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ORIGINAL RESEARCH

Reexploring Problematic Social Media Use and Its Relationship with Adolescent Mental Health. Findings from the "LifeOnSoMe"-Study

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Purpose: Previous approaches used to assess problematic social media use risk inflating prevalence numbers and classifying unproblematic social media use as problematic. The main aim of this study was to take an exploratory view as to how different types of activities, experiences, and motivations on social media are associated with problematic mental health outcomes in adolescents.

Patients and Methods: This study is based on a cross-sectional survey of 2023 adolescents (mean age 17.4 years (SD 0.9), 44.4% males) from the year 2020. Exploratory graph analysis and exploratory factor analysis were performed on 28 pre-selected items assessing adolescents' use of social media, to identify underlying potentially problematic factors associated with social media use. Sets of gender-adjusted multiple linear regression analyses were performed to assess the degree to which social media factors predicted depression, anxiety, well-being, and time spent on social media.

Results: Three factors were identified: 1) "subjective overuse", 2) "social obligations", and 3) "source of concern". All three factors showed significant positive associations with mental health problems. The factor "source of concern", which identifies feelings of being overwhelmed and concerned over social media use, had the strongest association to mental health problems and simultaneously the weakest association to time spent on social media.

Conclusion: Three identified factors measuring problematic social media use showed positive associations with mental health problems. This lends support to the notion that problematic social media use is a multidimensional phenomenon and demonstrates the need to move beyond addiction criteria when assessing problematic social media use.

Keywords: social networking, youth, depression, anxiety, well-being

Introduction

The last decade has seen a rapid increase in adolescent social media use, with about 90% of Norwegian adolescents using social media,[1] and 37% stating that they use social media more than 3 hours a day.[2] There have been concerns that this use may become problematic and lead to detrimental consequences, such as poorer mental health, reduced quality of life, or addiction.[3] In fact, research has shown associations between social media use and negative effects such as depression and anxiety.[4,5] However, there continues to be disagreements as to what constitutes problematic social media use, and how to operationalize and measure it.[6]

Many of the previous studies that report associations with mental health problems have considered time spent on social media or frequency of use as core features of problematic social media use.[7,8] However, recent studies have shown that even though some studies find statistically significant associations between high levels of use of social media and

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mental health outcomes, the strength of the associations are so small that they are of questionable practical significance.[5,9] It has also been suggested that it is possible to get addicted to social media[10] and that addiction is what constitutes problematic use. Several scales have been developed to measure social media addiction.[11–14] Studies investigating the social media addiction scales tend to be confirmatory in their approach, where social media addiction is considered an established construct. However, it can be argued that social media addiction is not a well-defined and agreed-upon construct. It has, for instance, been pointed out that several of the core symptoms of addiction (eg, mood modification, tolerance, and withdrawal symptoms) have not been confirmed for social media addiction.[6]

In general, the research concerning assessment of problematic social media use seems to have followed the same development as the research on assessment of Internet Gaming Disorder (IGD).[15,16] Early assessment of IGD included time spent gaming and the rewording of scales assessing gambling disorder, an approach which was later criticized for overidentifying problematic gamers.[17] As now seems to be the case with social media, time spent on gaming did not necessarily reflect problematic use.[18] Furthermore, it was pointed out that, although similar, gambling entails different aspects than gaming, such as monetary aspects, which meant the two concepts could not be directly compared.[17] Likewise, similar discoveries might be in store for social media addictions. Current assessment of IGD is largely based on the criteria suggested for the IGD diagnosis in DSM-5.[15,16] Several of these criteria have been criticized as well.[19] Some point out that the wording of some of the criteria does not accurately measure the symptoms in the disorder,[19,20] while others point out that some of the criteria reflect absorption and immersion, and not addiction.[18,21] While the debate is ongoing, similar criteria as the ones included in assessment of IGD are now used as part of social media addiction scales. Some of these have been criticized for potentially pathologizing normal behavior[22] and for including items that are not associated with psychopathological symptoms.[23]

Another disputable aspect of published studies on problematic social media use is that they have seldom considered the view of the primary users: adolescents. Adolescents report that social media is an important social arena and part of their daily lives, where they communicate with friends, develop new friendships,[24] and fulfill their needs for intimacy and connection with others.[25,26] However, adolescents also acknowledge that their social media use might become problematic.[24] Some newer studies on this topic have started to take a more exploratory view on what constitutes problematic use. One study developed and validated a scale measuring motivations for social media use, which were based on descriptions from youth.[27] A longitudinal study differentiated subgroups based on both type of social media use and amount of social media use.[28] The study found that a high overall use of social media predicted negative outcomes, such as higher delinquent behavior. Moreover, the group with high use of Instagram and Snapchat exhibited higher levels of delinquent behavior, alongside improved social competence.[28] Another study found that those with high use of diverse social media platforms for a range of purposes reported better well-being, but also more harmful outcomes, such as social media stress, and that users with low overall use and mostly passive use (ie, browsing others posts) of social media experienced less social media benefits, but also less social media stress.[29] Specific motivations for using social media have also been found to be inversely associated with well-being, such as using social media to pass time, escape everyday life or to receive feedback on appearance.[30] In addition, gender has been shown to be an important differentiating factor in social media use, as girls seem to be more emotionally invested in social media and spend more time there.[31] One study found, for instance, that the relationship between poor sleep and social media use was only statistically significant for girls reporting that social media use was stressful.[32] These findings highlight the complexity of the association between social media use and problematic outcomes.

Given that the types of users identified in some of these studies experienced both positive and negative outcomes, it may be necessary to measure even more fine-grained aspects of social media use to disentangle problematic and non-problematic uses of social media. In addition, many studies have used a confirmatory approach as to what constitutes problematic social media use, which has been criticized on the grounds of a potential pathologization of normal behavior[6,22] and neglecting the perspectives of the primary users. As such, the present study adopts an exploratory view to better understand what can be considered problematic social media use. This includes a wide range of activities, experiences, and motivations for using social media. This approach is informed by a questionnaire derived from a qualitative study of adolescents,[24] resulting in a closer alignment with adolescents' actual experiences on social media.

The main aim of the study was to explore whether some of these different types of activities, experiences, and motivations are associated with problematic mental health outcomes and thus can be considered facets of problematic social media use. The findings were compared with time spent on social media, as the latter is often utilized as a metric to gauge problematic use.

Materials and Methods

Participants and Procedure

This study employs cross-sectional data from the "LifeOnSoMe"-study.[33] Participants aged 16–21 years were recruited from upper secondary schools in Bergen municipality, Norway (mean age 17.4 years (SD 0.9)). Participants had to be at least 16 years old to participate. The data employed in the present study was collected in September-October 2020 through a web-based questionnaire. The total number of respondents were 2116 (54% response rate). A total of 93 responses were excluded from the dataset because of duplicates (n = 9), missing gender (n = 2) and age (n = 69), and those reporting other/non-binary gender were excluded due to privacy concerns (n = 13). The final sample consisted of 2023 participants.

Measures

Statements About Social Media

Statements about social media were developed based on focus group interviews with adolescents in a previous study.[24] The results from the interviews formed the basis for three different themes and 13 subthemes of what adolescents themselves think is important to understand social media use and mental health and well-being among adolescents. The results and themes from the interviews formed the development of 50 statements regarding activities, experiences, and motivations for social media use that were included in the "LifeOnSoMe"-survey. As the statements were based on the interviews with the adolescent, they included words adolescents used to describe their experience with social media, as for example being addicted to social media. 22 of these items were removed prior to the analysis based on face value (eg, they gauged positive aspects related to social media use) and exploratory analysis. Examples of statements from the final 28 items (see Appendix A) included "There is so much happening on social media that I often feel overwhelmed" and "I fear I might miss out on something if I'm not on social media". The response options ranged from 1 (never) to 5 (very often).

Age and Gender

Age and gender were assessed by self-report. Three options were available for gender: "boy", "girl", and "other/non-binary".

Symptoms of Depression

Symptoms of depression were measured with the Short Mood and Feelings Questionnaire (SMFQ).[34] The scale consists of 13 items with the response options 1 (not true), 2 (sometimes true) and 3 (correct). A cut off level of 12 or more has been suggested as a significant score on depression.[34] A high internal consistency between the items and a single underlying continuum of severity have been shown in previous population-based studies,[35] and was recently confirmed in a study on Norwegian adolescents.[36] Cronbach's alpha was 0.91 in the present study. This variable was used as continuous in the present study.

Symptoms of Anxiety

Symptoms of anxiety were measured with the Generalized Anxiety Disorder scale (GAD-7).[37] The GAD-7 consists of seven items measuring symptoms of generalized anxiety. The response options range from 1 (not at all) to 4 (almost every day). Cut off levels suggested for level of anxiety severity are 7–11 for minimal anxiety, 12–16 for mild anxiety, 16–20 for moderate anxiety, and greater than 21 for severe anxiety.[37] GAD-7 has previously been confirmed as a reliable and valid self-report measure for adolescents.[38] Cronbach's alpha was 0.89 in the present study. This variable was used as continuous in the present study.

Mental Well-Being

Mental well-being was measured with the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS).[39] The scale consists of 14 items with response options ranging from 1 (not at all) to 5 (all the time). Suggested cut off levels are 40 or less for probable depression, 41–44 for possible depression, 45–59 for average mental well-being, and 60 or more for high mental well-being.[39] A high internal consistency between the items and a single underlying continuum of severity have been shown for Norwegian adolescents.[40] Cronbach's alpha was 0.92 in the present study. This variable was used as continuous in the present study.

Time Spent on Social Media

Time spent on social media was measured with the following question "On the days that you use social media, about how much time do you spend every day?". The response options were "Less than 2 hours", "2–4 hours", ">4-5 hours", and "More than 5 hours". This variable was used as continuous in the present study.

Statistical Analysis

An Exploratory Graph Analysis (EGA) was performed on the 28 social media items in order to identify potential underlying dimensions of sets of items. In addition to indicating the number of dimensions to retain, EGA also provides a visual representation of sets of items that cluster together and their association to each other.[41] This methodology provides an understanding of the relationships between the variables, both within the cluster and between clusters. Exploratory factor analysis (EFA) was conducted on each of the identified factors from the exploratory graph analysis to examine the factor structure, factor loadings and internal reliability of the identified factors.

The mean scores were calculated for each of the retained factors. Sets of linear regression analyses were performed. The factors related to problematic social media use identified in the previous analyses, in addition to gender, were defined as predictor/independent variables, while depression, anxiety, mental well-being, and time spent on social media were defined as dependent variables. Each set of linear regression analysis contained one predictor and one dependent variable, resulting in 16 sets of linear regression analyses. Simultaneous tests for general linear hypotheses were performed to check for significant differences between the estimated association between the factors and each dependent variable. Gender-adjusted multiple regression analysis was performed with each factor as a predictor in separate analysis and depression, anxiety, well-being, and time spent on social media as dependent variables in separate analyses, which made 12 analyses all together. In addition, four gender-adjusted multiple regression analyses were performed with the three factors as predictors simultaneously, and depression, anxiety, well-being, and time spent on social media as dependent variables in separate analyses.

All analyses were carried out in R[42] using the package EGAnet.[43] Missing data were removed by listwise deletion.

Ethical Concerns

Participants were informed about the purpose of the study and provided informed consent. This study was conducted according to the guidelines of the Declaration of Helsinki and was approved by the Regional Committees for Medical and Health Research Ethics South-East (ref.: 65611).

Results

Table 1 shows descriptive data for the sample. Girls had a higher mean score on depression (21.7) and anxiety (14.0), and a lower score on well-being (46.2) than boys (52.0). Girls also reported spending more time on social media than boys. See Appendix B for a correlation matrix of included variables.

The most used social media platforms were YouTube (91%), Snapchat (91%), Instagram (84%) and TikTok (60%) for boys, and Snapchat (97%), Instagram (96%), TikTok (81%) and YouTube (78%) for girls. See Appendix C for the full list of social media platforms.

Figure 1 shows the exploratory graph analysis (EGA) which indicated four factors, with five, eight, nine, and six items. The same solution was replicated 500 times, suggesting perfect structural consistency with all items replicating in their empirical dimension.

Table 1 Descriptive Statistics Across Boys and Girls

Variable		Boys (N = 899, 44.4%)		Girls (N = 1124, 55.6%)		
		Mean (SD)	Valid n (%)	Mean (SD)	Valid n (%)	p-value[a]
Age		17.3 (0.9)	899	17.4 (0.9)	1124	0.13
Symptoms of depression[b]		17.9 (4.9)	858	21.7 (6.2)	1089	<0.001
Symptoms of anxiety[c]		11.1 (4.5)	870	14.0 (4.9)	1104	<0.001
Mental well-being[d]		52.0 (10.0)	825	46.2 (9.4)	1078	<0.001
Time spent on social media	Less than 2 hours		320 (36%)		246 (22%)	<0.001
	2–4 hours		326 (37%)		402 (36%)	
	>4-5 hours		134 (15%)		284 (25%)	
	More than 5 hours		100 (11%)		185 (17%)	

Notes: [a]Linear model Anova, [b]SMFQ, [c]GAD-7, [d]WEMWBS.

Exploratory factor analysis (EFA) was conducted on each of the identified factors from the exploratory graph analysis. For each factor we used principal axis factoring with no rotation, as the data had a non-normal distribution. For factor 1, the items v9, v10 and v11 had no correlations with other items >0.30 in the correlation matrix and were removed prior to EFA. Results from EFA showed that factor 1 did not show a good fit and had to be removed. The factor "Subjective overuse" was comprised of five items that explained 51% of the variance with factor loadings from 0.63 to 0.86. The factor "Social obligations" was comprised of eight items that explained 42% of the variance with factor loadings from 0.53 to 0.71. For the factor "Source of concern", the items v9, v10 and v11 had no correlations with other items >0.30 in the correlation matrix and were removed prior to EFA. The item v16 had factor loading >0.32 and were removed. The final factor was comprised of three items that explained 40% of the variance with factor loadings from 0.56 to 0.76.

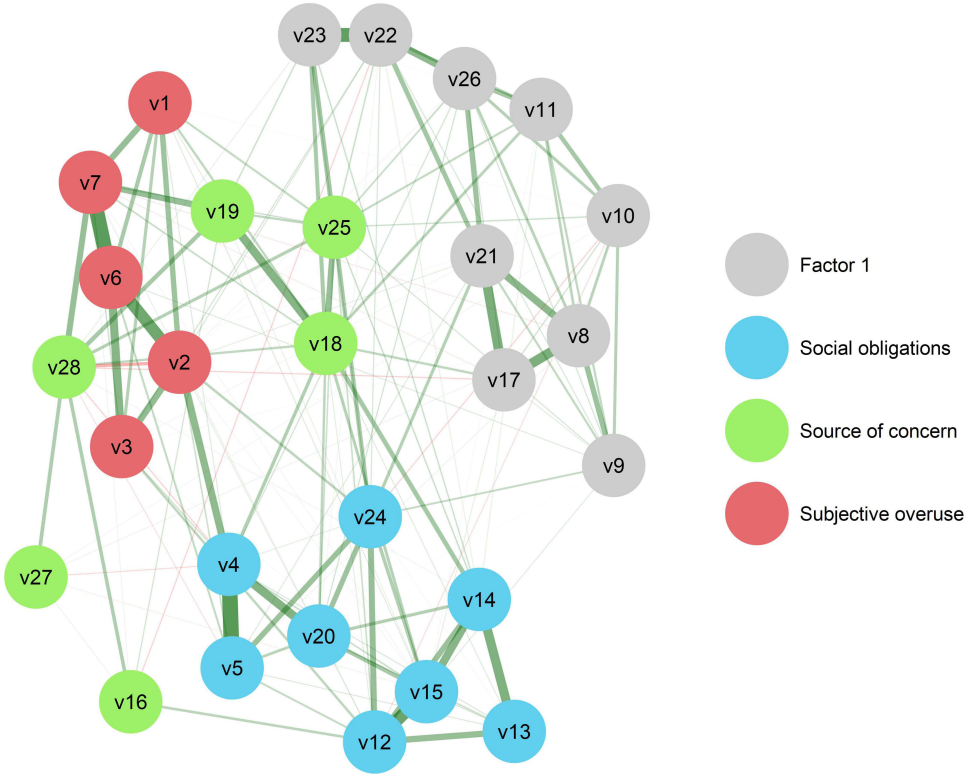

Figure 1 Exploratory graph analysis of 28 social media items.

Table 2 Descriptive Statistics of the Retained Factors Across Gender

Factor	Item	Boys		Girls	
		Mean (SD)	Valid n	Mean (SD)	Valid n
Subjective overuse		2.7 (0.9)	859	3.2 (0.9)	1099
	1. Social media takes away focus from more important things	3.0 (1.0)	870	3.4 (0.9)	1109
	2. I am addicted to social media	2.7 (1.2)	866	3.3 (1.1)	1106
	3. My parents/guardians think I spend too much time on social media	2.4 (1.2)	868	2.9 (1.2)	1110
	6. I spend too much time on social media	3.9 (1.2)	867	3.6 (1.1)	1110
	7. I wish to reduce the amount of time I spend on social media	2.6 (1.3)	869	3.3 (1.2)	1110
Social obligations		2.2 (0.8)	838	3.1 (0.9)	1078
	4. I fear I might miss out on something if I am not on social media	2.4 (1.2)	869	3.0 (1.2)	1108
	5. Social media gives me a sense of control or overview of what is going on	3.0 (1.2)	866	3.5 (1.1)	1110
	12. I feel that I must like and/or comment on what my friends post on social media	2.2 (1.2)	862	3.6 (1.3)	1100
	13. I feel that I have to respond to all messages, "streaks" and similar things I receive	2.0 (1.1)	860	2.6 (1.3)	1100
	14. If I do not respond, like or comment, then it can have negative consequences	1.6 (0.9)	860	2.1 (1.1)	1102
	15. If my friends do not like or comment what I post on social media, I start thinking something is wrong	1.6 (0.9)	860	2.5 (1.3)	1098
	20. If I do not participate on social media, I will fall behind	2.4 (1.2)	850	3.1 (1.1)	1094
	24. I pay close attention to what my friends/boyfriend/girlfriend/family does through social media (for example stories, Snap map…)	2.4 (1.2)	847	3.3 (1.2)	1092
Source of concern		2.0 (0.8)	839	2.6 (0.9)	1082
	18. There is so much happening on social media that I often feel overwhelmed	1.7 (1.0)	855	2.3 (1.1)	1100
	19. I wish we could learn more about how social media affects us	2.4 (1.3)	858	3.0 (1.2)	1098
	25. Sometimes I feel like I am being monitored on social media (because what I do/where I am/who I am with, is visible)	2.0 (1.1)	844	2.5 (1.1)	1088

Abbreviation: SD, Standard Deviation.

Table 2 shows the final factors, which were named "Subjective overuse", "Social obligations" and "Source of concern". The factors consisted of four, five, and three items, respectively. Cronbach's alpha was 0.83 for subjective overuse, 0.85 for social obligations and 0.71 for source of concern. Table 2 shows descriptive statistics of the retained factors across gender (see Appendix D for percentiles of each factor).

Table 3 shows the results from the simple linear regression analyses. All measures of potential problematic social media use were positively associated with depression and anxiety, and negatively associated with well-being. Ad hoc tests were performed to investigate if there were significant differences between the factors within each dependent variable. These showed significant positive differences between subjective overuse and social obligations on depression and anxiety ($p<0.01$), where social obligations showed a stronger association, and on time spent on social media ($p<0.05$), where subjective overuse showed a stronger association. There were significant positive differences between subjective overuse and source of concern on anxiety ($p<0.01$) and time spent on social media ($p<0.001$), where source of concern showed a stronger association. There was also a significant positive difference between social obligations and source of concern on time spent on social media ($p<0.001$), where social obligations showed a stronger association. The remaining comparisons showed no significant difference.

Table 4 shows the results from the multiple regression analysis where gender is included as a control variable. All of the associations between the retained factors and the dependent variables remained statistically significant but some changes in estimated associations are notable. The strength of the association between social obligations and the mental health variables changed the most, with a fall of 32% for depression, 29% for anxiety and 52% for well-being. On the other hand, the strength of the associations between the factors and time spent on social media changed very little, and

Table 3 Linear Regression Analysis for Predicting Symptoms of Depression, Symptoms of Anxiety, Mental Well-Being and Time Spent on Social Media

	Symptoms of Depression			Symptoms of Anxiety			Mental Well-Being			Time Spent		
	B (p)	B^{STAND}	95% CI	B (p)	B^{STAND}	95% CI	B (p)	B^{STAND}	95% CI	B (p)	B^{STAND}	95% CI
Subjective overuse	1.7***	0.3	1.4, 2.0	1.2***	0.3	1.0, 1.5	−2.0***	−0.2	−2.5, −1.5	0.6***	0.4	0.6, 0.7
Social obligations	2.2***	0.4	1.9, 2.5	1.7***	0.4	1.5, 2.0	−2.5***	−0.3	−3.0, −1.9	0.5***	0.3	0.4, 0.6
Source of concern	2.0***	0.3	1.7, 2.3	1.7***	0.4	1.5, 2.0	−2.4***	−0.2	−2.9, −1.9	0.2***	0.1	0.1, 0.3
Gender	4.0***	0.6	3.4, 4.5	2.9***	0.6	2.5, 3.4	−5.9***	−0.6	−6.9, −5.0	0.2***	0.3	0.2, 0.3

Notes: *p<0.05, **p<0.01, ***p<0.001. $B^{STAND.}$ = Estimated association when dependent variable is Z-scored (mean of 0 and standard deviation of 1). Units in standard deviation.
Abbreviations: B, Beta; CI, Confidence Interval.

not at all for subjective overuse when gender was added to the model. See Appendix E for results of each gender-adjusted model.

Discussion

The present study of 2,023 Norwegian adolescents identified three distinctive factors gauging potential problematic social media use that were associated with mental health problems and therefore can be considered facets of problematic social media use. The strength of the associations between the factors gauging different aspects of problematic social media use and mental health problems and time spent on social media differed. The factor that resembled previous measures of social media addiction the most was subjective overuse of social media. This factor covered an overuse of time on social media and had the weakest association with mental health problems of the three factors (B=1.2, equivalent to 0.3 standard deviations (SD) increase in the dependent variable per unit increase in the independent variable). The factor source of concern, which covered feeling overwhelmed and concerned over social media use, had the largest estimated association with mental health problems (depression: B=2.0 (0.3SD), anxiety: B = 1.7 (0.4SD)) and notably the weakest association with time spent on social media (B = 0.2 (0.1SD)). This finding supports earlier claims that time spent on social media is not a pertinent measure of problematic use.[9]

The factor subjective overuse of social media entails a perception of an addiction to social media and an overuse of time on social media. Some of the items in this factor resembles items often used to assess social media addiction. The item "my parents/guardians think I spend too much time on social media" may be indicative of arguments with parents and is therefore similar to the problem-item in the Social media disorder scale.[14] Similarly, the item "I wish to reduce the amount of time I spend on social media" resembles the addiction criterion "persistence" or "relapse" which may be formulated as "trying to spend less time but failing",[11,14] though "wishing" to reduce might be more common than "trying but failing". While social media addiction has been shown to be associated with mental health problems (e.g.,[4,44]), the strength of the association between "subjective overuse of social media" and mental health was weakest among the three factors. This may be because the factor is less extensive than scales measuring addiction, or that the wording of the items reflect less problematic use. Even so, the fact that the factor most similar to addiction scales is least associated with mental health problems could be indicative of a needed change in items measuring problematic social media use.

The factor that had the strongest association with mental health problems as well as the lowest association with time spent on social media was source of concern. This factor entails feelings of being overwhelmed, being monitored, and wanting to learn more about the effects of social media. This concern seems to be somewhat distinctive from the items regarding time spent on social media, even though the item about reducing the amount of time spent is closely connected to wanting to learn more about social media in the exploratory graph analysis. The distinction could be an expression of the origin of these concerns. The factor subjective overuse of social media entails an item assessing parents' concerns and

Table 4 Gender-Adjusted Multiple Regression Analysis for Predicting Depression, Anxiety, Well-Being and Time Spent on Social Media

	Symptoms of Depression		Symptoms of Anxiety		Mental Well-Being		Time Spent	
	B (p)	95% CI	B (p)	95% CI	B (p)	95% CI	B (p)	95% CI
Subjective overuse	1.1***	0.8, 1.4	0.8***	0.06, 1.1	−1.1***	−1.6, −0.6	0.6***	0.5, 0.7
Social obligations	1.5***	1.2, 1.9	1.2***	0.9, 1.5	−1.2***	−1.8, −0.7	0.4***	0.3, 0.5
Source of concern	1.5***	1.2, 1.8	1.4***	1.1, 1.6	−1.5***	−2.0, −1.0	0.1***	0.1, 0.2

Notes: *p<0.05, **p<0.01, ***p<0.001.
Abbreviations: B, Beta; CI, Confidence Interval.

may indicate an attitude imposed on the adolescents that using social media is bad for them. The factor source of concern may instead be more indicative of concerns originating from an adolescent's own experiences of their social media use as problematic and may therefore have a stronger association to mental health problems. This factor might more closely resemble digital stress, which is defined as the feeling of stress triggered by the heavy use of information and communication technology.[45] Similar to source of concern, digital stress goes beyond amount of use and is instead characterized by a subjective experience. In addition, digital stress has also been associated with mental health problems, like depression.[46]

Social obligations on social media entails items that may reflect a feeling of a social obligation to be present on social media. This factor is similar to the Connection factor from Rodgers et al study.[27] Some of the items sound similar to the concept of fear of missing out on social media (FOMO).[47] FOMO consist of two processes where the first is the perception of missing out on an experience that would have been rewarding,[48] which is similar to the item that reads "I fear I might miss out on something if I'm not on social media". However, most of the items in this factor are more similar to the second process which consists of behavior that ensures maintenance of the social connections,[48] for example the item that reads "I feel that I must like and/or comment on what my friends post on social media". The items in the factor might also be more indicative of aligning to unwritten rules and norms. Indeed, participants in a qualitative study reported experiencing guilt over violating a social contract after withdrawing from their mobile phone for 10 days.[49] This might be related to the theory of needing to belong, which is the motivation to be accepted by others, in relationships and social groups.[50] For adolescents, social media is an important arena for socializing and maintaining friendships, and it is likely that certain norms and unwritten rules are established for how to behave towards others on social media. Missing out on social obligations on social media may therefore have consequences for relationships for the adolescent. Studies have shown that not receiving enough feedback on social media may have similar negative effects as being excluded in real life (e.g.,[26,51]), and that these effects are stronger for people with a high need to belong.[52]

Implications and Future Directions

The present results demonstrate the need to move beyond addiction criteria when assessing problematic social media use. Specifically, the present findings show that there are several different aspects to problematic social media use. The present study has identified a few of these aspects, though there might be several more. Future research should investigate if similar results are found for different age groups and across different cultures, and if the factors are associated with the use of specific social media platforms. Furthermore, longitudinal studies should explore if there is a causal pathway between the factors and mental health outcomes. Finally, individual differences such as personality and level of concentration could be explored in association with the factors, to identify potential antecedents and moderators for problematic use.

Strengths and Limitations

A major strength of the present study is that it is explorative and has employed items derived from qualitative interviews with adolescents. Consequently, the items are more closely connected to adolescents' actual life, meanings, and motivations on social media, compared to items adapted from existing addiction scales developed for other phenomena.

The ecological validity can therefore be considered high. In addition, the items are for the most part constructed for general social media use instead of focusing on specific platforms, apps, or specific actions. This means the items are less affected by shifting trends and may be used over a longer period. Some limitations are also worth mentioning. Items 14 and 15 in the factor social obligations showed a floor effect which might have affected the results of the analysis. Incorporating additional response categories, featuring more "extreme" response options in the items, might yield different outcomes. Moreover, the study is cross-sectional and cannot explain causality between the investigated factors and mental health. As a result, while the identified problematic use factors predict symptoms of poor mental health, we cannot conclude whether this is a result of problematic use or if individuals with more symptoms of poor mental health tend to use social media in these ways. In addition, these factors are made based on adolescent qualitative interviews and tested on adolescents and may therefore not be generalized to other age groups. Furthermore, even though a range of different aspects of social media use is covered by the included items, the items do not exhaust all potentially relevant aspects of social media use.

Conclusion

The three factors that were identified in the present study were subjective overuse, social obligations and source of concern. All three factors showed associations with symptoms of poor mental health. This finding supports the notion that problematic social media use is a multidimensional phenomenon. The factors identified in the present study offer new insight into important aspects of problematic social media use. Given that these factors are derived from adolescents' own experiences, they likely signify a closer alignment to adolescents' own interactions on social media, as opposed to factors directly based on other concepts of addiction. However, because this work is closely based on interviews with adolescents, the results cannot be generalized to other age groups. The factors should be confirmed in new populations and their association with mental health should be explored longitudinally. Furthermore, similar exploratory approaches should be employed for other age groups to ensure a close alignment with their actual experiences on social media.

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Disclosure

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