated SNSs, there continues to be a gap in our understanding of why young people use SNSs (for a review: [6]). Early research has focused on digital platforms that exhibit similar characteristics for unraveling types of user behaviors. For example, Brandtzæg and Heim [7] highlighted that people who choose to use blogs as a medium of immediate social interaction have as a commonality the desire to pour out their feelings. Also, they feel a sense of connection with new and old friends. Other studies have shown that a sense of ownership, visibility, and shared interests [8] are essential for adolescents' development. In particular, young girls revealed that they use SNSs to comment on photos, videos, or updates of others, whereas young males were more likely to use SNSs to play games [9].

Previous research has disagreed on the effect of SNSs on users' well-being, and the modality of use (e.g., passive or active use) could be a discriminant factor [10, 11, 12]. Moderate use of SNSs has been found to be associated with greater social support [13], socialization [14], participation in public and political life [15], and affirmation of one's online identity [16]. However, Herrero et al. [17] indicated that social support predicts later addiction to the smartphone

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✉ Rossella Bottaro
rossella.bottaro@unikorestudent.it;
rossella.bottaro1@gmail.com

¹ Faculty of Human and Social Sciences, University of Enna “Kore”, Cittadella Universitaria, 94100 Enna, Italy

and that smartphone addiction decreases social support over time. Further, adolescents do not perceive a real difference between online and “physical” social support [4••]. Despite these evidences, the problematic use of SNS is not yet recognized in the official clinical classifications (i.e., Diagnostic and Statistical Manual of Mental Disorders-5 [18] and International Classification of Disease-11 [19]; DSM-5 and ICD-11). It is suggested as a potential condition that requires further investigations based on the purposed criteria for gaming disorder and gambling disorder in ICD-11 [20•].

Based on previous research [21]—applying the Goffman [22] dramaturgical model also on digital interactions—SNS users imagine themselves in front of a great audience and create a self-image that is shared daily on their profiles. The younger users post their great moments online—but not their negative moments, experiences, emotions, and so on—so that they can show the best of themselves [21]. The social comparison with these unreachable models of perfection and happiness can have an unfavorable impact on younger users’ life satisfaction and mental health outcomes [23, 24].

Indeed, excessive use of new technologies may increase psychological distress in terms of loneliness, depression, anxiety, and insomnia [25, 26, 27]. The flow experience of SNS use has been indicated as a key risk factor in the development of addiction due to emotion avoidance [28•], especially for vulnerable populations (e.g., adolescents) showing marked novelty seeking, low self-control [29], and difficulties in offline emotional relationships [30].

Thompson [31] defined emotional regulation as «the extrinsic and intrinsic process responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features to accomplish one’s goal.» According to the Interaction of Person-Affect-Cognition-Execution Model (I-PACE; [32••]), deficits in emotion regulation skills may represent a risk factor for substantial and non-substantial addiction [33, 34]. Difficulties in emotion regulation were found to be directly and indirectly associated with problematic social media use in a group of Italian adolescents [35]. Moreover, this theoretical model acknowledges the contribution of mood regulation in lessening the development of internet-use disorders [36].

Younger people who are more engaged in SNS flow may exhibit the fear of missing out (FOMO), which is described as the “pervasive apprehension that others might be having rewarding experiences from which one is absent” [37]. FOMO is a predictor of smartphone addiction [38] and, in particular, phubbing as its special form. This refers to the act of snubbing others in social relations by focusing on one’s smartphone instead of having a conversation in person [38]. Adolescents with high levels of parental phubbing showed problematic smartphone use, depression symptoms, and low self-esteem [39•, 40•].

Current Study

To date, a number of studies have evaluated the impact of SNSs on users’ emotional well-being [41], but the results are still controversial. Hence, a scoping review—using a systematic approach—may be valuable in providing a broad view on the topic, with a focus on the more recent studies. Therefore, we decided to apply the scoping review technique in order to identify the key concepts/definitions mostly used in the literature so that we could refer to the emotional well-being among adolescents who use SNSs. Our goal included mapping research activity within this specifically delimited area of study and identifying the gaps that may exist within the related literature.

This scoping review may serve as a systematization of the latest literature (i.e., the last 20 years) from a new point of view. Indeed, even though previous reviews concerned the general well-being among adolescent users of SNSs, the present contribution aims to provide a summary of the previous findings specifically related to emotional well-being. This study can be understood as a specific focus on a broad problem because it focuses on emotions as a specific variable instead of generic psychopathological implications (e.g., anxiety and depression). Consistent with this purpose, a scoping review is the most appropriate and robust methodology for our research conduct [42].

Method

We structured this review according to Arksey and O’Malley’s [43] methodological framework. A scoping study can provide a rigorous and transparent method of research for mapping research findings compared with a systematic review, even if it is less likely to seek the quality assessment of included studies and the protection against bias risks. According to the required procedure, we adopted the following steps for conducting our scoping study: (1) identifying the research question; (2) identifying relevant studies; (3) study selection, according to the PRISMA statement [44]; (4) charting the data; and (5) collating, summarizing, and reporting the results.

Identifying the Review Questions

The aim of this scoping review was to map the current literature about the use of SNSs and emotional user experience among adolescent population, identify gaps that may exist within the literature, and consider implications for future research. Specific questions to be addressed included the following: (1) What is known from the existing literature about

adolescents' use of SNSs and its implication on their emotions; and (2) what knowledge is currently available on the role of emotional skills in preventing problematic SNS use?

Study Identification

To find papers concerning adolescents' emotional experience during the use of SNSs, we searched the following keywords in both the title and abstract: (1) social networking sites OR social media; (2) emotion OR affect OR mood OR feeling OR emotive; and (3) adolescent OR teenager OR young adults OR teen OR youth. We searched the following databases: PubMed, MEDLINE, PsycARTICLES, PsycINFO, Psychology and Behavioral Sciences Collection, Wiley Online Library, and Web of Science. To identify most of the available literature, according to the recent diffusion of SNSs, we screened papers published in the last 20 years. According to our eligibility criteria, we selected the following: (1) English full-text papers; (2) papers published in peer-review journals; and (3) papers focused on emotional experiences in adolescence (i.e., from 12 to 18 years old). However, given that the samples often had ranges conflicting with ours, we also included those studies whose samples' mean age diverged by max 2 SD from our upper margin. Conversely, we excluded the following: (1) dissertation thesis, abstract, and books; (2) studies that referred to other age groups (i.e., children, adults, and old adults); (3) studies that referred to psychiatric illness; and (4) studies related

to experiences during the Covid-19 pandemic; we decided not to consider the studies specifically referring to the pandemic because the internet was the only available means of socialization. It would be inadequate to compare results derived from radically different contexts. We also excluded (5) papers not focused directly on emotions as a variable. The study-selection procedure has been shown in the Fig. 1, which was based on the PRISMA statement [44].

Study Selection

We analyzed an initial pool of 2387 papers. According to our eligibility criteria, and after deleting 13 duplicates, we screened 2374 papers. Among these studies, 483 were dissertation theses or abstracts, 96 were written in others languages, and the remaining were irrelevant; that is, they did not meet the eligibility criteria. For example, 32 of them were studies conducted on psychiatric adolescents. Finally, we selected 52 papers. Figure 1 presents the PRISMA study-selection process.

Data Charting

Based on Arksey and O'Malley's [43] methodological framework, we summarized or charted the 52 selected papers in Table 1, which briefly notes studies' relevant results, sample characteristics, instruments, and methodologies.

Fig. 1 PRISMA flow chart for steps of scoping review

PRISMA Flow Chart for Steps of Scoping Review

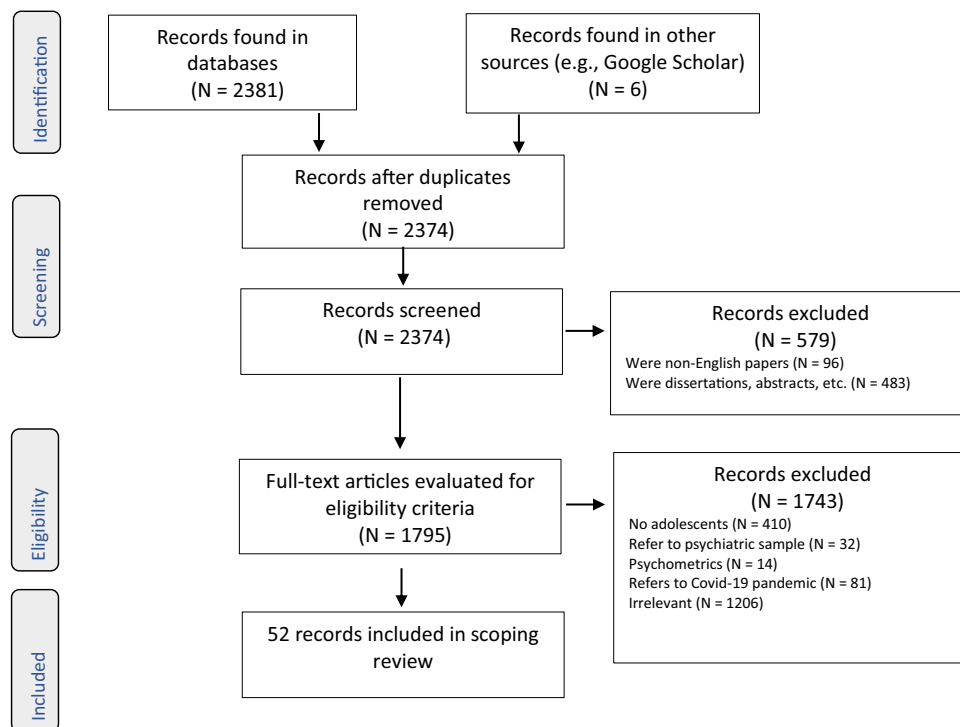


Table 1 Studies characteristics (*N* = 52)

Authors	State	Sample <i>N</i> (mean age ± SD or range)	Instruments	Methods	Relevant results
Allen et al., [54]	N.A	N.A	N.A	Review	Online tools create a paradox for social connectedness. On one hand, they elevate the ease in which individuals may form and create online groups and communities, but on the other, they can create a source of alienation and ostracism
Al-Saggaf and Nielsen, [79]	N.A	606 public profiles (N.A.)	N.A	Study of open access SNS profiles	The results of this study have shown that more 'lonely' people disclosed their personal information, relationship information, and address than 'connected' people and more 'connected' people disclosed their views and their wall than 'lonely' people
Apaoalaza, He, and Hartmann, [48]	China	220 (16.71 ± .93)	Positive and negative affect schedule (PANAS) scale and ad hoc questionnaires	Cross-sectional	Gratifications that Chinese adolescents receive from use of the online social network Qzone, such as socializing, information-seeking, and entertainment are found to have a significantly positive influence on their positive mood. Findings of this study extend the existing theoretical framework on the application of the uses and gratifications theory to social networking sites. In addition, findings are in line with those of a number of authors who suggest that social networking site use may have positive consequences for teenagers
Appel et al., [60]	Australia	244, 166, 101 (21.27 ± 0.50 16.39 ± 1.36 21.37 ± 3.34)	Self-Concept Clarity Scale; Facebook Intensity Scale	Cross-sectional and longitudinal	The studies provided consistent evidence of a negative relationship between Facebook intensity and self-concept clarity. Moreover, the longitudinal study showed that Facebook intensity predicted a decline in self-concept clarity over time whereas a reverse pathway was not supported. The results suggest that an intense attachment to Facebook contributes to an inconsistent and unclear self-concept
Ballarotto, Volpi, and Tambelli, [82]	Italy	372 (15.8 ± 1.4)	Bergen Instagram Addiction Scale (BSMAS)	Cross-sectional	Findings show that a worse attachment to parents and peers is associated with adolescents' psychopathological risk, which is associated with Instagram addiction
Best, Manktelow, and Taylor, [68]	Ireland	527 (U)	Warwick-Edinburgh Mental Well-Being Scale (WEMWBS), General Self-Efficacy Scale (GSE), ad hoc questions	Cross-sectional	Young males who reported speaking to online friends regarding personal problems recorded statistically significantly higher levels of mental well-being (<i>p</i> < 0.02)

Table 1 (continued)

Authors	State	Sample N (mean age \pm SD or range)	Instruments	Methods	Relevant results
Calancie et al., [51]	Ontario	8 (15.5 \pm U)	Focus group	Qualitative study	Many participants reported a fear of receiving negative comments online and discussed strategies to avoid them, such as posting less content (i.e., comments, photographs) than their peers. Some participants described feeling positive emotions when they received a “like” from a SNS user, however, they also tended to describe these positive emotions as “false”, “unreal” and “fleeting”. Notably, many participants reported comparing themselves to peers on Facebook, which increased feelings of anxiety, as well as compulsive checking behaviours, such as monitoring posted content and friend lists
Charmaraman et al., [81]	USA	772 (12.6 \pm 1.0)	A combination of validated and self-created items	Cross-sectional	Quantity of social technology use (e.g., checking social media, problematic internet behaviors, mobile use), content viewed (e.g., emotional or violent videos, risky behaviors), and social context (e.g., bedtime behaviors, starting social media at an early age) were significantly related to later bedtimes and fewer hours of sleep on school nights. Parental rules restricting mobile phone and online use before bed and obtaining a smartphone at a later age were associated with increased sleep time and earlier bedtime
Chua & Chang, [67]	Singapore	24 (14.05 \pm 1.22)	N.A	In-depth interviews	Results of thematic analysis reveal a gap between teenage girls’ self-beliefs and perceived peer standards of beauty. Feelings of low self-esteem and insecurity underpinned their efforts in edited self-presentation and quest for peer recognition. Peers played multiple roles that included imaginary audiences, judges, vicarious learning sources, and comparison targets in shaping teenage girls’ perceptions and presentation of beauty

Table 1 (continued)

Authors	State	Sample N (mean age ± SD or range)	Instruments	Methods	Relevant results
Cipolletta et al., [57]	Italy	40 (14.03 ± 1.2)	Specifically designed interview	Qualitative interview	The adolescents' self-construction and distance from others were mostly influenced by receiving, or not receiving, positive feedback, rather than by using Instagram itself. Specifically, there was an increase in self-acceptance and social desirability after receiving a "like" and an increase in social isolation after receiving no "likes". The regression model also showed a decrease in self-acceptance on Instagram in the case of female adolescents, and in participants who edited photos
Cohen et al., [85]	USA	18 (range 13–19)	Focus group	Qualitative	Youth spend much of each day online and frequently access social media, including news shared on these platforms. Many participants identified concerns surrounding 'fake' news on social media. Participants reported encountering racially charged news and described their responses to these stories. Some reported feeling overwhelmed by racism in the news. Most participants perceived negative mood changes after exposure to racism in online news, although few associated this exposure with changes in their own health behaviors. Youth indicated that peer discussion was important for coping with vicarious racism exposure
Cole et al. [13]	U	231 (19.28 ± 1.15)	Dysfunctional Attitudes Scale (DAS), the Cognitive Triad Inventory (CTI), the Beck Depression Inventory-II (BDI-II), and the Rosenberg Self-Esteem Scale (RSE) and ad hoc questionnaires	Cross-sectional	For people with weaker in-person social support, social media sites provide a source of social support that is less redundant of the social support they receive in person; (2) in ways that were not redundant of each other, both online and in-person social support were associated with lower levels of depression-related thoughts and feelings, and (3) the beneficial effects of online social support (like in-person social support) offset some of the adverse effects of peer victimization

Table 1 (continued)

Authors	State	Sample N (mean age \pm SD or range)	Instruments	Methods	Relevant results
Doucette et al., [71]	England	109 female (15.78 \pm U)	EI scale, The Beck Depression Inventory-II (BDI-II), Regulation of Emotions Questionnaire (REQ), Acceptance of couple violence (ACV), CADRI scale	Cross-sectional	Findings demonstrate that perpetration of electronic intrusiveness within the past 3 months is common among a sample of high-risk adolescent females, with rates across various modes of technology ranging from 30 to 57%. Results also revealed electronic intrusiveness is associated with in-person dating violence perpetration after accounting for known risk factors
Drach, Orloff, and Hormes, [88]	USA	144 (19.03 \pm 1.85)	The Young Internet Addiction Test (YIAT); Problematic Social Networking Sites Use evaluated by dichotomous items from DSM-5; Difficulties with Emotion Regulation Scale (DERS); Positive and Negative Affect Scales (PANAS); ad hoc questionnaire for Subjective urge to use SNS and the Internet	Cross-sectional	Participants meeting criteria for “moderate” levels of disordered SNS use self-reported significantly greater deficits in emotion regulation. Increases in positive and negative affect following the mood induction were associated with a decrease in subjective urge to access SNS. Time spent browsing SNS resulted in significantly greater increases in self-reported positive affect, compared to the control website
Erreygers et al., [53]	Belgium	1720 (13.61 \pm 0.49)	Items from European Cyberbullying Intervention Project Questionnaire and Prosocial Behaviour Scale; ad hoc questionnaire	Part of a study	Findings indicated that participants performed and received more prosocial than antisocial behavior online. Experiencing negative as well as positive emotions was related to online social behavior, and these associations were mediated by adolescents’ use of social and audiovisual media, but not by gaming or functional Internet use
Fioravanti et al., [62]	N.A	N.A	N.A	Systematic Review	Findings indicate that viewing idealized images on SNSs lead to increased body dissatisfaction among young women and men
Franchina et al., [86]	Flanders	2663 (14.87 \pm 1.67)	Ad hoc questionnaires	Cross-sectional	FOMO was a positive predictor of both how frequently teenagers use several social media platforms and of how many platforms they actively use. FOMO was a stronger predictor of the use of social media platforms that are more private (e.g., Facebook, Snapchat) than platforms that are more public in nature (e.g., Twitter, Youtube). FOMO predicted phubbing behavior both directly and indirectly via its relationship with PSMU
Frison and Eggermont, [10]	Belgium	T1 = 1840 T2 = 1577 (14.76 \pm 1.41)	Frequency of Having a Negative Feeling from Comparison on Facebook Scale, Satisfaction with Life Scale	Longitudinal	Negative comparison on Facebook predicted decreases in life satisfaction over time. Conversely, lower scores on life satisfaction predicted increases in negative comparison on Facebook

Table 1 (continued)

Authors	State	Sample N (mean age ± SD or range)	Instruments	Methods	Relevant results
Fu et al., [50]	China	720 (13.66 ± 1.63)	Difficulties in Emotion Regulation Scale; Smartphone Addiction Scale; Center for Epidemiologic Studies Depression Scale; Multidimensional Scale of Perceived Social Support (MSPSS)	Cross-sectional	The results indicated that emotion regulation difficulty was positively related to problematic smartphone use and depression mediated this relationship. Moderated mediation analyses showed that the pathway between depression and adolescent problematic smartphone use was moderated by perceived social support
Hamilton et al., [90]	Online	110 (12.28 ± U)	Ecological momentary assessment (EMA)	Longitudinal	Multilevel models indicated that negative peer interactions that occurred on social media were more likely to be associated with sustained negative affect, but not negative emotional reactivity during the interaction. Positive interactions on social media were more likely to be associated with both lower positive emotional reactivity and lower sustained positive affect
Holmberg et al., [61]	Sweden	20 (U)	Semi-structured interview	Qualitative interview	Adolescent girls and boys undergoing treatment for obesity used visual-based social media, but girls in particular experienced weight stigma online and undertook self-presentation strategies to conceal weight-related content such as avoiding showing close-up photos of their bodies and not posting images of unhealthy “fattening” foods. Participants perceived the potential use of social media in clinical settings as being too risky and private
Kross et al., [49]	N.A	N.A	N.A	Review	Early research generated inconclusive findings, several experiments have revealed small negative effects of social media use on well-being. These results mask, however, a deeper set of complexities. Accumulating evidence indicates that social media can enhance or diminish well-being depending on how people use them
La Sala et al., [58]	Australia	34	Semi-structured focus groups	Qualitative research	Teenagers reported that they spend a good deal of time planning their sms posts, felt that the information they posted was a true reflection of them as a person, and thus interpreted feedback (“likes”) as measuring their self-worth. In contrast, some teenagers were perceived as “chasing the like” for status and popularity while not caring about how accurately their posts represented them as a person

Table 1 (continued)

Authors	State	Sample <i>N</i> (mean age ± SD or range)	Instruments	Methods	Relevant results
Lee et al., [64]	Online	613 (14.3 ± 0.70)	Post-task survey questions	3 cross-sectional studies	The findings raise the possibility that technology which makes it easier for adolescents to compare their social status online—even when there is no chance to share explicitly negative comments—could be a risk factor that accelerates the onset of internalizing symptoms among vulnerable youth
Lo Coco et al., [66•]	Italy	647 (14.15 ± 1.43)	Smartphone Addiction Inventory (SPAI-I); The Difficulties in Emotion Regulation Scale- Short Form (DERS-SF); Body Esteem Scale(BES)	Cross-sectional	Findings from hierarchical regression models revealed that problematic smartphone use was weakly associated with body esteem among both adolescent girls and boys. Furthermore, difficulties with emotional regulation were moderately associated with problematic smartphone use and, among girls, moderated the relationship between problematic smartphone use and the evaluation attributed to others about one's own body, such that problematic smartphone use was more tightly associated with appearance attributions among girls with greater emotion regulation difficulties
Lutz, Ranzini, and Meckel, [83]	Switzerland	6989 (15.3 ± U)	Ad hoc questionnaire	Cross-sectional	While only a minority of 13% of respondents feels stressed by social network sites, more than one third has the feeling of spending too much time on such platforms. Age, gender, and language background (French vs. German speaking) shape the overload propensity, with older, male and French-speaking teenagers most at risk for social network site stress
Manago et al., [65]	USA	815 (19.28 ± .95)	Gordon and Ward Self-Worth Measure, Surveillance sub-scale of the Objectified Body Consciousness Scales – Youth (OBC-Y), Enjoyment of Sexualization Scale, 5-item Shame subscale of the OBC-Y, Huribert Index of Sexual Assertiveness, ad hoc questionnaires	Cross-sectional	For both women and men, Facebook involvement predicted objectified body consciousness, which in turn predicted greater body shame and decreased sexual assertiveness. The link between objectified body consciousness and body shame was greater in magnitude for women, but no gender difference was found in the association between body shame and sexual assertiveness

Table 1 (continued)

Authors	State	Sample N (mean age ± SD or range)	Instruments	Methods	Relevant results
Marin-Lopez et al., [78]	Spain	2114 (13.79 ± 1.40)	European Cyberbullying Intervention Project Questionnaire (ECIPQ), E-motions Questionnaire, Social and Emotional Competencies Questionnaire (SEC-Q).	Cross-sectional	Results showed that a high level of social and emotional competencies were negatively related to cybervictimization and cyberperpetration, and to more use of emotional content online. Using more emotional content online was related to more cybervictimization and cyberperpetration. Also having a high level of social and emotional competencies protected against cyberbullying, but an excessive use of emotions online was a risk factor
Marino et al., [35]	Italy	761 (15.49 ± 1.03)	Difficulties in Emotion Regulation Strategies (DERS); E-motions questionnaire; ad hoc questionnaires	Cross-sectional	Difficulties in emotion regulation were directly and indirectly linked to problematic social media use via frequency of use and facilitating use of e-motions
Moretta and Buodo, [70]	N.A	N.A	N.A	Review	A small-medium positive association between loneliness and PIU has been reported in several cross-sectional studies. However, the association becomes weaker when other variables are controlled for. Longitudinal studies suggest a dynamic relationship between PIU and loneliness
Neira and Barber, [84]	Australia	1819 (14.6 ± 1.05)	ad hoc questionnaires	Cross-sectional	The results showed that frequency of SNS use was linked to higher social self-concept while investment in SNSs was associated with lower self-esteem and higher depressed mood
Nie et al., [1]	China	699 (13.31 ± 0.79)	Adolescents' Emotional Resilience Questionnaire (AERQ); Berkeley Expressivity Questionnaire (BEQ); Facebook Intrusion Questionnaire (FIQ); Type D personality scale (DS14)	Cross-sectional	Our mediation analysis revealed that the ability to generate positive emotions (a mechanism of emotional resilience) positively predicted SNS addiction via increasing positive expressivity; the ability to recover quickly from negative emotions (another mechanism of emotional resilience) negatively predicted SNS addiction directly and via decreasing positive and negative expressivity

Table 1 (continued)

Authors	State	Sample N (mean age ± SD or range)	Instruments	Methods	Relevant results
Nowland, Necka, and Cacioppo, [25]	N.A	N.A	N.A	Review	When the Internet is used as a way station on the route to enhancing existing relationships and forging new social connections, it is a useful tool for reducing loneliness. But when social technologies are used to escape the social world and withdraw from the “social pain” of interaction, feelings of loneliness are increased. We propose that loneliness is also a determinant of how people interact with the digital world. Lonely people express a preference for using the Internet for social interaction and are more likely to use the Internet in a way that displaces time spent in offline social activities. This suggests that lonely people may need support with their social Internet use so that they employ it in a way that enhances existing friendships and/or to forge new ones
Oberst et al., [76]	Latin-America	1468 (16.59 ± 0.62)	The Hospital Anxiety and Depression Scale (HADS), the Social Networking Intensity scale (SNI), the FOMO scale (FOMOs), and a questionnaire on negative consequences of using SNS via mobile device (CERM)	Cross-sectional	It was found that both FOMO and SNI mediate the link between psychopathology and CERM, but by different mechanisms. Additionally, for girls, feeling depressed seems to trigger higher SNS involvement. For boys, anxiety triggers higher SNS involvement
O'Reilly et al., [77]	UK	54 (range 11–18)	Focus group	Qualitative	Thematic analysis suggested that adolescents perceived social media as a threat to mental wellbeing and three themes were identified: (1) it was believed to cause mood and anxiety disorders for some adolescents, (2) it was viewed as a platform for cyberbullying and (3) the use of social media itself was often framed as a kind of ‘addiction’
Quinn and Oldmeadow, [52]	England	337 (12.28 ± 0.73)	Ad hoc questionnaires	Cross-sectional	In order to access to sns, mobile device users were found to have significantly higher levels of belonging than non-mobile device users and this relationship was partially mediated by the frequency of use of sns. It is suggested that these mobile devices not only afford an opportunity for increased use of sns and therefore increased interaction with friends but that mobile device sns users feel constantly connected to their friends
Shankleman, Hammond, and Jones, [55•••]	N.A	N.A	N.A	Systematic review	The findings suggest that well-being and social media are related with four themes: connections, identity, learning, and emotions

Table 1 (continued)

Authors	State	Sample N (mean age ± SD or range)	Instruments	Methods	Relevant results
Spada and Marino, [89]	Italy	380 (15.82 ± 1.67)	Short Problematic Internet Use Test (SPIUT), Metacognitions Questionnaire 30, three-items subscale measuring “emotion regulation” drawn from the validated Social and Emotion Health Survey (SEHS)	Cross-sectional	Metacognitions, with the exception of cognitive self-consciousness, were positively correlated with PIU. Moreover, emotion regulation negatively correlated with PIU. The model tested indicated that both metacognitions and emotion regulation had direct effects (positive and negative respectively) on PIU and that the relationship between metacognitions and emotion regulation was not significant
Thorisdottir et al., [75]	Iceland	10,563 (U)	Multidimensional Anxiety Scale for Children; Original Symptom Check list; Perceived Parental Support Scale; Iowa–Netherlands Comparison Orientation Measure; Rosenberg Self-Esteem Scale; ad hoc questionnaires	Cross-sectional	Passive social media use was related to greater symptoms of anxiety and depressed mood among adolescents and active social media use was related to decreased symptoms of anxiety and depressed mood, even after controlling for time spent on social media. When adding known risk and protective factors, self-esteem, offline peer support, poor body image, and social comparison to the model, active use was not related to emotional distress; however, passive use was still related to adolescent symptoms of anxiety and depressed mood. The effect of social media on emotional distress differed by gender as time spent on social media had a stronger relationship with emotional distress among girls. In addition, passive use was more strongly related to symptoms of depressed mood among girls
Unal-Aydin et al., [91]	Turkey	861 (15.84 ± 0.46)	Bergen Social Media Addiction Scale (BSMAS), the Metacognitions Questionnaire for Children (MCQ-C), and the Children’s Version of Reading the Mind in the Eyes Test (RMET)	Cross-sectional	A stepwise multiple linear regression analysis showed that all subdimensions of metacognitions (positive meta-worry, negative meta-worry, superstition, punishment, and responsibility beliefs, and cognitive monitoring), but not emotion recognition, independently predicted the BSMAS total score controlling for daily SNS use

Table 1 (continued)

Authors	State	Sample N (mean age \pm SD or range)	Instruments	Methods	Relevant results
Verduyn et al., [59]	N.A	N.A	N.A	Review	The occurrence of social comparisons on SNSs depends on who uses the SNS and on how the SNS is being used with passive use in particular resulting in increased levels of social comparison. Moreover, social comparison on SNSs may occasionally result in an increase in subjective well-being (SWB) but typically negative effects are found as people tend to engage in contrasting upward social comparisons. Finally, several studies show that social comparison is a key mechanism explaining the relationship between use of SNSs and SWB and that users with a tendency to engage in social comparison are especially likely to be negatively impacted by SNSs.
Vermeulen, Vandebosch, and Heirman, [92]	Online	22 (range 14–18)	In-depth Interviews	Qualitative	Although the different platforms have similar affordances, their social norms clearly differ and influence adolescents' online behavior. Facebook statuses, Instagram, and Snapchat are mostly used for sharing positive emotions, if emotions are shared at all. Twitter and Messenger, on the other hand, are also used for sharing negative emotions, albeit for different reasons.
Vossen and Valkenburg, [56]	Netherlands	1032 (12.93 \pm 1.39)	The Adolescent Measure of Empathy and Sympathy (AMES);	Part of a study	The results showed that social media use is related to an increase in cognitive and affective empathy over time. Specifically, adolescents' social media use improved both their ability to understand (cognitive empathy) and share the feelings of their peers (affective empathy).
Wartberg, Thomasius, and Paschke, [87]	Germany	1221 (13.04 \pm 2.39)	Difficulties in Emotion Regulation Scale Short Form (DERS-SF), Procrastination Questionnaire for Students (PFS-4), Short Form Perceived Stress Scale (PSS-4)	Cross-sectional	Bivariate statistically significant relations were found between Problematic Social Media Use (PSMU) and lower age, more pronounced problems in all six facets of emotion regulation, procrastination, and stress. In the multivariable regression, PSMU was associated with lower age, stronger impulse control difficulties, stronger difficulties engaging in goal-directed behavior, stronger procrastination and higher perceived stress.

Table 1 (continued)

Authors	State	Sample N (mean age ± SD or range)	Instruments	Methods	Relevant results
Waterloo et al., [93]	Netherlands	1201 (50% range 15–18 and 50% range 18–25)	Ad hoc questionnaires	Cross-sectional	The expression of negative emotions was rated as most appropriate for WhatsApp, followed by Facebook, Twitter, and Instagram. For positive emotion expression, perceived appropriateness was highest for WhatsApp, followed by Instagram, Facebook, and Twitter
Weinstein, E., [63]	USA	568; 26 (15.26 ± 0.97)	Survey and interview	Cross-sectional	Analyses suggest the relationship between social technology usage and well-being—whether enhanced or degraded—is not confined to an ‘either/or’ framework; the emotional see-saw of social media use is weighted by both positive and negative influences
Weinstein, [69]	USA	588 (15.26 ± 0.97)	Positive and Negative Affect Scales (PANAS)	Cross-sectional	Teens who reported higher levels of negative social comparison had significantly worse post-browsing affect than peers who reported less negative comparison to the stimuli. No main effects of browsing condition were found. However, browsing condition moderated the relationship between social comparison and affective well-being: the interventions reduced post-browsing negative affect for those at higher levels of negative comparison
Wu et al., [73]	China	596 (15.24 ± 1.39)	Satisfaction with Life Scale; Positive Affect and Negative Affect Scale for Children; ad hoc questionnaires	Cross-sectional	The results revealed that watching videos (passive use) predicted reduced life satisfaction and reduced positive affect after controlling for age and gender, whereas posting online (active use) predicted enhanced life satisfaction. In contrast to Entertainment/Relaxation themed videos, watching People/Fashion themed videos predicted reduced life satisfaction. Additionally, our analysis showed that Chinese adolescents and young adults differed in social short-form video use. Compared with young adults, adolescents spent more time watching short-form videos and preferred Entertainment/Relaxation ones. They also gave more “likes” yet posted less often

Table 1 (continued)

Authors	State	Sample N (mean age \pm SD or range)	Instruments	Methods	Relevant results
Xie and Kang, [80]	N.A	622 (14.94 \pm 1.60)	Ad hoc questionnaires	Survey	Though teenagers reveal moderately high level of personal information on sns, they do not disclose all types of personal information equally. Results also show that male and older teens disclose more personal information. Frequent sns use, large sns network size, and having strangers in sns friend list increase both self-disclosure and posting regret. Setting sns profile private is related to lower level of self-disclosure
Yau, Reich, and Lee, [74]	California	130 (12.41 \pm 1.23)	The 15-item Network of Relationships Inventory and ad hoc questionnaires	Experimental study	Participants who texted their friend reported higher moods and lower stress at the end of the study than those in the no activity condition and higher moods than adolescents in the passive-phone condition. No differences were noted between the passive-phone and no activity conditions. There were no differences in heart rate variability between the three conditions. The effects of texting on mood, self-reported stress, and heart rate variability did not differ by gender
Zhang et al., [72]	China	266 (T1 19.43 \pm 1.65 T2 20.11 \pm 0.98)	9 items adapted from Facebook Activity Measures; UCLA Loneliness Scale-3; Center for Epidemiologic Studies Depression Scale	Longitudinal	Results showed that negative emotions (loneliness, depression) at time 1 (T1) was positively related to both active SNS usage and passive SNS usage at Time 2 (T2). However, neither active nor passive SNS usage at T1 was found to be associated with negative emotions at T2

U undetectable; *N.A.* not applicable

Results

Description of Included Studies

The 52 included studies were conducted in various countries (i.e., Italy, Germany, Turkey, and the USA). According to the timing of SNSs' worldwide deployment, most of these have been conducted in the last 10 years. Therefore, using a time range of 20 years has shown to be a reasonable choice for a temporal range large enough to include most of the available literature on the topic. We gathered findings from 44,880 participants (range 8–10,563; $M_{\text{age}} = 15.19$; $SD = 1.24$). The most used psychometric instrument to evaluate SNS addictive behavior was the Bergen Social Media Addiction Scale (BSMAS; [45]), but some studies used generic scales for measuring internet addiction, such as the Young Internet Addiction Test (YIAT; [46]), the Smartphone Addiction Scale [47], and ad hoc questionnaires (for more information, see Table 1).

Positive Effects of SNS Use on Adolescents' Emotions

In the current review, we found various positive effects related to how adolescents use SNSs, especially in socialization, sensation seeking, and entertainment [48, 49]. The most important benefit came from the social support provided by online friends or followers. Cole et al. [13] highlighted that social support, both in-person and online, could offset some of the negative consequences of peers' victimization and reduce depressive symptoms through the search for online positive emotion [50]. Indeed, the researchers showed that online social support is less redundant than in-person support among those who already have supportive in-person relationships. Online flow could reduce the feelings of loneliness among adolescents who use SNSs so that they can enhance their existing relationships or look for new friends [25]. Adolescents reported positive feelings when they received a "like" for their online contents, but they sometimes described these feelings as "false," "unreal," and "fleeting" [51].

The use of a mobile phone, rather than a personal computer, makes it easier to access SNSs and establish constant connection with friends [52]. Online interactions showed a positive emotional effect on prosocial behavior [53] and allowed for the formation of groups and online communities [54]. Moreover, the SNSs could generate a positive emotional contagion due to the vision of positive digital contents [55••]. Indeed, Vossen and Valkenburg [56] highlighted that social media use was related with higher cognitive and affective empathy, showing an increased ability to understand and share the feelings of their peers. Finally, these findings suggested that lonely people who have

great social skills could improve their emotional well-being on SNSs.

Adolescents' Online Self-Presentation and Social Comparison

The online relationships are characterized by feedback for the published contents, especially for shared personal photos and videos. Thanks to the various available communication mediums (e.g., photos, texts, and videos), adolescents perceived more authenticity in self-presentation [55••]. Recent research has shown [57] that self-construction and distance from others are mostly influenced by receiving positive feedbacks. The "like" mechanism can have an impact on self-acceptance or social isolation and control the association between personality and digital identity. Thus, feedback ("likes") can be interpreted as measures of self-worth [55••, 58]. However, Shankleman et al. [55••] underlined that adolescents used SNSs to express their distinctiveness and to maintain a sense of continuity of identity over time.

Several studies [10, 59] have suggested that social comparison is a key mechanism to explain differences in subjective well-being. This comparison was predicted through the passive use of SNSs. In addition, the intensive use of SNSs could reduce self-concept clarity [60]. Recent literature [57, 61] has also shown gender differences in online self-presentation: female adolescents were likely to modify their online self-presentation by editing their photos, which led to lower self-acceptance, including reduced body and life satisfaction [10, 62]. Indeed, SNSs make online social status comparisons easier, with negative emotional consequences [63], regardless of explicit negative comments [64]. For example, adolescent girls undergoing treatment for obesity «undertook self-presentation strategies to conceal weight-related content such as avoiding showing close-up photos of their bodies and not posting images of unhealthy 'fattening' foods» [61]. Comparing themselves to others predicted objectified body consciousness [65], increased anxiety symptoms as well as compulsive profile-checking behaviors [51] for both adolescent girls and boys [66•], and amplified the gap between self-beliefs and perceived peer standards of beauty [67]. Finally, young males who reported speaking to online friends regarding their personal problems described greater levels of psychological well-being [68].

Negative Effects of SNS Use on Adolescents' Emotions

Use of SNSs can also have negative effects [63, 69]. When the SNSs are used to escape from the real social world, avoiding negative emotions and in-person interactions, feelings of loneliness and the risk of SNS addiction may be high [25, 70]. Some research has also suggested that electronic

intrusiveness is associated with in-person dating violence perpetration [71]. The online risks were associated with both active and passive use [72–74]. However, passive SNS use (i.e., watching videos) was associated with increasing anxious and depressive symptoms and a substantial reduction of life satisfaction, whereas active use (i.e., posting online) was associated with rising users' well-being and life satisfaction, especially among young girls [75]. In particular, feelings of depression seemed to trigger higher SNS involvement for girls, and anxious symptoms seemed to trigger higher SNS involvement for boys [76].

Teenagers themselves perceived the SNSs to be a threat to their mental well-being [77]. Many adolescents used various strategies to avoid negative feedback, including posting less content than their peers [51] because of the fear of being judged [55••]. Indeed, Marin-Lopez et al. [78] showed that people who use more emotional online content are more exposed to the risk of cybervictimization (e.g., cyberbullying). SNS communities might generate alienation and ostracism [54]. More lonely adolescents disclosed their personal and relationship information than adolescents with satisfied physical relationships [79]. Male and older adolescents, who set their SNS profile as public, have a larger online network size, and having strangers on an SNS friend list increases self-disclosure [80]. Lastly, the amount of time spent on SNSs may affect the risk of addictive behavior and insomnia [55••, 81], especially for adolescents with a dysfunctional attachment to parents and peers [55••, 82]. Some research has highlighted that male and older teenagers are more stressed by SNS use and that they also feel they spend too much time on such platforms [55••, 83], thus showing lower self-esteem and increased instances of depressed mood [84, 85]. FOMO is a predictor of SNS use and resulting in detriment of in-person relationships (i.e., phubbing) [76, 86].

Emotional Regulation

Emotional regulation skills may be important targets in preventing problematic SNS use [1, 87]. In particular, some research has found an association between moderate levels of SNS disorders and deficits in emotional regulation in both directions [35, 50, 88]. Indeed, access to SNSs may serve to counter emotions like boredom and anger [55••, 88, 89]. Spada and Marino [89] showed that emotion regulation has a direct negative effect on problematic internet disorders among adolescents. Also, the ability to recover quickly from negative emotions inversely predicted SNS addiction [1]. The expression of negative emotions was more reactive in positive than in negative online interactions [90]. Moreover, based on Marin-Lopez et al. [78], great levels of online emotional skills protected adolescents from cybervictimization and cyberperpetration. However, other research [91] has shown that worse emotion recognition predicted SNS addiction.

Finally, two recent studies [92, 93] did not show agreement about the differences in emotional sharing between various SNSs. Generally, Facebook, Instagram, and Snapchat were mostly used to share positive emotions; conversely, Whatsapp, Twitter, and Messenger were mostly used to share negative emotions. In conclusion, the risk of problematic SNS use was higher in adolescents with deficits in emotional regulation [66•].

Recent Findings

Of the 52 selected papers, 26 are recent findings (last 5 years). Most of them are cross-sectional studies which investigated the relationship between problematic SNS use and indicators of psychological disease (e.g., anxiety and depression). These results are essentially in line with prior evidences, but they also improve the previous point of view with new studied variables. Moreover, 5 of the 6 reviews are recent: this shows the urgency of results' systematization in order to finally propose a nomothetic classification of the disorder in the main diagnostic manuals [20•].

Discussion

This scoping review included 52 papers that studied the emotional experiences associated with SNS use during adolescence. Most of the articles were published in the last 10 years. This has shown that choosing a time range of 20 years has offered a sufficiently broad perspective in offering a complete review on the subject. The most used psychometric scale for evaluating SNS addictive behavior is the BSMAS, but the use of various scales in the selected papers has highlighted its ambiguous theoretical definition. In fact, the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5; [18]) has not yet definitively included SNS addiction. Further research, as well as the present scoping review, may be worthwhile in increasing and systematizing both empirical and theoretical knowledge, leading to progress in diagnostic classification with consequent clinical implications, such as the individuation of risk and protective factors.

Some studies have shown the positive effects of SNS use for the socialization and reduction of psychological symptoms [49, 50]. The mobile devices increased the frequency of SNS use [52], and online social support was less redundant than in-person support [94]. Indeed, online friends might be more numerous than offline ones, and feedback from others (i.e., “likes” and comments) may be more numerous in online spaces than in physical interactions [51]. Adolescents who shared their emotions on SNS improved their cognitive and affective empathy [56] using online communities to improve their social skills [54] with positive emotional contagion [55••]. Based on these findings,

online relationships—also increased by the portability of smartphones that establish a constant sense of closeness [95]—could be a valuable source of positive emotions capable of improving interactions with old and new friends. As a practical implication, planning a common set of rules for civil coexistence in online environments is crucial in encouraging healthy and enriching relationships. Formal and informal learning contexts, such as schools and cultural associations, should promote opportunities to address these issues by exploiting the internet resources and being a better online citizen.

However, SNSs are also an online space providing wider opportunities for adolescent users to interact with other peers. According to previous research [57], the “like” mechanism can be a negative emotional experience when the published contents (i.e., photos and videos) do not receive the expected feedback. Both self-acceptance and self-worth [58] might be negatively affected by receiving a few likes on one’s own photos [51], even if the young males disclosing their own personal problems receive good online support [68]. As a matter of fact, feedback from others, especially from peers, is particularly significant during adolescence. Also, the distress caused by a lack of approval is a risk factor for emotion regulation, psychopathology, and life satisfaction [10, 63, 64], especially when referring to body consciousness and body perfect ideal issues [55••, 65, 67]. As a clinical implication, self-esteem–enhancement programs could prevent the development of psychiatric symptoms, including addictive behaviors and emotional consequences. Some research [59] has shown that online social comparison is a key mechanism in explaining the impact on subjective well-being. Because people look at the profiles of successful others, their own life can never live up to these unattainable models. Hence, clinical practice with adolescents (who are also creating their identity through comparison with peers’ online profiles) should pay attention to their online activities because these experiences are as impactful as those that are in person. Young girls appeared to be more vulnerable to these risks than boys [57]. As a possible explanation, adolescent girls are more interested in social interactions than boys. Further empirical observations are necessary to study the gender differences in the motivation to stay online (e.g., using a between-subjects design).

When SNSs are used to escape from the real social world, avoiding in-person interactions and negative emotions, the risk of developing SNS addiction increased [25, 72, 75, 81, 84]. As a possible explanation, the online world is a space where in-person social interactions are avoided, thus preventing them from developing new social skills. As a result, users keep their difficulties to themselves by continuing to isolate themselves from social reality. On a clinical level, it is important to prevent social isolation and social withdrawal

when working in groups and practicing social skills. Research has also shown differences in gender-related SNS addiction: Depressive symptoms triggered higher SNS engagement for girls, whereas anxious symptoms triggered higher SNS engagement for boys [76]. As a practical implication, online contents related to anxious and depressive symptoms should receive more attention to prevent the development of psychological problems. For example, consideration for negative emotional content could be an external trigger for self-evaluation. Indeed, people who used more emotional online content received heightened exposure to the risk of cybervictimization [78]. Also, lonely older male teenagers shared more personal information, especially when they used a public profile with a large number of unknown online friends [79, 80]. Based on these findings, male adolescents who are lacking social skills are likely to try to overcome their own difficulties through virtual relationships that provide an illusory sense of protection, especially with unknown others. Therefore, it would be desirable to increase involvement in positive social learning experiences for adolescents, even within formal institutions such as schools, in order to prevent problematic internet use and possible social withdrawal. People who experienced dysfunctional attachment to parents and peers [82] and FOMO spent more time engaged in SNS flow, regardless of their social relationships (i.e., phubbing) [76, 83, 86]. Based on these foregoing facts, psychologists should pay attention to adolescents’ online identity and shared posts in order to form a complete picture of their social resources. To improve the knowledge centered on communication skills in relevant contexts, future research could focus on the differences between online and offline interactions.

Lastly, we reviewed papers examining emotion regulation patterns in SNSs. Users who are able to recover quickly from negative emotion, as well as report great levels of online emotional skills, showed less risk of developing an addictive behavior [1, 29, 50, 66•, 87–89]. SNS users take advantage of emotion-related skills to widen their chances of meeting new friends. However, the results are controversial. Indeed, previous research [90] has highlighted that positive emotion expressions were more reactive than negative ones in online interactions. As a possible explanation, negative emotion expressions may be especially impactful for adolescents’ online reputation. Working on social skills may be beneficial in achieving improved online prosocial behavior that could prevent cybervictimizations. Additional research [91] has not found any association between emotional recognition and SNS addiction. Specifically, according to the biopsychosocial model, emotional dysfunction may not be enough to explain the SNS addiction process, which involves a number of factors. Further research is needed to overcome these inconsistencies. Finally, no agreement emerged regarding

the positive or negative prevalence of emotional content in various online platforms [92].

In conclusion, in the present scoping review, we aimed to elucidate gaps in the literature regarding the impact of SNSs on users' emotional well-being. Moderate use of these online spaces could serve as an avenue for improving social relationships through the provided online social support from friends and followers. However, excessive use could be a risk factor for SNS addiction, especially when SNS became a space to escape from emotions. Further research should study constructs related to emotional well-being in order to improve theoretical knowledge and develop training programs for practicing online social skills. With regards to the role of emotion regulation in protecting against problematic SNS use, emotional and social skills could increase adolescents' ability to establish satisfactory relationships in both physical and online contexts. Socially competent adolescents may be able to recognize the boundaries of online information-sharing practice, thus receiving social support without violating their personal privacy.

Review Limitations

The results of this scoping review should be interpreted with caution because of some limitations. The first notable limitation is that the data consisted of only 52 empirical studies published in peer-reviewed international journals in English in the last 20 years. Furthermore, we selected the most recent studies on the emotional well-being of adolescents using SNSs. However, we could not identify possible differences in the purpose of SNS use among adolescents with respect to age subgroups because of the limited data. Further research should expand on age differences in order to determine the distribution of SNS addiction across different adolescent age subgroups because variations in the stage of maturity are not uncommon. Likewise, the results of the study do raise a concern as to whether the methodology used in the examined studies (i.e., cross-sectional, longitudinal, and review) might introduce bias. However, analyzing these biases goes beyond the objectives of a scoping review. Further research should consider these methodological aspects and discuss the effect sizes of the detected associations.

In addition, we selected generic search keywords (i.e., emotion, affect, mood, and feeling); as a result, some documents focusing on specific emotions (e.g., happiness, fear, and anger) could have been excluded. Consistent with the wide objective of the present scoping review, we chose this solution as the most effective one. Lastly, in accordance with Arksey and O'Malley [43], we used a scoping review to explore the current knowledge about a very broad and complex topic, but this method has some well-known limits. When the number of papers analyzing specific emotions increases, future studies should summarize the theoretical

and empirical evidences by means of systematic review or meta-analysis.

Conclusion

This scoping review provided initial evidences to understand the implications of SNS use on adolescents' emotional well-being. The goal was to provide a review of more recent theoretical and empirical studies in order to add to the knowledge on this topic and provide a basis for a better forthcoming classification of SNS addiction (or problematic use). Our results suggested the importance of emotional experiences and social support in both in-person and online relationships. According to the great prevalence of SNSs in modern life, these findings encourage further investigations into psychological needs and disorders connected to SNS use, with the aim of developing a scientific knowledge base regarding this widespread behavior among adolescents.

Declarations

Ethics Approval and Consent to Participate All human and animal studies have been approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1975 Declaration of Helsinki and its later amendments. Participants accepted an informed consent.

Conflict of Interests The authors declare no competing interests.

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