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Clinical psychology

Social media - blessing or curse for socially anxious individuals?
Using Self-Determination Theory to evaluate relationships between social anxiety and social media usage

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Abstract

The present study investigated the relationship between the use of social networking sites (SNS) and social anxiety from the perspective of self-determination theory. Based on the latter framework, we expected satisfaction and/or frustration of basic psychological needs to be a process mediating the relationship between SNS-use and social anxiety. Conducting a cross-sectional online survey among 125 participants, results showed (1) the positive relation between social anxiety and basic need frustration to be stronger than the negative relation between social anxiety and basic need satisfaction; (2) an expected positive relation between social anxiety and SNS-use; and (3) neither basic needs satisfaction nor basic needs frustration to mediate the latter relationship. Clinical and theoretical implications are discussed, as well as possible avenues for further research.

Keywords: Social Networking Sites, Social Anxiety, self-determination theory, basic psychological needs

Introduction

Using the internet to connect with others is a common form of communication these days. The big players regarding social networking sites (SNS) are Facebook, Instagram, and Twitter, which have respectively around 1.49 billion, 1 billion, and 326 million monthly active users (Statista, 2018). These social network sites offer platforms for users to introduce personal information, post pictures, statements, or any other media to which friends are invited to engage in by liking, commenting or sharing (Tufekci, 2008). The main purpose of SNS is to maintain or develop new friendships (Boyd & Ellison, 2007). Also, is it seen as a convenient way to fulfill communication needs and wants (Sponcil & Gitimu, 2013), with the advantage, that the user can decide the rate and time of contact with others (Urista, Dong, & Day, 2009). Research by Anderson and Smith (2018) comparing American generations shows the younger generation (i.e., age range 18-29 years) to represent the largest share of users, with 88% of them using some form of social media. However, the growth is not limited to teenagers, even among respondents aging 65 and older, 37% consider themselves user (Anderson and Smith, 2018).

Baumeister and Leary (2001, p.497) state, that humans have a "pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships." They furthermore argue, that being (perceived as) a valued social group member is an evolutionary-determined human motivation. Communication via SNS provides users with the possibility to develop and maintain such close and meaningful relationships (Valkenburg & Peter, 2009). The need for relatedness, as underlined by Deci and Ryan (1985), therefore can be seen as a primary motivator in the widespread use of SNS. According to Ryan and Deci´s self-determination theory (Ryan & Deci, 2017; Ryan, Deci & Vansteenkiste, 2016), not only the need for relatedness (to feel loved and cared for by significant others) but also the need for competence (to feel being capable of achieving desired goals) and autonomy (acting with a sense of volition and ownership of one's behavior) are equally relevant for a person's well-being, integrity and psychological growth (Ryan & Deci, 2000; Vansteenkiste et al. 2010; Reis et al. 2000). Self-determination theory defines these needs as essential "nutriments" or "conditions" for mental health and psychological growth (Ryan, 1995; Ryan & Deci, 2008). Therefore, people will develop, experience wellness and show optimal psychological functioning when all of the basic needs are ongoingly satisfied (Ryan & Deci, 2000). In contrast, low satisfaction or high frustration of one or more needs is expected to decrease healthy functioning (Chen et al., 2015) and to result in the person striving to satisfy the unmet need.

Recent work began to differentiate need satisfaction from need frustration showing the absence of satisfaction not necessarily implying its frustration (Bartholomew et al., 2011; Chen et al., 2015; Vanhee, Lemmens & Verhofstadt, 2016; Vansteenkiste & Ryan, 2013). While the absence of need satisfaction would indicate a hindrance to the innate growth process, need frustration is said to block and severely undermine personal growth, particularly relevant to maladjustment and ill-being (Ryan & Deci, 2000; Vandenkerckhove et al., 2019; Vansteenkiste & Ryan, 2013). Feeling not related to another person, for instance, does not necessarily mean, to feel excluded or isolated, which would define relatedness frustration. To feel not effective may result in low competence satisfaction while doubting own abilities and feelings of failure leads to competence frustration. Finally, a person who does not feel to have enough choice in what they do may have low autonomy satisfaction but a person who feels obliged to follow decisions that have been made for them will feel autonomy frustration.

Individuals whose needs are expected to be thwarted are persons with social anxiety. Social anxiety is defined by the DSM-V as being "fearful or anxious about or avoidant of social interactions and situations that involve the possibility of being scrutinized". (American Psychiatric Association, 2019). It can furthermore be described as a continuum, ranging from shyness and social fears to clinical diagnosable social anxiety disorder (Barrett & Cooper, 2014). Socially anxious persons typically tend to experience a high discrepancy between a perception of high social expectations and low estimation of their own ability to perform in the anticipated desired way (Clark & Wells, 1995; Hofmann, 2007; Leary, 2001; Segrin, 1996, Schlenker and Leary, 1982; Rehm & Marston, 1968). As such, social anxiety can be detrimental to nearly every aspect of an individual's life, showing relations with for instance fear of speaking in front of others, low self-esteem and high depression (Wittchen et al., 1999). Another detrimental factor regarding basic needs in socially anxious persons is that they are critical of their own actions while tending to overlook positive feedback from others (Hirsch & Matthews, 2000). This is seen as an essential maintaining factor of social anxiety (Clark & Wells, 1995). Symptoms of social anxiety can be physiological (such as increased heart rate), cognitive (such as worrying) and behavioral (such as using safety behaviors like social isolation) (Barrett & Cooper, 2014). Looking at social anxiety from the scope of the mentioned basic psychological needs, frustration of the need for relatedness may come with social anxiety, since perceived scrutiny can be experienced as threatening rejection by others.Their critical self-monitoring furthermore can lead to difficulties relating truly and openly. Second, competence may be thwarted, since these people are expected to perceive personal inadequacies (Rehm & Marston, 1968), for example underestimating their social

skills (Cacioppo, Glass, & Merluzzi, 1979). Moreover, behaving out of fear for negative evaluation is clearly a lack of felt autonomy. In virtually every social interaction, social anxiety is experienced through a felt pressure to act, think or feel in a certain way, hence autonomy frustration.

It is said, that need frustration elicits compensatory behavior to restore thwarted needs (Ryan et al., 2016; Vansteenkiste & Ryan, 2013). It can, therefore, be assumed, that online interaction for some persons with high need frustration is used to compensate for thwarted needs (McKenna & Bargh, 1999). Indeed, Valkenburg and Peter (2009) found Facebook and Instagram to be a compensatory medium for socially anxious persons. They benefit from communication via SNS (Brunet & Schmidt, 2007; Erwin et al., 2004), being "significantly more likely to form friendships and intimate relationships" online (McKenna & Bargh, 1999, p.255). In contrast to face-to-face interaction, fewer factors could, from a social anxiety standpoint, be perceived as threatening. Non-verbal cues and spontaneity, for instance, are eliminated and control over time and pace of interactions enhanced. In short, in comparison to face-to-face interaction, one feels less observed by others, reducing fear of negative evaluation (Shepherd & Edelman, 2005; Yen et al., 2012). For socially anxious persons, SNS thus offer a great means to satisfy their thwarted needs for relatedness (being able to relate easier to others), autonomy (social evaluations having less weight in their behavior) and competence (having more control over interactions, e.g. pace and duration).

Current study

As research in this field is scarce (e.g., Prizant-Passal, Shechner, & Aderka, 2016), the first aim of our study was to determine if a higher degree of social anxiety will predict more social media use. The second aim was to identify possible relations between basic needs satisfaction/frustration and social media use. Following our reasoning, socially anxious persons tend to have the fulfillment of their needs thwarted, hence being assumed to look for ways to satisfy them, benefitting from SNS use (McKenna & Bargh, 1999; Ryan et al., 2016). Following these arguments, we expect social anxiety to be positively related to basic need frustration and negatively to need satisfaction (Hypothesis 1a). Second, since especially high need frustration (and not so much low need satisfaction) is related to psychopathology (e.g., Ryan, Deci & Vansteenkiste, 2016), we expect the relation between social anxiety and need frustration to be stronger than the relation between social anxiety and need satisfaction (Hypothesis 1b). Furthermore, we expect social anxiety to be positively related to the intensity

of SNS-use (Hypothesis 2), a relation expected to be mediated by basic need frustration (Hypothesis 3a) and to a lesser degree by basic need satisfaction (Hypothesis 3b).

Methods

Participants and design

A convenience sample of 130 persons was recruited through the social media platforms Facebook and Instagram. All participants were presented an online questionnaire, developed using the Qualtrics survey system and having a duration of between 10 and 15 minutes. Participation was free, and anyone who completed the survey had the chance to win one out of two 30€ Amazon vouchers as a reward. Inclusion criteria for participation were being at least 18 years old, being fluent in the German language (the survey language being German) and being a user of at least one of the platforms Instagram and Facebook. Five participants had to be excluded since they showed short survey durations (< 3 minutes). Among the final 125 participants that completed the survey, were 18,4% male and 81,6% female. The participants mean age was 30.71 years (SD = 11.78).

Measurements

SNS-use intensity. The intensity of social media use (i.e., exclusively Facebook and Instagram, being used the most; Statista, 2019) was evaluated with five formulated items. Answers could be given on a 5-point Likert scale. Daily Facebook and Instagram use was evaluated with responses to (1) “How many times a day do you use social media?”, being scored from 1= “0”, 2= “1-5”, 3= “6-10”, 4= “11-20” to 5= “more than 20”; and (2) “How much time do you spend on social media every day?”, being scored from 1=”1-15 minutes”, 2=15-30 minutes”, 3= “30-60 minutes”, 4= “1 to 2 hours per day” to 5=”more than 2 hours per day”. Furthermore, using the latter answering category, three items were used to gauge for engagement in SNS use: “How often do you interact with posts on SNS?; How often do you write a post?; How often do you use Facebook or Instagram messenger to communicate with friends?” The Cronbach’s alpha of these five items was more than satisfactory ($\alpha = 0.78$).

Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS)

The German version of Chen et al.’s (2015) BPNSFS (Heissel et al., 2019) is a 24-item scale that consists of six four-item subscales. Psychometric properties of the German version have recently shown to be adequate with Cronbachs alphas of .75, .77, and .76 for satisfaction subscales of the needs for autonomy, competence, and relatedness and of .81, .66, and .69 for

frustration subscales of the needs for autonomy, competence, and relatedness (Heissel et al., 2019).. Good psychometric properties of the scale furthermore, have been confirmed in a variety of studies (Campbell et al., 2015; Chen et al., 2015). Degree of consent to the items could be given on a 5-point Likert scale, ranging from 1 "strongly disagree" to 5 "strongly agree." Twelve items are meant to assess basic need satisfaction (M = 3.92, SD= 0.66, α= .84; e.g. "I feel a sense of choice and freedom in the things I undertake") and the other 12 assess basic need frustration (M= 2.12, SD= 0.84, α= .89; e.g. "I feel excluded from the group I want to belong to").

Brief Fear of negative evaluation (BFNE)

In order to assess the degree of social anxiety, the Brief Fear of Negative Evaluation scale was used, showing excellent internal consistency and validity (Carleton, Collimore, McCabe, & Antony, 2011; Leary, 1983). Psychometric properties were also shown to be good in the German version of the BFNE (Reichenberger et al., 2015) which has been used in this study. Each of the 12 items (e.g., "I am frequently afraid of other people noticing my shortcomings") is rated on a 5-point Likert scale, ranging from 1 "Not at all characteristic of me" to 5 "extremely characteristic of me." Reliability in this research was α = .95, higher scores indicate a higher degree of fear of negative evaluation (M = 3.07, SD = .94).

Social Phobia Inventory (SPIN)

A second assessment of social anxiety was done by the German version of the social phobia inventory (Stangier & Steffens, 2002). The SPIN shows good psychometric properties, e.g., showing good test re-test reliability and validity (Sosic, Gieler & Stangier, 2008; Connor et al., 2000). The SPIN consists of 17 items, measuring the three subscales "fear" (e.g. "I am afraid of people in authority"), "avoidance" (e.g. "I avoid talking to people I don't know") and "physiological discomfort" (e.g. "Heart palpitations bother me when I am around people"). Answers could be given on a scale, ranging from 0 "not at all" to 4 "extremely", with higher scores indicating higher social anxiety. The total scores, therefore, could range from 0 to 68 (M = 22.87, SD = 13.28, α= .93).

Data analysis

The survey software "Qualtrics" was used to collect data, which then was transferred to IBM SPSS Statistics version 26. Descriptives of demographic data have been executed and reliability analyses have been done for every scale. To asses and provide an overview of relationships between measured constructs, an intercorrelation table was created. To assess the hypotheses, regression analyses were executed. The statistical significance was set at p <

0.05 (Paternoster, Brame, Mazerolle, & Piquero, 1998). The mediation model was calculated with the PROCESS macro by Hayes (2012), controlling for age as a covariate.

Results

For the descriptive statistics, means and standard deviations were calculated (Table 1). Pearson correlations were executed for all variables that were taken into further analysis (Table 2). Independent sample t-tests between gender and the variables of interest showed no significant differences. Age correlated significantly negatively with SPIN score ($r = -.33$, $p < .001$), basic need frustration ($r = -.34$, $p < .001$) and SNS-use ($r = -.23$, $p < .05$). Significant correlations could be found between the SPIN score and basic need satisfaction/ frustration. BFNE scores where strongly related to SPIN scores ($r = .71$, $p < .001$).

Table 1

Descriptive statistics

	N	*min*	*max*	*m*	*sd*	Skewness (*se*)	Kurtosis (*se*)
Age	125	19	68	30.71	11.78	1.38 (.22)	.68 (.43)
SPIN	119	0	60	22,87	13,28	.67 (.22)	-.03 (.44)
Need satisfaction	120	1.50	4.92	3.91	.66	-1.27 (.22)	1.51 (.44)
Need frustration	120	1	4.50	2.12	.84	.89 (.22)	.06 (.44)
BFNE	117	1	5	3.07	.94	-.11 (.22)	-.90 (.44)
SNS-Use	122	16.60	98.98	64.08	20.26	-.25 (.22)	-.78 (.44)

Table 2

Intercorrelation table of evaluated variables

	Age	NS	NF	BFNE	SPIN	SNS- Use
Age		.02	-.34**	-.43**	-.34**	-.23*
NS			-.35**	-.17	-.38**	-.20*
NF				.58**	.72**	.13
BFNE					.71**	.13
SPIN						.23*
SNS-Use						

Note: **. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed). NS= Need Satisfaction, NF= Need Frustration, BFNE= Brief Fear of Negative Evaluation, SPIN= Social Phobia Inventory.

To examine the first hypothesis, Pearson correlations have been executed. As expected, a higher score on the social anxiety inventory is positively related to basic need frustration ($r = .72$, $p < .001$) and negatively to need satisfaction ($r = -.38$, $p < .001$). Significant correlations between social anxiety features as measured by the BFNE and basic need frustration could be found ($r = .58$, $p < .001$) while BFNE did not correlate significantly with basic need satisfaction. As for part b of the first hypothesis, multiple linear regression analyses with both basic need satisfaction and basic need frustration as a predictor for social anxiety as measured by the SPIN and BFNE have been conducted. The relationship between social anxiety as measured by SPIN and BFNE, and basic need frustration is higher than between the social anxiety measurements and basic need satisfaction. Hypothesis one can thus be confirmed.

Table 3

Multiple linear regression of basic need satisfaction and basic need frustration on social anxiety measurements, controlled for age and gender

	BFNE (β)	SPIN (β)
Age	-.26	-.11
Gender	.13	.11
Need frustration	.50***	.63***
Need satisfaction	.02	-.15*
R^2	.42***	.56***

Note. * p < .05; **p < .01; ***p < .001. β = standardized regression coefficient.

Social anxiety, measured by the SPIN, as hypothesized in the second hypothesis, is related to the intensity of SNS-use ($r = .23$; $p < .05$). However, the BFNE is not significantly related with SNS-use. The second hypothesis, therefore, is only partly confirmed. In order to examine possible mediation-effects, bootstrap analyses were conducted using the PROCESS macro (Hayes, 2012). As illustrated in figure 1 and figure 2, it has been analysed whether social anxiety as measured by the SPIN predicts SNS-use and whether the direct path would be mediated by basic need satisfaction or frustration. With need satisfaction included as a mediator, the total effect of SPIN score on SNS-Use turned into a non-significant direct effect ($\beta = .12$; $p = .26$). In addition, no significant indirect effects were found for SPIN scores on

SNS-use through basic need satisfaction as a mediator (β = .07; 95% CI = [-.002; .15]). With need frustration included as a mediator, the total effect of SPIN score on SNS-Use remained significant (β = .26*; p < .05). No significant indirect effects were found for SPIN scores on SNS-use through basic need frustration as a mediator (β = -.08; 95% CI = [-.26; .08]). Since there is no correlation between BFNE and SNS-use, no further analysis was conducted with these variables.

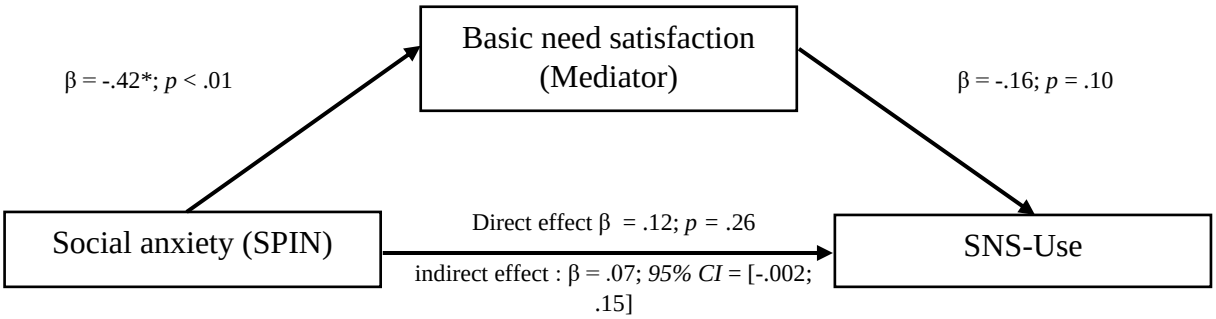

Figure 1. Overview of results for the relationship between social anxiety (SPIN) and Social media use as mediated by basic need satisfaction. *p < .05; controlled for *age* as a covariate.

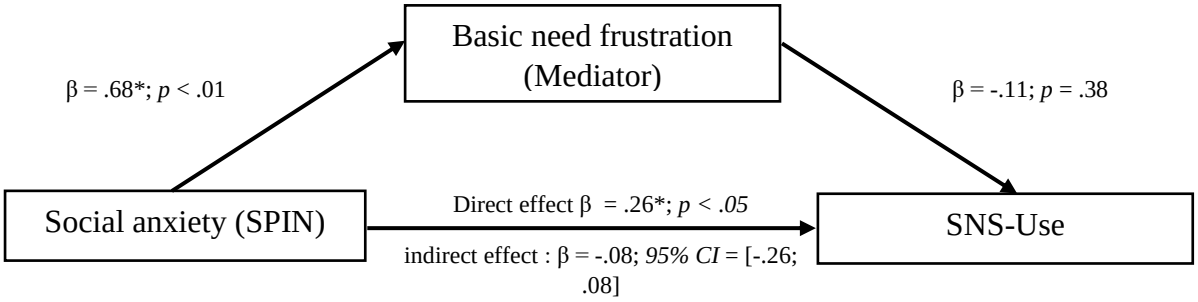

Figure 2. Overview of results for the relationship between social anxiety (SPIN) and Social media use as mediated by basic need frustration. *p < .05; controlled for *age* as a covariate.

In short, all of the executed 95% bootstrapping CI´s of the indirect effects contain zero. Therefore, neither basic need satisfaction nor basic need frustration can be seen as a mediator of SPIN/BFNE scores on SNS-use, rejecting hypothesis 3a and b.

Discussion

More and more of our daily conversation takes place online. A steady increase in SNS users shows that online communication becomes a popular alternative to face-to-face

communication, an evolution from which especially socially anxious people can benefit (Brunet & Schmidt, 2007; Erwin et al., 2004; Hughes, Rowe, Batey, & Lee, 2012). Socially anxious people avoid social interactions, out of fear of negative judgment and a lack of trust in one's own abilities to perform in a socially desired way (Clark & Wells, 1995; Leary, 2001, Rachman, 2013). However, since socially anxious people still have the inherent tendency towards fulfillment of their basic psychological needs of relatedness, competence, and autonomy (Ryan et al., 2016), they are looking for alternative ways to satisfy them (McKenna & Bargh, 1999), e.g., through SNS-use (Griffith & Kuss, 2017). On SNS, socially anxious individuals can enhance the feeling of being in control eliminating the biggest obstacles they encounter in face-to-face interactions, such as discomfort deriving from the perception of being evaluated (Leary, 2001; Caplan, 2007; Qian & Scott, 2007). Furthermore, do SNS facilitate the basic need satisfaction of relatedness (e.g. through the possibility of connecting with others online), autonomy (e.g. through being able to determine the pace and duration of interactions) and competence (e.g. through feeling more capable of acting in a desired way). The present study sought to find out if there is a relationship between SNS use and social anxiety mediated by the fulfillment of the three basic psychological needs. For this purpose, a cross-sectional survey design using a convenience sample of 125 participants was executed.

In line with this reasoning, our first hypothesis was confirmed: social anxiety related negatively to basic need satisfaction and positively to basic need frustration. Furthermore, the latter relation was clearly stronger than the former, in line with abundant research showing need frustration to be consistently related to psychopathology (Chen et al., 2015; Costa et al., 2015; see Ryan, Deci & Vansteenkiste, 2015 for an overview). Although Costa et al. (2015) provided a clearer picture on basic need frustration and sensitivity in social interactions, to our knowledge, our research and that of De Bruin and Rijk (2019) are the first to show these relations in the realm of social anxiety features.

Furthermore, our second hypothesis was partly confirmed, that is, people higher on social anxiety features were found to use SNS more intensively. These findings are in line with research by Murphy and Tasker (2011) who found a significant correlation between time spent on Facebook and social anxiety. One explanation could be, that socially anxious persons are alone more often (Barrett & Cooper, 2014) and use SNS out of boredom or loneliness. Another explanation can be found in the “social compensation hypothesis” (Fernandez, Levinson & Rodebaugh, 2012), which states that individuals use SNS to compensate for deficits in social skills or discomfort in face-to-face situations. Contrary to our final hypothesis, basic needs satisfaction/frustration did not mediate the relationship between social

anxiety and SNS-use. In this sample, basic needs are not found to play a significant role in why people higher on social anxiety use SNS more intensively. This raises the question of what other mediators could possibly be at stake. Recent research shows, that persons who perceive low social support offline, used online support more often (Blachnio, Przepiorka, & Pantic, 2015; Cole et al., 2017; Ybarra, Mitchell, Palmer, & Reisner, 2015). More detailed indicators for basic needs such as social support could, therefore, be stronger moderators between social anxiety and SNS-use (Kim and Lee, 2011). Further research is needed to identify other possible mediators in this relation.

Clinical implications

This study showed, that higher levels of social anxiety relate to higher need frustration and lower need satisfaction. Since this supports earlier mentioned relations between psychological needs and psychological distress, socially anxious persons could benefit from interventions based on self-determination theory. Such interventions could focus on social skills training, enhancing self-determination and self-confidence in order to alleviate factors that thwart need satisfaction. For instance, could exposure therapy lower basic need frustration as soon as a socially anxious person stops perceiving social situations as threatening. The idea of decreasing need frustration in order to decrease psychological distress has also been used by Weinstein and colleagues (2016) who showed, that Syrian refugees who participated in a 1-week long, need-engaging intervention displayed lower generalized stress and symptoms of depression over one week. Need engaging interventions are meant to increase need satisfying experiences. For socially anxious individuals, treatment adaptions like a focus on autonomous decision making, social competence training, and realistic goal setting could provide benefits for their basic psychological needs and well-being.

Limitations and future research

Since this study, to our best knowledge, was the first examining the role of the basic psychological needs in SNS-use of socially anxious individuals, further research is required to replicate and further extend the present study's findings. A noteworthy limitation of this study is our specific sample composition, in which women outnumbered men by far. A more equal distribution of men and women could offer more reliable gender differences. The instrument for collecting data regarding SNS-use relies on self-report measures which may not be accurate, thus affecting the validity of our research. Moreover, since this study was conducted using a cross-sectional online design, it could not exclude reverse relations regarding the intense SNS-use of people higher in social anxiety. The higher intensity of SNS-

use might lead to perceived incompetence to act in the desired way in face-to-face situations. Major communication attributes like body language and tonality become unimportant on SNS and remain untrained. It can be assumed, that just as exposure therapy habituates someone for situations that have been perceived as threatening, avoiding face-to-face interactions leads to or maintain less confidence in the own abilities, fewer feelings of autonomy and finally decreased feelings of relatedness. Thus, both causal directions are imaginable. Longitudinal research examining the direction of the relation between social anxiety and SNS-use, therefore, could provide more insight into these relations. Multiple measurements, evaluating differences in basic needs before and after the use of social media, could furthermore be used to explore the effects SNS-use has on basic psychological needs. That way, possible benefits or disadvantages of people higher on social anxiety who use SNS could be evaluated. Further research should also conduct diary research to provide more insights on possible mediators in the relation between social anxiety and SNS-use. For example, could situations in which needs are frustrated in any way explicitly motivate moment-to-moment SNS-use.

Summary and conclusion

The present study sought to explain increased SNS-use by individuals higher on social anxiety through evaluating basic psychological needs as mediators. Earlier findings that individuals higher in social anxiety make more use of SNS could be confirmed. Furthermore, social anxiety showed a stronger relation with basic need frustration than with basic need satisfaction. However, the present sample offers no significant indication that basic psychological needs are accountable for the increased use of SNS by people higher on social anxiety. Regarding clinical implications, a focus on interventions facilitating need satisfaction in socially anxious persons is suggested in order to increase psychological well-being.

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