Tell me why are you using social media (SM)! Relationship between reasons for use of SM, SM flow, daily stress, depression, anxiety, and addictive SM use – An exploratory investigation of young adults in Germany

Julia Brailovskaia [*], Holger Schillack, Jürgen Margraf

Mental Health Research and Treatment Center, Ruhr-Universität Bochum, Germany

ABSTRACT

Social media (SM) such as Facebook and Instagram are daily used by many people. The current study investigated the reasons for social media use (SMU), as well as their relationships with daily stress, depression and anxiety symptoms, experience of flow during the usage process and tendencies of addictive SMU. In a sample of 485 users of different social platforms (age: *M* (*SD*) = 24.75 (6.24), range: 18–58), five main categories of usage reasons were identified by an inductive qualitative content analysis: "Search for Information and Inspiration", "Search for Social Interaction", "Beat of Boredom and Pastimes", "Escape from Negative Emotions", and "Search for Positive Emotions". Flow experiences positively predicted the categories "Escape from Negative Emotions" and "Search for Positive Emotions". The last one was additionally predicted by less depression symptoms. Only the category "Escape from Negative Emotions" positively predicted tendencies of addictive SMU. Present findings contribute to the understanding of the development of addictive online behavior. They should be considered when assessing individuals at risk for problematic use of SM like Facebook and Instagram and when developing intervention programs to deal with it.

1. Introduction

In the year 2020, more than two decades after the release of the first social networking site (SNS) SixDegrees (Prall, 2010) use of online social media (SM) belongs to daily life of many people (Roth, 2020). They write status updates and upload photos on social platforms such as Facebook, Instagram and Twitter to inform online friends about daily experiences, follow updates of other users, and engage in long-lasting public conversations in discussion groups (Sarmiento et al., 2018). A life without social media use (SMU) is inconceivable for many people (Singh, Halgamuge, & Mouess, 2019).

Social platforms are used for different reasons (Marino, Gini, Vieno, & Spada, 2018b; Ryan, Chester, Reece, & Xenos, 2014). Previous research applied the uses and gratifications approach to explain tendencies to intensive use of the Internet in general and of SM in particular (Dunne, Lawlor, & Rowley, 2010; LaRose & Eastin, 2004; Papacharissi & Mendelson, 2011). Social interaction and connection as well as self-presentation belonged to the main identified reasons for the use of SNSs such as Facebook (Raacke & Bonds-Raacke, 2008; Vilnai-Yavetz & Tifferet, 2015). The online communication facilitates relationship formation, contributes to the overcome of shyness and satisfies the need for social belonging (Valkenburg, Schouten, & Peter, 2005; Young, Len-Ríos, & Young, 2017). The possibility to present the own person by various descriptions and photo-sharing to the online community satisfies the need for self-promotion and the need for self-expression (Tifferet & Vilnai-Yavetz, 2018; Vilnai-Yavetz & Tifferet, 2015). Further dominant usage reasons were information or novelty seeking, entertainment, pastimes, relaxation, and escapism (LaRose & Eastin, 2004; Lee, Lee, Moon, & Sung, 2015; Smock, Ellison, Lampe, & Wohn, 2011; Wang, Jackson, Wang, & Gaskin, 2015; Whiting & Williams, 2013; Young et al., 2017). Thus, the gratification of different individual needs may result in intensive use of SM (Ryan et al., 2014).

However, even though the use of SM may contribute to the gratification of specific needs, recent research described the intensity of online activity to be negatively related to subjective well-being (Abi-Jaoude, Naylor, & Pignatiello, 2020). Investigations that considered cohort trends reported that the increase of online activity particularly in adolescents and young adults is accompanied by the increase of psychological distress, depression symptoms, and suicide-related outcomes (Twenge & Campbell, 2019; Twenge, Cooper, Joiner, Duffy, & Binau,

2019; Twenge, Joiner, Rogers, & Martin, 2018). Individuals who use Facebook have higher levels of depression symptoms and insomnia than these who waive the membership of this social platform (Brailovskaia, Margraf, Schillack, & Köllner, 2019). Those findings may contribute to the assumption of a linear causal effect of media use on well-being. However, such conclusions should be drawn with caution. Previous research emphasized that the relationship between time spent online and well-being is not linear, but rather quadratic. While high levels of screen-time are linked to decrease of well-being, moderate time spent on online activity is unlikely to cause harm, rather it may be beneficial for social interaction and socialization (Przybylski & Weinstein, 2017). Both are important reasons for SMU (Raacke & Bonds-Raacke, 2008; Whiting & Williams, 2013). Thus, usage time seems to be a significant moderator of the relationship between online media use and subjective well-being (Verduyn, Ybarra, Résibois, Jonides, & Kross, 2017).

More and more studies report intensive SMU to be positively linked to the development of a close emotional bond to the used platform that is associated with a strong obsessive need to stay permanently online (Andreassen & Pallesen, 2014; Kaye, 2019). This phenomenon was described for specific SNSs such as Facebook (Brailovskaia & Margraf, 2017), Instagram (Kircaburun & Griffiths, 2018) and Twitter (Kircaburun, 2016), as well as for the general SMU (Andreassen, Pallesen, & Griffiths, 2017). Typical characteristics of addictive SMU are salience (permanent thinking about SMU), tolerance (extended time has to be spent on SMU to experience same positive emotions as previously with less online time), mood modification (SM are typically used for mood improvement), relapse (failed attempts to reduce own SMU and return to old use pattern), withdrawal (experience of unease and nervousness without SMU), and conflicts (interpersonal offline problems caused by high intensity of SMU) (Andreassen et al., 2017; Andreassen, Torsheim, Brunborg, & Pallesen, 2012). Several studies identified positive relationships between social interaction, information seeking, entertainment and escapism – as reasons for online activity – and addictive use of Facebook (Kim & Davis, 2009; Marino et al., 2018b; Masur, Reinecke, Ziegele, & Quiring, 2014; Ryan, Reece, Chester, & Xenos, 2016) and Instagram (Ponnusamy, Iranmanesh, Foroughi, & Hyun, 2020). Thus, it can be assumed that some individuals are at a higher risk for addictive usage tendencies than others depending on why they engage in intensive online activity.

Moreover, individuals who experience high levels of daily stress were described to be longitudinally at enhanced risk to develop addictive tendencies (Brailovskaia, Teismann, & Margraf, 2018). Addictive SMU was positively related to depression and anxiety symptoms (Atroszko et al., 2018; Koc & Gulyagci, 2013; Marino et al., 2018b; Marino, Gini, Vieno, & Spada, 2018a). Depression symptoms moderated the link between daily stress and addictive SMU – the higher the level of depression symptoms, the closer the link between daily stress and addictive online behavior (Brailovskaia, Velten, et al., 2019).

Furthermore, previous research described individuals who engage in intensive SMU to experience flow (Kaur, Dhir, Chen, & Rajala, 2016; Kwak, Choi, & Lee, 2014) – a form of intense enjoyment and satisfaction when doing something with total involvement (Csikszentmihalyi, 1990). SM flow was defined as a "multidimensional construct reflected by 'concentration', 'time-distortion', 'telepresence', 'enjoyment', and 'curiosity' as they relate to the SNS interaction" (Kwak et al., 2014, p. 295). Studies that investigated different forms of online media use such as online gaming (Chou & Ting, 2003; Trivedi & Teichert, 2017; Wu, Scott, & Yang, 2013), general Internet use (Khang, Kim, & Kim, 2013; Kim & Davis, 2009) and SMU (Brailovskaia, Bierhoff, Rohmann, Raeder, & Margraf, in press.; Brailovskaia, Rohmann, Bierhoff, & Margraf, 2018; Kwak et al., 2014) emphasized that experience of flow during the media use might be an antecedent of addictive behavior. The online flow subscale 'telepresence' that describes the feeling of being totally immersed in the online world linked to fading out of everything that happens in the offline world seems to be of particular importance for the association between flow and addictive media use. In contrast, only a weak association between the online flow subscale 'enjoyment' and addictive media use was reported (Brailovskaia, Rohmann, et al., 2018).

Considering the presented results, it can be concluded that addictive SMU might be fostered by specific reasons for online activity and by the increased level of variables such as daily stress, depression, anxiety and flow. However, to the best of our knowledge, the relationship between daily stress, depression, anxiety and flow, the different reasons for use of SM and addictive SMU has not been investigated at once. Therefore, the main reasons for SMU of individuals who experience enhanced levels of daily stress or of online flow or have increased symptoms of depression or anxiety symptoms remain unclear.

This knowledge seems to be of great importance. It can support the screening and identification process of individuals who are at specific risk for this form of addictive behavior, and the development of prevention programs for healthy people as well as therapy programs for clinical patients. The high need for such programs is emphasized by recent findings about potential negative impact of addictive SMU. Results of longitudinal studies revealed addictive use of Facebook to positively predict symptoms of insomnia in a sample of clinical patients (Brailovskaia, Rohmann, Bierhoff, Margraf, et al., 2019), and suicide-related outcomes (suicide ideation and attempts) in a sample of college students (Brailovskaia, Teismann, & Margraf, 2020).

Based on the presented empirical background, the current study had following aims. First, earlier research reported social interaction, self-presentation, information or novelty seeking, entertainment, pastimes, relaxation and escapism to belong to the main reasons for use of online media (e.g., LaRose & Eastin, 2004; Marino et al., 2018b; Masur et al., 2014; Raacke & Bonds-Raacke, 2008; Vilnai-Yavetz & Tifferet, 2015). With regard to the rapid development of new technical features on SNSs such as Facebook and Instagram in the last years (Roth, 2020), it may not be excluded that – additionally to the earlier reported reasons – further reasons impel individuals to intensive or even problematic SMU. Therefore, in the current study, it should be investigated by an explorative analysis which reasons are relevant for SMU in the end of the year 2019. The explorative character of the analysis should avoid restrictions to the earlier identified reasons only and enable a free generation of currently relevant reasons.

Second, individuals with enhanced levels of daily stress, depression and anxiety symptoms, as well as SM flow were described to engage in intensive SMU (Bányai et al., 2017; Brailovskaia, Velten, et al., 2019; Marino et al., 2018b; Verduyn et al., 2017; Xie & Karan, 2019). The present study aimed to investigate whether there are specific association patterns between the variables daily stress, depression and anxiety symptoms, and SM flow, on the one hand, and different reasons for SMU, on the other hand. It should be investigated whether the reasons for SMU may be predicted by the other investigated variables.

Third, different reasons for online activity were reported to be positively linked to addictive use of Facebook (Marino et al., 2018b) and of Instagram (Ponnusamy et al., 2020). It has been assumed that positive experiences made online by the gratification of needs enhance the use intensity of the social platforms and foster the risk to develop addictive tendencies. Particularly the gratification of information seeking, social interaction and pastimes, and of the wish to reduce negative mood were closely linked to addictive tendencies (Brailovskaia, Rohmann, Bierhoff, Schillack, et al., 2019; Marino et al., 2018b; Ryan et al., 2014). The current study aimed to investigate whether these conclusions considering addictive SMU may be replicated and/or expanded in the end of the year 2019. Thus, the relationship between reasons for SMU and addictive tendencies should be investigated.

Considering that the results of the explorative investigation (see first research aim) should reveal the reasons for SMU, and considering the currently insufficient knowledge of the relationship between different reasons for SMU and the other investigated variables, to avoid speculations, three research questions were formulated instead of hypotheses:

For what reasons do individuals engage in SMU? (Research Question 1)

Are the reasons for SMU associated with the level of daily stress, depression symptoms, anxiety symptoms, and online flow? (Research Question 2)

Are the reasons for SMU associated with addictive SMU? (Research Question 3)

2. Materials and methods

2.1. Participants

Data of 485 individuals (77.7% women; age (years): M (SD) = 24.75 (6.24), range: 18–58; occupation: 73.6% university students, 24.7% employed, 1.6% unemployed; marital status: 43.1% single, 45.6% with romantic partner, 11.3% married) from Germany were collected by an online survey. There were no missing data. All data sets were complete. All participants are current or former students of a large university in the Ruhr region in Germany. At the beginning of their study, students of this university receive a collective e-mail that includes an invitation to participate in the "Bochum Optimism and Mental Health (BOOM)"- Project. They are free to reply to this e-mail and to agree to be contacted for investigations of this project. In December 2019, to assess data for the present study, an invitation e-mail including the link to the online survey was sent by the authors to a randomly selected group of 500 individuals who previously agreed to be contacted for investigations of the "BOOM"-Project. The requirement for participation – voluntary and not compensated – was a current membership on at least one SNS. The responsible Ethics Committee approved the implementation of the present study. All participants were fully informed about the study and provided informed consent to participate online.

2.2. Measures

Use of Social Media. Participants were asked to provide how much time (in minutes) they daily spend on SMU (i.e., "How much time do you daily spend on online social media use?"), and which SM they mainly prefer to use (i.e., "Which online social media do you mainly prefer to use?"). Then, they were asked to describe the main reasons why they typically engage in SMU (i.e., "Please describe the main reasons why you typically engage in online social media use.") (no limitations of reasons and words). This enabled the assessment of a wide range of potential reasons for SMU, instead of restricting them by prescribed categories.

Social Media Flow. Following Brailovskaia, Rohmann, et al. (2018) flow experience related to SMU was assessed with the eleven items of the modified version of the "Facebook flow questionnaire" (adopted from Kwak et al., 2014). The term "Facebook" was exchanged by the term "Social Media" (e.g., "Using Social Media often makes me forget where I am" or "Time flies when I am using Social Media"). Items are rated on a 5-point Likert scale (1 = *disagree strongly*, 5 = *agree strongly*; current reliability: Cronbach's α = 0.87). Higher sum scores indicate higher levels of flow (Brailovskaia, Rohmann, et al., 2018).

Addictive Social Media Use. The brief version of the Bergen Social Media Addiction Scale (BSMAS; Andreassen et al., 2017) measured the level of addictive SMU with six items (e.g., "Felt an urge to use social media more and more?") according to the six core addiction features (i. e., salience, tolerance, mood modification, relapse, withdrawal, conflict). Items are rated on a 5-point scale (1 = *very rarely*, 5 = *very often*; current reliability: α = 0.82). The higher the sum score, the higher the level of addictive SMU (Andreassen et al., 2017).

Daily Stress. Daily stressful experiences were assessed with the Brief General Daily Stressors' Strain Screening (BGD3S; Scholten, Lavallee, Velten, Zhang, & Margraf, 2019). The nine items that thematize inconveniences or difficulties in daily life related to for example health, family, job, and study are rated on a 5-point scale (0 = *not at all*, 4 = *very much*; current reliability: α = 0.76). Higher sum scores indicate higher levels of daily stress (Scholten et al., 2019).

Depression and Anxiety Symptoms. The depression and anxiety subscales of the Depression Anxiety Stress Scales 21 (DASS-21; Lovibond & Lovibond, 1995) measured depression and anxiety symptoms over the past week with seven items each (scale depression: e.g., "I couldn't seem to experience any positive feeling at all"; scale anxiety: e.g., "I felt scared without any good reason") that are rated on a 4-point scale (0 = *did not apply to me at all*, 3 = *applies to me very much or most of the time*; current reliability: scale depression: α = 0.91, scale anxiety: α = 0.83). The higher the sum score, the higher the level of depression symptoms or anxiety symptoms (Lovibond & Lovibond, 1995).

2.3. Procedure: identifying categories of reasons for SMU

Main categories of reasons for SMU were assessed by an inductive qualitative content analysis (Mayring, 2010): In the first step, the responses to the question about the main reasons for SMU were used to form subcategories. Statements that included several reasons were concurrently assigned to several categories. In the second step, main categories were created by combining similar subcategories. Both steps were conducted separately by two trained psychologists who were native speakers of the German language. After each of the two steps, they discussed their agreements and disagreements, and partly reformulated the initially proposed categories until they reached a total agreement about the final version of the categories. Overall five main categories were identified:

(1) *"Search for Information and Inspiration"*. This category consists of reasons that included the search for information, for inspiration and for satisfaction of curiosity about news all around the world or about specific topics and hobbies (for example fashion, nutrition, outdoor activities);

(2) *"Search for Social Interaction"*. This category includes reasons such as the wish to stay in contact with family and friends, to establish new contacts, to communicate with other members of the SM (family members, friends, colleagues, or strangers), to network, and to present own content to the online community;

(3) *"Beat of Boredom and Pastimes"*. This category summarizes reasons such as boredom, out of habit, not knowing what to do else (particularly at the weekend or in the evenings), and pastime while waiting for offline events (for example arriving of a train, medical appointment, meeting with a friend);

(4) *"Escape from Negative Emotions"*. In this category, reasons such as search for distraction and escape from (daily) stressful or negative experiences, problems and obligations in the offline world, and the wish to forget negative emotions are included;

(5) *"Search for Positive Emotions"*. This category includes reasons such as the search for positive emotions and positive mood, for entertainment, fun, and relaxation (that may be for example experienced by watching funny content posted by other members).

In the third step, two further trained psychologists assigned separately all reasons for SMU to the five main categories (0 = *reason does not belong to the category*, 1 = *reason belongs to the category*). If the participants provided several reasons, each of them was coded and counted separately. Calculations of interrater reliability (Cohen's kappa, κ; Cohen, 1960; McHugh, 2012) of the rating of all provided reasons that belonged in the respective category revealed almost perfect agreement for all categories: "Search for Information and Inspiration": agreement: 97.1%, κ = 0.94; "Search for Social Interaction": agreement: 96.7%, κ = 0.93; "Beat of Boredom and Pastimes": agreement: 99.8%, κ = 0.99; "Escape from Negative Emotions": agreement: 99.4%, κ = 0.98; "Search for Positive Emotions": agreement: 97.9%, κ = 0.92. After the rating process, all four involved psychologists discussed responses that were not unambiguously rated until an interrater agreement of 100% for each reason was achieved. Thus, the result of the qualitative analysis were five main categories of reasons for SMU presented as five separate

dichotomous variables (coded: 0 = *reason does not belong to the category*, 1 = *belongs to the category*). Table 1 presents the five main categories, exemplary responses from each category, and the frequency of the final version of the ratings.

2.4. Statistical analyses

Statistical analyses were conducted with the Statistical Package for the Social Sciences (SPSS 24). First, descriptive statistics of the investigated variables were calculated. Then, point-biserial correlations were computed to assess the relationship between the five main categories of the reasons for SMU, on the one hand, and daily stress, depression symptoms, anxiety symptoms, SM flow, and addictive SMU, on the other hand. Next, to identify significant predictors of the reasons for SMU, five logistic regression analyses (one for each main category) were calculated. They included age, gender (0 = *woman*, 1 = *man*), daily stress, depression symptoms, anxiety symptoms, and SM flow as independent variables. In all regression models, derived odds rations (OR; including 95% confidence intervals, *CI*) for each predictor variable are presented. Considering the results of the five regression analyses, two additional logistic regression analyses were calculated that included the single scales of SM flow (i.e., 'concentration'/'focused attention', 'time-distortion', 'telepresence', 'enjoyment', 'curiosity'), as potential predictors and the categories "Escape from Negative Emotions" and "Search for Positive Emotions", respectively, as outcome. Finally, to assess which of the categories of reasons for SMU may predict the level of addictive SMU, a hierarchical regression analysis (95% *CI*) was calculated. Addictive SMU was considered as dependent variable in the regression model. Age and gender were included in Step 1 as control variables. Step 2 included the five categories of reasons for SMU. There was no violation of multicollinearity assumption (all values of tolerance: > 0.25, all variance inflation factor values: < 5; Urban & Mayerl, 2006).

3. Results

On average, SNSs were daily used for 80.83 min (*SD* = 80.35; range: 0–720). Of the participants 48.9% (*n* = 237) mainly preferred to use Instagram, 32.4% (*n* = 157) Facebook, 7.6% (*n* = 37) Twitter, 3.1% (*n* = 15) Tumblr, 2.7% (*n* = 13) Snapchat, 2.3% (*n* = 11) Reddit, 1.6% (*n* = 8) Pinterest, and 1.4% (*n* = 7) LinkedIn.

As shown in Table 1, in the current sample, usage reasons that were assigned to the category "Search for Information and Inspiration" belonged to the most frequent responses, followed by the category "Search for Social Interaction". Reasons for SMU that belonged to the category "Beat of Boredom and Pastimes" were described by about one

third of the current sample. Reasons for SMU that belonged to the categories "Escape from Negative Emotions" and "Search for Positive Emotions" were, respectively, described by less than one fifth of the present sample.

Table 2 presents the results of the correlation analyses. The category "Search for Information and Inspiration" was not significantly correlated with the other investigated variables. In contrast, the category "Search for Social Interaction" was significantly negatively correlated with depression symptoms (*M* (*SD*) = 4.95 (4.97); range: 0–21), anxiety symptoms (*M* (*SD*) = 3.44 (3.94); range: 0–21), and SM flow (*M* (*SD*) = 29.22 (7.96); range: 11–53). The category "Beat of Boredom and Pastimes" was significantly positively correlated with SM flow and addictive SMU (*M* (*SD*) = 10.76 (4.35); range: 6–29). The category "Escape from Negative Emotions" was significantly positively correlated with daily stress (*M* (*SD*) = 11.14 (6.22); range: 0–34), depression and anxiety symptoms, as well as SM flow and addictive SMU. While the category "Search for Positive Emotions" was significantly negatively correlated with depression symptoms, its relationship with SM flow was significantly positive.

To sum up, the correlation analyses revealed a differentiated correlation pattern between the reasons for SMU and daily stress, depression, anxiety, SM flow and addictive SMU. "Search for Information and Inspiration" was the only category that was not significantly correlated with the other investigated variables. While the category "Search for Social Interaction" was (significantly) negatively correlated with the other variables, the correlations of the categories "Beat of Boredom and Pastimes" and "Escape from Negative Emotions" were (significantly) positively. The category "Search for Positive Emotions" was (significantly) positively correlated with SM flow and addictive SMU. Its correlation with the other investigated variables was (significantly) negatively.

In the next step, to further investigate the relationships between daily stress, depression, anxiety and SM flow, and the reasons for SMU, logistic regression analyses were calculated. Of the five calculated regression models, three were significant. Only the results of the three significant logistic regression analyses are presented in Table 3. In the model that included the category "Beat of Boredom and Pastimes" as outcome variable, age and gender served as significant negative predictors. In the model that included the category "Escape from Negative Emotions" as outcome variable, SM flow was a significant positive predictor. And in the model that included the category "Search for Positive Emotions" as outcome variable, age and depression symptoms were significant negative predictors, and SM flow served as a significant positive predictor. No significant predictors were found in the models that included the category "Search for Information and Inspiration" or "Search for Social Interaction" as outcome. To sum up, the results of the regression analyses revealed that apart from age and gender, depression symptoms and SM flow served as significant predictors. Depression symptoms significantly predicted the category "Search for Positive Emotions". SM flow served as a significant predictor of the categories

Table 1
Main categories of reasons for social media use, examples of responses assigned to the category, and frequency of their mentioning.

Category	Examples	Frequency *n* (%)
(1) Search for Information and Inspiration	"To get information about things that happen worldwide", "Inspiration for art, fashion and nutrition", "To find news about my hobby"	224 (46.2)
(2) Search for Social Interaction	"Stay in contact with friends and family who live far away", "Participation in the life of friends", "Wish for communication/interaction"	212 (43.7)
(3) Beat of Boredom and Pastimes	"As pastime when waiting for the next train", "Out of boredom", "When I do not know what else to do"	142 (29.3)
(4) Escape from Negative Emotions	"Distraction from stressful, negative experiences, to forget them", "Escape from daily stress", "Negative mood"	85 (17.5)
(5) Search for Positive Emotions	"Wish to gain positive experiences", "To read funny content and to see nice pictures", "For positive mood"	75 (15.5)

Table 2
Point-biserial correlations of the main categories of reasons for social media use with daily stress, depression and anxiety symptoms, social media flow and addictive social media use.

	II	SI	BP	NE	PE
Daily Stress	-.05	-.08	.06	.17**	-.02
Depression Symptoms	.04	-.14**	.06	.11*	-.12**
Anxiety Symptoms	.00	-.15**	.02	.17**	-.08
SM Flow	.01	-.12**	.11*	.25**	.15**
Addictive SMU	-.03	-.08	.11*	.20**	.08

Notes. N = 485; II = Category "Search for Information and Inspiration", SI = Category "Search for Social Interaction", BP = Category "Beat of Boredom and Pastimes", NE = Category "Escape form Negative Emotions", PE = Category "Search for Positive Emotions", SM = Social Media, SMU = Social Media Use. **p < .01, *p < .05.

Table 3
Logistic regression analyses.

	OR, 95% CI	p
Model 1 (Prediction of "Beat of Boredom and Pastime")		
Age	**.93, .89–.97**	**.001**
Gender	**.57, .34–.98**	**.042**
Daily Stress	1.03, .99–1.07	.193
Depression Symptoms	1.03, .98–1.09	.222
Anxiety Symptoms	.93, .87–1.00	.057
Social Media Flow	1.02, .99–1.05	.165
Model 2 (Prediction of "Escape from Negative Emotions")		
Age	1.00, .96–1.04	.952
Gender	.98, .52–1.84	.950
Daily Stress	1.05, 1.00–1.10	.061
Depression Symptoms	1.00, .93–1.06	.908
Anxiety Symptoms	1.02, .94–1.11	.582
Social Media Flow	**1.08, 1.04–1.12**	**< .001**
Model 3 (Prediction of "Search for Positive Emotions")		
Age	**.91, .86–.97**	**.002**
Gender	1.15, .60–2.21	.667
Daily Stress	1.04, .99–1.10	.136
Depression Symptoms	**.91, .84–.99**	**.028**
Anxiety Symptoms	.91, .81–1.01	.074
Social Media Flow	**1.06, 1.02–1.10**	**.002**

Note. $N = 485$; OR=Odds Ratio, CI = Confidence Interval, p = significance; significant odds ratios are denoted by bold typeface.

"Escape from Negative Emotions" and "Search for Positive Emotions".

The additionally calculated logistic regression analyses showed that the category "Search for Positive Emotions" was significantly positively predicted by the SM flow subscales 'enjoyment' (OR = 1.387, $p = .003$, 95% CI [1.118, 1.722]) and 'curiosity' (OR = 1.209, $p = .026$, 95% CI [1.023, 1.429]). The category "Escape from Negative Emotions" was significantly positively predicted by the SM flow subscale 'telepresence' (OR = 1.167, $p = .008$, 95% CI [1.041, 1.307]).

To investigate the relationship between the usage reasons and addictive SMU, a further regression analysis was calculated. The hierarchical regression analysis revealed age and the category "Escape from Negative Emotions" as significant predictors of addictive SMU (see Table 4). While age was negatively linked to addictive SMU use, the relationship between the category "Escape from Negative Emotions" and addictive SMU was positive. The results of the regression analysis

Table 4
Hierarchical regression analysis (outcome: addictive social media use).

	β	95% *CI*	T	Adjusted R^2	Changes in R^2
Step 1, F(2,482) = 24.880, p < .001				.090	.094
Age	-.294**	[-.265, -.145]	-6.720		
Gender	-.058	[-1.501, .293]	-1.323		
Step 2, F(7,477) = 10.152, p < .001				.117	.036
Age	-.270**	[-.249, -.127]	-6.093		
Gender	-.049	[-1.404, .371]	-1.144		
Search for Information and Inspiration	.019	[-.611, .949]	.426		
Search for Social Interaction	-.013	[-.937, .712]	-.267		
Beat of Boredom and Pastime	.055	[-.373, 1.422]	1.149		
Escape from Negative Emotions	.177**	[1.042, 3.014]	4.042		
Search for Positive Emotions	.029	[-.689, 1.388]	.661		

Notes. $N = 485$; β = standardized coefficient beta; CI = Confidence Interval. **p < .01.

showed that of the five identified categories only the category "Escape from Negative Emotions" served as a significant predictor of addictive SMU.

4. Discussion

Many people daily engage in intensive use of social media (Roth, 2020). In the current study the reasons for this behavior and their relationship with daily stress, symptoms of depression and anxiety, SM flow and addictive SMU were investigated in a sample of young adults in Germany. Present results mostly confirm and extend previous findings (e.g., Khang et al., 2013; Whiting & Williams, 2013).

Previous research described social interaction, self-presentation, information or novelty seeking, entertainment, pastimes, relaxation and escapism to belong to the main reasons for use of online media (e.g., LaRose & Eastin, 2004; Marino et al., 2018b; Masur et al., 2014; Raacke & Bonds-Raacke, 2008; Valkenburg et al., 2005; Vilnai-Yavetz & Tiferet, 2015; Young et al., 2017). The first aim of the current study was to investigate whether these reasons may be replicated for SMU in the end of the year 2019. Overall, five main categories of reasons for use of SM such as Facebook and Instagram were identified by the qualitative analysis: (1) "Search for Information and Inspiration", (2) "Search for Social Interaction", (3) "Beat of Boredom and Pastimes", (4) "Escape from Negative Emotions", and (5) "Search for Positive Emotions" (see Research Question 1). Note that participants of the current study were free to generate the reasons that explain their SMU. The similarity between the currently identified categories and the earlier ones contributes to the confirmation of the validity of previous findings (e.g., Marino et al., 2018b).

Similar to previous findings (e.g., LaRose & Eastin, 2004; Whiting & Williams, 2013), SMU contributes to the gratification of the "Search for Information and Inspiration". SNSs offer their members a wide-ranging content. News concerning different topics are presented in text and images. One of the participants described the availability of rather unfiltered information that enables the consideration of a specific topic from different perspectives as an advantage of SM. Interestingly previous research reported that the high availability may cause information overload and overwhelm consumers (Schmitt, Debbelt, & Schneider, 2018). Additionally, in the current sample, SNSs were often described to be an important source of inspiration for example with regard to fashion, art and music. This finding corresponds to earlier research results that described specifically the social platform Instagram to be a source of inspiration (Meier & Schäfer, 2018).

The initial aim of social platforms was to enable people from all over the world to connect and to interact with each other (Boyd & Ellison, 2007). This aim seems to be still relevant in the end of the year 2019. Reasons for SMU that were summarized in the category "Search for Social Interaction" were very popular among the participants of the present study. They often engage in intensive SMU to stay in contact with family members, to communicate with friends and to make new ones. This result is in line with previous findings that emphasized social interaction and social connectedness to belong to fundamental human needs (Baumeister & Leary, 1995). In the age of digital technology, SNSs belong to the most popular places where this need may be satisfied (Bayer, Ellison, Schoenebeck, & Falk, 2016; Brailovskaia & Margraf, 2016; Ellison, Steinfield, & Lampe, 2011; Sinclair & Grieve, 2017; Smock et al., 2011; Valkenburg et al., 2005; Young et al., 2017).

Individuals whose responses were included in the category "Beat of Boredom and Pastimes" often tend to engage in online activity to pass time when they are waiting for the train, or into the late evening hours or at night, shortly before sleeping. Earlier cross-sectional and longitudinal research reported intensive SMU to be positively associated with poor sleep quality and with insomnia (Brailovskaia, Rohmann, Bierhoff, Margraf, et al., 2019; Brunborg et al., 2011; Li, Lepp, & Barkley, 2015; Woods & Scott, 2016). It might be speculated that SMU for pastimes shortly before sleeping negatively impacts the sleep quality and may

contribute to insomnia. This hypothesis should be investigated in future longitudinal and experimental studies.

The category "Escape from Negative Emotions" summarized reasons that refer to the wish to forget daily offline problems and obligations that are linked to negative mood. Earlier research described the level of experienced daily stress to positively predict the intensity of Facebook use. Particularly individuals who receive little social support offline tend to escape into the online world (Brailovskaia, Rohmann, Bierhoff, Schillack, et al., 2019). SMU is often considered as a coping strategy to deal with negative experiences and with negative emotional state (Dunne et al., 2010; Ryan et al., 2014; Verduyn et al., 2017).

The last category "Search for Positive Emotions" included usage reasons such as the wish to be entertained by funny content uploaded by other users on SNSs, to gain positive emotions and to relax. Considering previous findings, individuals who use SM for these reasons seem to experience gratification of their needs at least in the short-term (Young et al., 2017). Consuming of positive content on Facebook and Instagram was positively linked to subjective happiness and life satisfaction (Brailovskaia & Margraf, 2018, 2019). However, the mentioned studies had a cross-sectional design that does not allow longitudinal conclusions.

While the five found categories correspond with the previously reported categories of reasons for SMU such as social interaction, information or novelty seeking, entertainment, pastimes, relaxation and escapism (e.g., Ryan et al., 2014), it is surprising that the category self-presentation was not identified in the present investigation. Brailovskaia and Bierhoff (2020) quantitatively analyzed the pages of Facebook members. They described particularly younger users to engage in intensive online self-presentation. Similar findings were reported by Vilnai-Yavetz and Tifferet (2015) who identified visual cues of Facebook profile photos as relevant to virtual impression management. The possibility to express the own self to a large audience is a popular feature of SM such as Facebook (Van Dijck, 2013). Note that Brailovskaia and Bierhoff (2020) as well as Vilnai-Yavetz and Tifferet (2015) focused on the objective assessment of elements of online self-presentation. In contrast, in the frame of the present qualitative analysis, participants were free to describe their usage reasons. Thus, the different findings may indicate a gap between the subjective beliefs about own reasons for SMU and the observable online behavior. As today use of SM belongs to daily life, it cannot be excluded that the online activity is less consciously perceived as a way of self-presentation – it is more a common way of life, specifically for younger people. This assumption should be investigated in further studies.

Considering the second aim of the present study, after the identification of the categories of reasons for SMU, their relationship with daily stress, depression symptoms, anxiety symptoms, and online flow was investigated (see Research Question 2). The regression analyses revealed a differentiated result pattern for the five categories of reasons for SMU. None of the investigated variables significantly predicted the categories "Search for Information and Inspiration" and "Search for Social Interaction". Only the variables age and gender served as significant predictors of the category "Beat of Boredom and Pastimes".

Based on the findings of the regression analyses, it may be hypothesized that nowadays social platforms have been established as a common source of news (Schmitt et al., 2018), of social interaction (Twenge, Spitzberg, & Campbell, 2019), and of pastimes – particularly for younger people who are not familiar with alternative ways of dealing with boredom (Twenge, Martin, & Spitzberg, 2019). This source is daily used by many people who inter alia search for information and inspiration, social interaction and/or pastimes regardless of the level of their mental state or of experienced daily stress. However, this explanation seems to be too simplistic. Note that in the current study only few potential predictors of the reasons for SMU were assessed. Therefore, it cannot be excluded that the three categories – "Search for Information and Inspiration", "Search for Social Interaction" and "Beat of Boredom and Pastimes" – are predicted by further factors such as personality traits. For

example, earlier studies reported individuals with enhanced levels of the trait narcissism to engage in excessive SMU to satisfy their need to belong and their need for popularity (Brailovskaia & Bierhoff, 2020; Casale & Fioravanti, 2018). People with high levels of the trait extraversion often satisfy their need for communication on SNSs (Michikyan, Subrahmanyam, & Dennis, 2014). This need might be included in the present category "Search for Social Interaction". Furthermore, loneliness – a factor that previously was reported to be positively linked to enhanced interaction on social platforms such as Facebook (Pittman & Reich, 2016; Reissmann, Hauser, Stollberg, Kaunzinger, & Lange, 2018) – was also not included as a potential predictor in the current study. Moreover, earlier research that focused on general Internet use emphasized that the level of self-efficacy may serve as a positive predictor of usage reasons that belong in the category "Search for Information and Inspiration" (LaRose & Eastin, 2004).

In contrast to the other three categories, the regression results revealed that the categories "Escape from Negative Emotions" and "Search for Positive Emotions" were positively predicted by the level of SM flow. Thus, it seems that SM flow impels individuals who search for entertainment, as well as these who try at least temporarily to forget their offline problems to intensive SMU. Additionally, the category "Search for Positive Emotions" was negatively predicted by age and the level of depression symptoms. This means that specifically younger people and those with less depression symptoms engage in SMU to be entertained. In line with this finding, previous research reported younger people to prefer online media as a source of entertainment instead of print media or TV (Twenge, Martin, & Spitzberg, 2019). Note, the inability to think about positive and joyful activities is one of the main characteristics of individuals with enhanced levels of depression symptoms (Lovibond & Lovibond, 1995). This might at least partly explain why in the present study individuals with higher levels of depression symptoms less frequently reported the search for entertainment and fun as a reason for SMU.

Previous research described the gratification of different needs on SM to contribute to the development of addictive usage tendencies. Information seeking, pastimes and reduction of negative mood as reasons for online activity were described to be particularly closely related to addictive use of Facebook (e.g., Marino et al., 2018b). The search for social interaction was positively linked to addictive use of Instagram (Ponnusamy et al., 2020). Based on this background, the third aim of the present study was to investigate which of the reasons for SMU assessed in the current study may predict tendencies of addictive online activity. Therefore, in the last step, the association between the five categories of reasons for SMU and addictive use tendencies was investigated (see Research Question 3). Only the category "Escape from Negative Emotions" positively predicted addictive SMU. Thus, present findings confirm earlier results gained on Facebook considering the wish to escape from/reduce negative mood (e.g., Marino et al., 2018b). Individuals who consider SM as a possibility to escape negative experiences for example caused by offline conflicts seem to be at enhanced risk to develop tendencies of addictive SMU. However, in the present study, SMU for information seeking (current study: "Search for Information and Inspiration"), for social interaction (current study: "Search for Social Interaction") and for pastimes (current study: "Beat of Boredom and Pastimes") seemed to be less relevant for addictive SMU tendencies.

Note that SM flow positively predicted the category "Escape from Negative Emotions" and the category "Search for Positive Emotions". The additionally calculated regression analyses revealed that the category "Search for Positive Emotions" was positively predicted by the SM flow subscales 'enjoyment' and 'curiosity'. In contrast, the category "Escape from Negative Emotions" was positively predicted only by the SM flow subscale 'telepresence'. Previous research reported flow experienced while using Facebook to be an antecedent of the development of addictive tendencies (Brailovskaia et al., in press.). Particularly the flow subscale 'telepresence' – the immersion into the online world linked to the forgetting of offline happenings – was closely related to the addictive

characteristics. In contrast, the relationship between the flow subscale 'enjoyment' and addictive Facebook use was comparatively weak (Brailovskaia, Rohmann, et al., 2018).

Considering present results and the empirical background, it may be hypothesized that in line with previous findings (Kwak et al., 2014; Mauri, Cipresso, Balgera, Villamira, & Riva, 2011) use of SM may contribute to the experience of flow. Flow is a pleasant state that is linked to the experience of positive emotions (Csikszentmihalyi, 1990). However, in the longer-term, the experience of SM flow might contribute to the development of a close emotional bond to the social platform that is linked to the strong need to stay permanently online, and thus it might contribute to the development of addictive tendencies (Brailovskaia, Rohmann, et al., 2018). The addictive tendencies may negatively impact subjective well-being by for example fostering insomnia and suicide-related outcomes (Brailovskaia, Rohmann, Bierhoff, Margraf, et al., 2019; Brailovskaia et al., 2020). But not everyone who experiences flow during the use of social platforms seems to be at (similar high) risk for the development of addictive tendencies. As shown by present findings, the reasons for the use of SNSs may be involved in this process: Individuals who engage in SMU because they search for entertainment and fun (current study: category "Search for Positive Emotions") are not at enhanced risk to develop addictive tendencies. However, some individuals use social platforms to escape daily problems and obligations. They immerse into the online world to forget negative experiences and emotions (current study: category "Escape from Negative Emotions"). This dysfunctional coping-strategy may, on the one hand, enhance their vulnerability for addictive SMU. On the other hand, it impedes a constructive solving of the offline problems which fosters the negative emotions and contributes to further escape into the online world.

The findings of the current study contribute to a better understanding of the reasons why SM such as Facebook and Instagram are used nowadays. They reveal that the experience of flow during online activity may foster the risk of the development of an addictive bond to the SNS when the reason for SMU is the wish to escape negative emotions. This knowledge can be used when assessing individuals at risk to develop addictive SMU or when developing prevention programs against addictive SMU. Moreover, it may be included in the therapeutic setting for the treatment of tendencies of additive SMU. After the identification of dysfunctional reasons for SMU, such as the wish to escape interpersonal conflicts in the offline world, patients may be supported to elaborate functional strategies. For example, their social communication competences can be trained to solve such conflicts or to reduce the probability of their occurrence. Additionally, sportive activities such as jogging and cycling may reduce feelings of overload by the daily requirements, the need to immerse into the online world, and thus the risk for addictive SMU (Brailovskaia, Teismann, et al., 2018).

4.1. Limitations and further research

There are some limitations that are important to mention when interpreting the current findings. First, the cross-sectional design of the present investigation allows only hypothetical conclusions about the causality of the described associations. They should be replicated by future longitudinal and experimental research to enable truly causal conclusions about the mechanisms that connect the investigated factors and foster tendencies of addictive SMU. Thereby, more potential predictors of the reasons for use of SM – for example personality traits – should be included. In the current study the focus was mainly on negative constructs such as depression and anxiety symptoms, future research should additionally assess positive variables such as life satisfaction and subjective happiness.

Second, the generalizability of the present results is limited by the comparably young (73.6% students) and mostly female composition of the investigated sample. Therefore, their replication on the basis of a more balanced gender and age composition of the sample is suggested.

Third, all present data were collected by a self-report survey. This method is prone to the "common method" or "same-source" bias. This bias inflates the association between the variables that are assessed by self-report because of the shared method variance (Conway & Lance, 2010). In the current work, the self-report was necessary to assess the investigated variables. The present study investigated the individual reasons for SMU, the participants' feelings, experiences and perceptions such as flow, addictive tendencies (e.g., urge to use SM), perceived stress, feelings of depression and anxiety, that only the participants themselves are fully aware of. Moreover, the used instruments had a sufficient to excellent internal reliability, the survey had a moderate length, and the participants were well-educated. They were motivated to provide accurate responses by the appeal to tell what they are feeling and thinking, and the explanation that their data might inter alia contribute the understanding of factors that foster the risk for the development of addictive tendencies of SMU. All these points were previously described to mitigate the "common method" bias (Conway & Lance, 2010; Feldt & Brennan, 1989; Podsakoff, MacKenzie, & Podsakoff, 2012; Shalley, Gilson, & Blum, 2009). Nevertheless, it is desirable to replicate current findings in further investigations that for example separate the assessed variables temporarily (i.e., several measurement time points), or by adding further sources than the self-report to obtain the measures of interest (e.g., report of family members or friends) to reduce the "common method" bias (Conway & Lance, 2010; Podsakoff et al., 2012).

Fourth, 81.2% of the present participants preferred to use Instagram or Facebook. In contrast to these popular SNSs that are used by a broad audience (Roth, 2020), there are further platforms that focus on specific issues. Typically, their interface features support the fulfillment of specific usage aims. For example, professional SM such as LinkedIn that are used for professional connection and interaction encourage the members to present their professional identity (i.e., displaying a standard business-like portrait, highlighting specific skills, not including emotional elements) (Tifferet & Vilnai-Yavetz, 2018; Van Dijck, 2013). Dating platforms such as Parship attach importance to the presentation of other – more emotional and intimate – attributes of the own identity depending on the specific usage reasons (dating, flirt, marriage) (Aretz, Gansen-Ammann, Mierke, & Musiol, 2017). Considering the basic differences of such specific platforms, conclusions about reasons for SMU drawn in the present study are mainly restricted to SNSs such as Instagram and Facebook.

Fifth, addictive tendencies are not only limited to the use of SNSs such as Facebook (Atroszko et al., 2018; Brailovskaia et al., in press.; Marino et al., 2018b) or Instagram (Kircaburun & Griffiths, 2018). They were also reported for online gaming (Kuss, 2013; Lemmens, Valkenburg, & Peter, 2011; Trivedi & Teichert, 2017), general Internet use (Huang, 2010; Khang et al., 2013), and smartphone use (Elhai, Yang, Fang, Bai, & Hall, 2020). Thus, it seems reasonable to investigated whether current findings may be generalized to other forms of online behavior, or whether they are specific for SNSs.

Sixth, in the current study, the identification of the categories of reasons for SMU and the investigation of the relationships between the identified categories and the other assessed variables based on the same sample. This limits the validity of the present findings. Therefore, the replication of the found associations in a separate sample is desirable.

To conclude, social platforms are used for different reasons. Current results indicate that it is important to differ between the usage reasons. Reasons that belong to the categories "Search for Positive Emotions" and "Escape from Negative Emotions" are positively predicted by the experience of flow during the online activity. However, only the wish to escape into the online world to forget negative offline experiences seems to enhance the risk of the development of addictive SMU.

agencies in the public, commercial, or not-for-profit sectors. grant from funding agencies in the public, commercial, or not-for-profit sectors.

CRediT authorship contribution statement

Julia Brailovskaia: Conceptualization, Methodology, Software, Validation, Investigation, Data curation, Writing - original draft, Writing - review & editing, Visualization, Supervision, Project administration. **Holger Schillack:** Methodology, Software. **Jürgen Margraf:** Methodology, Resources.

Declaration of competing interest

None.

References

Abi-Jaoude, E., Naylor, K. T., & Pignatiello, A. (2020). Smartphones, social media use and youth mental health. *Canadian Medical Association Journal, 192*(6), E136–E141. https://doi.org/10.1503/cmaj.190434.

Andreassen, C. S., & Pallesen, S. (2014). Social network site addiction – an overview. *Current Pharmaceutical Design, 20*, 4053–4061. https://doi.org/10.2174/13816128113199990616.

Andreassen, C. S., Pallesen, S., & Griffiths, M. D. (2017). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addictive Behaviors, 64*, 287–293. https://doi.org/10.1016/j.addbeh.2016.03.006.

Andreassen, C. S., Torsheim, T., Brunborg, G. S., & Pallesen, S. (2012). Development of a Facebook addiction scale. *Psychological Reports, 110*(2), 501–517. https://doi.org/10.2466/02.09.18.PR0.110.2.501-517.

Aretz, W., Gansen-Ammann, D.-N., Mierke, K., & Musiol, A. (2017). Date me if you can: Ein systematischer Überblick über den aktuellen Forschungsstand von Online-Dating. *Zeitschrift für Sexualforschung, 30*(1), 7–34. https://doi.org/10.1055/s-0043-101465.

Atroszko, P. A., Balcerowska, J. M., Bereznowski, P., Biernatowska, A., Pallesen, S., & Andreassen, C. S. (2018). Facebook addiction among Polish undergraduate students: Validity of measurement and relationship with personality and well-being. *Computers in Human Behavior, 85*, 329–338. https://doi.org/10.1016/j.chb.2018.04.001.

Bányai, F., Zsila, Á., Király, O., Maraz, A., Elekes, Z., Griffiths, M. D., … Demetrovics, Z. (2017). Problematic social media use: Results from a large-scale nationally representative adolescent sample. *PloS One, 12*(1), Article e0169839. https://doi.org/10.1371/journal.pone.0169839.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497–529.

Bayer, J. B., Ellison, N. B., Schoenebeck, S. Y., & Falk, E. B. (2016). Sharing the small moments: Ephemeral social interaction on Snapchat. *Information, Communication & Society, 19*(7), 956–977. https://doi.org/10.1080/1369118X.2015.1084349.

Boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication, 13*(1), 210–230. https://doi.org/10.1111/j.1083-6101.2007.00393.x.

Brailovskaia, J., & Bierhoff, H.-W. (2020). The narcissistic millennial generation: A study of personality traits and online behavior on facebook. *Journal of Adult Development, 27*(1), 23–35. https://doi.org/10.1007/s10804-018-9321-1.

Brailovskaia, J., Bierhoff, H.-W., Rohmann, E., Raeder, F., & Margraf, J. (in press). The relationship between narcissism, intensity of Facebook use, Facebook flow and Facebook addiction. Addictive Behaviors Reports. doi:10.1016/j.abrep.2020.100265.

Brailovskaia, J., & Margraf, J. (2016). Comparing facebook users and facebook non-users: Relationship between personality traits and mental health variables– an exploratory study. *PloS One, 11*(12), Article e0166999. https://doi.org/10.1371/journal.pone.0166999.

Brailovskaia, J., & Margraf, J. (2017). Facebook Addiction Disorder (FAD) among German students – a longitudinal approach. *PloS One, 12*(12), Article e0189719. https://doi.org/10.1371/journal.pone.0189719.

Brailovskaia, J., & Margraf, J. (2018). What does media use reveal about personality and mental health? An exploratory investigation among German students. *PloS One, 13*(1), Article e0191810. https://doi.org/10.1371/journal.pone.0191810.

Brailovskaia, J., & Margraf, J. (2019). I present myself and have a lot of Facebook-friends–Am I a happy narcissist!? *Personality and Individual Differences, 148*, 11–16. https://doi.org/10.1016/j.paid.2019.05.022.

Brailovskaia, J., Margraf, J., Schillack, H., & Köllner, V. (2019). Comparing mental health of Facebook users and Facebook non-users in an inpatient sample in Germany. *Journal of Affective Disorders, 259*, 376–381. https://doi.org/10.1016/j.jad.2019.08.078.

Brailovskaia, J., Rohmann, E., Bierhoff, H.-W., & Margraf, J. (2018). The brave blue world: Facebook flow and facebook addiction disorder (FAD). *PloS One, 13*(7), Article e0201484. https://doi.org/10.1371/journal.pone.0201484.

Brailovskaia, J., Rohmann, E., Bierhoff, H.-W., Margraf, J., & Köllner, V. (2019). Relationships between addictive facebook use, depressiveness, insomnia, and positive mental health in an inpatient sample: A German longitudinal study. *Journal of Behavioral Addictions, 8*(4), 703–713. https://doi.org/10.1556/2006.8.2019.63.

Brailovskaia, J., Rohmann, E., Bierhoff, H.-W., Schillack, H., & Margraf, J. (2019). The relationship between daily stress, social support and Facebook Addiction Disorder. *Psychiatry Research, 276*, 167–174. https://doi.org/10.1016/j.psychres.2019.05.014.

Brailovskaia, J., Teismann, T., & Margraf, J. (2018). Physical activity mediates the association between daily stress and Facebook Addiction Disorder (FAD) – a longitudinal approach among German students. *Computers in Human Behavior, 86*, 199–204. https://doi.org/10.1016/j.chb.2018.04.045.

Brailovskaia, J., Teismann, T., & Margraf, J. (2020). Positive mental health mediates the relationship between facebook addiction disorder and suicide-related outcomes: A longitudinal approach. *Cyberpsychology, Behavior, and Social Networking.* https://doi.org/10.1089/cyber.2019.0563.

Brailovskaia, J., Velten, J., & Margraf, J. (2019). Relationship between daily stress, depression symptoms, and Facebook Addiction Disorder in Germany and in the USA. *Cyberpsychology, Behavior, and Social Networking, 22*(9), 610–614. https://doi.org/10.1089/cyber.2019.0165.

Brunborg, G. S., Mentzoni, R. A., Molde, H., Myrseth, H., Skouverøe, K. J. M., Bjorvatn, B., et al. (2011). The relationship between media use in the bedroom, sleep habits and symptoms of insomnia. *Journal of Sleep Research, 20*(4), 569–575. https://doi.org/10.1111/j.1365-2869.2011.00913.x.

Casale, S., & Fioravanti, G. (2018). Why narcissists are at risk for developing Facebook addiction: The need to be admired and the need to belong. *Addictive Behaviors, 76*, 312–318. https://doi.org/10.1016/j.addbeh.2017.08.038.

Chou, T.-J., & Ting, C.-C. (2003). The role of flow experience in cyber-game addiction. *CyberPsychology and Behavior, 6*(6), 663–675. https://doi.org/10.1089/109493103322725469.

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*, 37–46.

Conway, J. M., & Lance, C. E. (2010). What reviewers should expect from authors regarding common method bias in organizational research. *Journal of Business and Psychology, 25*(3), 325–334. https://doi.org/10.1007/s10869-010-9181-6.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal performance.* New York, NY: Cambridge UniversityPress.

Dunne, Á., Lawlor, M. A., & Rowley, J. (2010). Young people's use of online social networking sites–a uses and gratifications perspective. *The Journal of Research in Indian Medicine, 4*, 46–58. https://doi.org/10.1108/17505931011033551.

Elhai, J. D., Yang, H., Fang, J., Bai, X., & Hall, B. J. (2020). Depression and anxiety symptoms are related to problematic smartphone use severity in Chinese young adults: Fear of missing out as a mediator. *Addictive Behaviors, 101*, 1–7. https://doi.org/10.1016/j.addbeh.2019.04.020.

Ellison, N. B., Steinfield, C., & Lampe, C. (2011). Connection strategies: Social capital implications of Facebook-enabled communication practices. *New Media & Society, 13*(6), 873–892. https://doi.org/10.1177/1461444810385389.

Feldt, L. S., & Brennan, R. L. (1989). Reliability. In R. L. Linn (Ed.), *Educational measurement* (3rd ed., pp. 105–146). Washington, DC: American Council on Education and National Council on Measurement in Education.

Huang, C. (2010). Internet use and psychological well-being: A meta-analysis. *Cyberpsychology, Behavior, and Social Networking, 13*(3), 241–249. https://doi.org/10.1089/cyber.2009.0217.

Kaur, P., Dhir, A., Chen, S., & Rajala, R. (2016). Flow in context: Development and validation of the flow experience instrument for social networking. *Computers in Human Behavior, 59*, 358–367. https://doi.org/10.1016/j.chb.2016.02.039.

Kaye, A. (2019). Facebook use and negative behavioral and mental health outcomes: A literature review. *Journal of Addiction Research & Therapy, 10*(1), 1–10. https://doi.org/10.4172/2155-6105.1000375.

Khang, H., Kim, J. K., & Kim, Y. (2013). Self-traits and motivations as antecedents of digital media flow and addiction: The Internet, mobile phones, and video games. *Computers in Human Behavior, 29*(6), 2416–2424. https://doi.org/10.1016/j.chb.2013.05.027.

Kim, H.-K., & Davis, K. E. (2009). Toward a comprehensive theory of problematic Internet use: Evaluating the role of self-esteem, anxiety, flow, and the self-rated importance of Internet activities. *Computers in Human Behavior, 25*(2), 490–500. https://doi.org/10.1016/j.chb.2008.11.001.

Kircaburun, K. (2016). Effects of gender and personality differences on twitter addiction among Turkish undergraduates. *Journal of Education and Practice, 7*(24), 33–42.

Kircaburun, K., & Griffiths, M. D. (2018). Instagram addiction and the Big Five of personality: The mediating role of self-liking. *Journal of Behavioral Addictions, 7*(1), 158–170. https://doi.org/10.1556/2006.7.2018.15.

Koc, M., & Gulyagci, S. (2013). Facebook addiction among Turkish college students: The role of psychological health, demographic, and usage characteristics. *Cyberpsychology, Behavior, and Social Networking, 16*(4), 279–284. https://doi.org/10.1089/cyber.2012.0249.

Kuss, D. J. (2013). Internet gaming addiction: Current perspectives. *Psychology Research and Behavior Management, 6*, 125–137. https://doi.org/10.2147/PRBM.S39476.

Kwak, K. T., Choi, S. K., & Lee, B. G. (2014). SNS flow, SNS self-disclosure and post hoc interpersonal relations change: Focused on Korean Facebook user. *Computers in Human Behavior, 31*, 294–304. https://doi.org/10.1016/j.chb.2013.10.046.

LaRose, R., & Eastin, M. S. (2004). Asocial cognitive theory of Internet uses and gratifications: Toward a new model of media attendance. *Journal of Broadcasting & Electronic Media, 48*(3), 358–377.

Lee, E., Lee, J.-A., Moon, J. H., & Sung, Y. (2015). Pictures speak louder than words: Motivations for using Instagram. *Cyberpsychology, Behavior, and Social Networking, 18*(9), 552–556. https://doi.org/10.1089/cyber.2015.0157.

Lemmens, J. S., Valkenburg, P. M., & Peter, J. (2011). Psychosocial causes and consequences of pathological gaming. *Computers in Human Behavior, 27*(1), 144–152. https://doi.org/10.1016/j.chb.2010.07.015.

Li, J., Lepp, A., & Barkley, J. E. (2015). Locus of control and cell phone use: Implications for sleep quality, academic performance, and subjective well-being. *Computers in Human Behavior, 52*, 450–457. https://doi.org/10.1016/j.chb.2015.06.021.

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the beck depression and anxiety inventories. *Behaviour Research and Therapy, 33*(3), 335–343. https://doi.org/10.1016/0005-7967(94)00075-U.

Marino, C., Gini, G., Vieno, A., & Spada, M. M. (2018a). The associations between problematic facebook use, psychological distress and well-being among adolescents and young adults: A systematic review and meta-analysis. *Journal of Affective Disorders, 226*, 274–281. https://doi.org/10.1016/j.jad.2017.10.007.

Marino, C., Gini, G., Vieno, A., & Spada, M. M. (2018b). A comprehensive meta-analysis on problematic facebook use. *Computers in Human Behavior, 83*, 262–277. https://doi.org/10.1016/j.chb.2018.02.009.

Masur, P. K., Reinecke, L., Ziegele, M., & Quiring, O. (2014). The interplay of intrinsic need satisfaction and Facebook specific motives in explaining addictive behavior on Facebook. *Computers in Human Behavior, 39*, 376–386. https://doi.org/10.1016/j.chb.2014.05.047.

Mauri, M., Cipresso, P., Balgera, A., Villamira, M., & Riva, G. (2011). Why is facebook so successful? Psychophysiological measures describe a core flow state while using facebook. *Cyberpsychology, Behavior, and Social Networking, 14*(12), 723–731. https://doi.org/10.1089/cyber.2010.0377.

Mayring, P., & M K. (2010). Qualitative inhaltsanalyse. In G. Mey (Ed.), *Handbuch qualitative forschung in der Psychologie* (pp. 601–613). Wiesbaden: VS Verlag für Sozialwissenschaften.

McHugh, M. L. (2012). Interrater reliability: The kappa statistic. *Biochemia Medica, 22*(3), 276–282.

Meier, A., & Schäfer, S. (2018). The positive side of social comparison on social network sites: How envy can drive inspiration on Instagram. *Cyberpsychology, Behavior, and Social Networking, 21*(7), 411–417. https://doi.org/10.1089/cyber.2017.0708.

Michikyan, M., Subrahmanyam, K., & Dennis, J. (2014). Can you tell who I am? Neuroticism, extraversion, and online self-presentation among young adults. *Computers in Human Behavior, 33*, 179–183. https://doi.org/10.1016/j.chb.2014.01.010.

Papacharissi, Z., & Mendelson, A. (2011). Toward a new(er) sociability: Uses, gratifications and social capital on Facebook. In S. Papathanassopoulos (Ed.), *Media perspectives for the 21st century* (pp. 212–230). Oxon, UK: Routledge.

Pittman, M., & Reich, B. (2016). Social media and loneliness: Why an Instagram picture may be worth more than a thousand Twitter words. *Computers in Human Behavior, 62*, 155–167. https://doi.org/10.1016/j.chb.2016.03.084.

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*, 539–569. https://doi.org/10.1146/annurev-psych-120710-100452.

Ponnusamy, S., Iranmanesh, M., Foroughi, B., & Hyun, S. S. (2020). Drivers and outcomes of Instagram addiction: Psychological well-being as moderator. *Computers in Human Behavior, 107*, 106294. https://doi.org/10.1016/j.chb.2020.106294.

Prall, L. (2010). SixDegrees - Social Networking in its Infancy. https://ezinearticles.com/?SixDegrees—Social-Networking-In-Its-Infancy&id=5064109. (Accessed 20 September 2010).

Przybylski, A. K., & Weinstein, N. (2017). A large-scale test of the goldilocks hypothesis: Quantifying the relations between digital-screen use and the mental well-being of adolescents. *Psychological Science, 28*(2), 204–215. https://doi.org/10.1177/0956797616678438.

Raacke, J., & Bonds-Raacke, J. (2008). MySpace and Facebook: Applying the uses and gratifications theory to exploring friend-networking sites. *CyberPsychology and Behavior, 11*(2), 169–174.

Reissmann, A., Hauser, J., Stollberg, E., Kaunzinger, I., & Lange, K. W. (2018). The role of loneliness in emerging adults' everyday use of facebook–An experience sampling approach. *Computers in Human Behavior, 88*, 47–60. https://doi.org/10.1016/j.chb.2018.06.011.

Roth, P. (2020). *Nutzerzahlen: Facebook, Instagram, Messenger und WhatsApp, Highlights, Umsätze, uvm. (Stand Januar 2020)*. Allfacebook. https://allfacebook.de/toll/state-of-facebook.

Ryan, T., Chester, A., Reece, J., & Xenos, S. (2014). The uses and abuses of facebook: A review of facebook addiction. *Journal of Behavioral Addictions, 3*(3), 133–148. https://doi.org/10.1556/JBA.3.2014.016.

Ryan, T., Reece, J., Chester, A., & Xenos, S. (2016). Who gets hooked on facebook? An exploratory typology of problematic facebook users. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace, 10*(3), 1–25. https://doi.org/10.5817/CP2016-3-4.

Sarmiento, I. G., Olson, C., Yeo, G., Chen, Y. A., Toma, C. L., Brown, B. B., … Mares, M.-L. (2018). How does social media use relate to adolescents' internalizing symptoms? Conclusions from a systematic narrative review. *Adolescent Research Review, 1*–24. https://doi.org/10.1007/s40894-018-0095-2.

Schmitt, J. B., Debbelt, C. A., & Schneider, F. M. (2018). Too much information? Predictors of information overload in the context of online news exposure.

Information, Communication & Society, 21(8), 1151–1167. https://doi.org/10.1080/1369118X.2017.1305427.

Scholten, S., Lavallee, K., Velten, J., Zhang, X. C., & Margraf, J. (2019). *The brief general daily Stressors' Strain screening* (Unpublished manuscript).

Shalley, C. E., Gilson, L. L., & Blum, T. C. (2009). Interactive effects of growth need strength, work context, and job complexity on self-reported creative performance. *Academy of Management Journal, 52*(3), 489–505. https://doi.org/10.5465/amj.2009.41330806.

Sinclair, T. J., & Grieve, R. (2017). Facebook as a source of social connectedness in older adults. *Computers in Human Behavior, 66*, 363–369. https://doi.org/10.1016/j.chb.2016.10.003.

Singh, A., Halgamuge, M. N., & Mouess, B. (2019). An analysis of demographic and behaviour trends using social media: Facebook twitter and Instagram. In N. Dey, S. Borah, R. Babo, & A. S. Ashour (Eds.), *Social network analytics: Computational research methods and techniques*. London, U.K.: Elsevier.

Smock, A. D., Ellison, N. B., Lampe, C., & Wohn, D. Y. (2011). Facebook as a toolkit: A uses and gratification approach to unbundling feature use. *Computers in Human Behavior, 27*(6), 2322–2329. https://doi.org/10.1016/j.chb.2011.07.011.

Tifferet, S., & Vilnai-Yavetz, I. (2018). Self-presentation in LinkedIn portraits: Common features, gender, and occupational differences. *Computers in Human Behavior, 80*, 33–48. https://doi.org/10.1016/j.chb.2017.10.013.

Trivedi, R. H., & Teichert, T. (2017). The janus-faced role of gambling flow in addiction issues. *Cyberpsychology, Behavior, and Social Networking, 20*(3), 180–186. https://doi.org/10.1089/cyber.2016.0453.

Twenge, J. M., & Campbell, W. K. (2019). Media use is linked to lower psychological well-being: Evidence from three datasets. *Psychiatric Quarterly, 90*, 311–331. https://doi.org/10.1007/s11126-019-09630-7.

Twenge, J. M., Cooper, A. B., Joiner, T. E., Duffy, M. E., & Binau, S. G. (2019). Age, period, and cohort trends in mood disorder indicators and suicide-related outcomes in a nationally representative dataset, 2005–2017. *Journal of Abnormal Psychology, 128*(3), 185–199. https://doi.org/10.1037/abn0000410.

Twenge, J. M., Joiner, T. E., Rogers, M. L., & Martin, G. N. (2018). Increases in depressive symptoms, suicide-related outcomes, and suicide rates among US adolescents after 2010 and links to increased new media screen time. *Clinical Psychological Science, 6*(1), 3–17. https://doi.org/10.1177/2167702618824060.

Twenge, J. M., Martin, G. N., & Spitzberg, B. H. (2019). Trends in US Adolescents' media use, 1976–2016: The rise of digital media, the decline of TV, and the (near) demise of print. *Psychology of Popular Media Culture, 8*(4), 329–345. https://doi.org/10.1037/ppm0000203.

Twenge, J. M., Spitzberg, B. H., & Campbell, W. K. (2019). Less in-person social interaction with peers among US adolescents in the 21st century and links to loneliness. *Journal of Social and Personal Relationships, 36*(6), 1892–1913. https://doi.org/10.1177/0265407519836170.

Urban, D., & Mayerl, J. (2006). *Regressionsanalyse: Theorie, Technik und Anwendung (2. Aufl.)*. Wiesbaden: VS Verlag für Sozialwissenschaften.

Valkenburg, P. M., Schouten, A. P., & Peter, J. (2005). *Adolescents' identity experiments on the Internet. 7* pp. 383–402). New Media & Society. https://doi.org/10.1177/1461444805052282, 3.

Van Dijck, J. (2013). 'You have one identity': Performing the self on Facebook and LinkedIn. *Media, Culture & Society, 35*(2), 199–215. https://doi.org/10.1177/0163443712468605.

Verduyn, P., Ybarra, O., Résibois, M., Jonides, J., & Kross, E. (2017). Do social network sites enhance or undermine subjective well-being? A critical review. *Social Issues and Policy Review, 11*(1), 274–302. https://doi.org/10.1111/sipr.12033.

Vilnai-Yavetz, I., & Tifferet, S. (2015). A picture is worth a thousand words: Segmenting consumers by facebook profile images. *Journal of Interactive Marketing, 32*, 53–69. https://doi.org/10.1016/j.intmar.2015.05.002.

Wang, J.-L., Jackson, L. A., Wang, H.-Z., & Gaskin, J. (2015). Predicting social networking site (SNS) use: Personality, attitudes, motivation and internet self-efficacy. *Personality and Individual Differences, 80*, 119–124. https://doi.org/10.1016/j.paid.2015.02.016.

Whiting, A., & Williams, D. (2013). Why people use social media: A uses and gratifications approach. *Qualitative Market Research: An International Journal, 16*(4), 362–369. https://doi.org/10.1108/QMR-06-2013-0041.

Woods, H. C., & Scott, H. (2016). # Sleepyteens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *Journal of Adolescence, 51*, 41–49. https://doi.org/10.1016/j.adolescence.2016.05.008.

Wu, T.-C., Scott, D., & Yang, C.-C. (2013). Advanced or addicted? Exploring the relationship of recreation specialization to flow experiences and online game addiction. *Leisure Sciences, 35*(3), 203–217. https://doi.org/10.1080/01490400.2013.780497.

Xie, W., & Karan, K. (2019). Predicting Facebook addiction and state anxiety without Facebook by gender, trait anxiety, Facebook intensity, and different Facebook activities. *Journal of Behavioral Addictions, 8*(1), 79–87. https://doi.org/10.1556/2006.8.2019.09.

Young, R., Len-Ríos, M., & Young, H. (2017). Romantic motivations for social media use, social comparison, and online aggression among adolescents. *Computers in Human Behavior, 75*, 385–395. https://doi.org/10.1016/j.chb.2017.04.021.