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Natalia Anna Zaleska, BSc

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Univ.-Prof. Dr. Arnd Florack

Mitbetreut von / Co-Supervisor:

Dr. Hyunji Kim

Is engaging in online social comparison addictive?

Natalia Zaleska, BSc

Department of Psychology, University of Vienna

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Abstract

Excessive use of Social Network Sites (SNSs) has been linked to frequent social comparisons (SCs) in the virtual world, which have become a concern in recent research. Given little scientific research on the relationship between SNS addiction and SC, this study aimed to investigate if there is an indication of behavioral addiction in the act of engaging in SC. For this purpose, an online survey at the laboratory of the University of Vienna was conducted, where 'liking' and 'wanting' of online upward assimilative and downward contrastive SC were compared to other pleasant rewards (favorite food, favorite sexual activity, favorite alcohol). Higher *wanting* than *liking* rates would indicate addictive behavior. Overall, Austrian college students ($N=129$, $M_{age} = 22.49$) *liked* and *wanted* food and sex over all other rewards. However, it could be shown that they equally *liked* upward assimilative SC, downward contrastive SC, and alcohol. More importantly, upward assimilative SC was more *wanted* than downward contrastive SC and alcohol. On the other side, downward contrastive SC was equally *wanted* as alcohol. *Liking* exceeded *wanting* for all rewards, except for upward assimilative SC, where no significant difference was found. This means that upward assimilative SC was the only reward equally *liked* and *wanted*, with slightly but not significantly higher *wanting* than *liking* rates, indicating more addictive value than other rewards. Moreover, higher *wanting* of upward assimilative and downward contrastive SC correlated with a higher tendency to engage in online SC but did not correlate with SNS addiction scores. Although online SC was not the most preferred reward, these findings shed a new light on the potential of online SC being a pleasant reward. Future research should investigate online SC more closely and examine what it is about SNSs that people get addicted to.

Keywords: liking/wanting, rewards, upward social comparison, downward social comparison, food, sex, alcohol, tendency to engage in social comparison, social network site addiction, social network sites

Table of Contents

List of Figures	5
List of Tables	7
List of Abbreviations.....	8
Social Comparison In The Virtual World.....	9
Social Comparison Theory	12
SNS Addiction As A Behavioral Addiction?	15
The Relationship Between SC and SNS Addiction	18
The present study.....	21
Materials and methods	22
Participants	22
Procedure And Measures	25
<i>Iowa Netherlands Comparison Orientation Measure (INCOM)</i>	25
<i>Sensitivity To Reinforcement of Addictive and other Primary Rewards (STRAP-R)</i>	26
<i>Social Networking Sites Usage and Needs Scale (SNUN)</i>	27
<i>Bergen Social Media Addiction Scale (BSMAS)</i>	27
<i>Self-esteem</i>	27
Results	28
Wanting And Liking Of Different Rewards	31
Liking Of Rewards	32
Wanting Of Rewards	32
Liking Versus Wanting.....	34
Self-esteem	34
Gender	35
Discussion	35
Limitations	41

Conclusion.....	42
References	44
Appendix A.....	55
Appendix B.....	63
Zusammenfassung.....	94

List of Figures

Figure 1	Research model and hypotheses	22
Figure 2	Valuing different rewards.....	31
Figure B 1	Survey – Page 1.....	63
Figure B 2	Survey – Page 2.....	64
Figure B 3	Survey – Page 3.....	65
Figure B 4	Survey – Page 4.....	66
Figure B 5	Survey – Page 5.....	67
Figure B 6	Survey – Page 6.....	68
Figure B 7	Survey – Page 7.....	69
Figure B 8	Survey – Page 8.....	70
Figure B 9	Survey – Page 9.....	71
Figure B 10	Survey – Page 10.....	72
Figure B 11	Survey – Page 11.....	73
Figure B 12	Survey – Page 12.....	74
Figure B 13	Survey – Page 13.....	75
Figure B 14	Survey – Page 14.....	76
Figure B 15	Survey – Page 15.....	77
Figure B 16	Survey – Page 16.....	78
Figure B 17	Survey – Page 17.....	79
Figure B 18	Survey – Page 18.....	80
Figure B 19	Survey – Page 19.....	81
Figure B 20	Survey – Page 20.....	82
Figure B 21	Survey – Page 21.....	83
Figure B 22	Survey – Page 22.....	84
Figure B 23	Survey – Page 23.....	85

Figure B 24 Survey – Page 24.....86

Figure B 25 Survey – Page 25.....87

Figure B 26 Survey – Page 26.....88

Figure B 27 Survey – Page 27.....89

Figure B 28 Survey – Page 28.....90

Figure B 29 Survey – Page 29.....91

Figure B 30 Survey – Page 30.....92

Figure B 31 Survey – Page 31.....93

List of Tables

Table 1	General SNS usage reported on the SNUN measure.....	24
Table 2	Frequency of using different SNS platforms	25
Table 3	Descriptive statistics and intercorrelations among measures	30
Table A 1	German short version of Iowa Netherlands Comparison Orientation Measure (INCOM) – adapted for this study.....	55
Table A 2	Original short version of Iowa Netherlands Comparison Orientation Measure (INCOM).....	56
Table A 3	German version of Sensitivity To Reinforcement of Addictive and other Primary Rewards (STRAP-R) – adapted for this study.....	57
Table A 4	Original version of Sensitivity To Reinforcement of Addictive and other Primary Rewards (STRAP-R)	58
Table A 5	German version of Social Networking Sites Usage and Needs Scale (SNUN)	59
Table A 6	German version of Bergen Social Media Addiction Scale (BSMAS)	61
Table A 7	German Version of Self-Esteem Measure	62

List of Abbreviations

<i>BSMAS</i>	Bergen Social Media Addiction Scale BSMAS
<i>DAE</i>	Downward Assimilative Emotions
<i>DCE</i>	Downward Contrastive Emotions
<i>DSM-5</i>	Diagnostic and Statistical Manual of Mental Disorders
<i>ICD-11</i>	International Classification of Diseases
<i>INCOM</i>	Iowa-Netherlands Comparison Orientation Measure
<i>SC</i>	Social Comparison
<i>SCO</i>	Social Comparison Orientation
<i>SNS</i>	Social Network Site
<i>SNUN</i>	Social Networking Sites Usage and Needs Scale
<i>STRAP-R</i>	Sensitivity To Reinforcement of Addictive and other Primary Rewards
<i>UAE</i>	Upward Assimilative Emotions
<i>UCE</i>	Upward Contrastive Emotions

Social Comparison In The Virtual World

Social media use has become one of the most widespread social behaviors around the world and has changed how people interact with each other (Kircaburun et al., 2020; Verduyn et al., 2020). Recent data count about 4.7 billion social media users worldwide, which indicates that 59% of the total population is using social media (DataReportal, 2022). The most used social network sites (SNSs) are Facebook with 2.91 billion monthly active users, followed by Youtube (2.56), WhatsApp (2.00), Instagram (1.47), WeChat (1.26) and TikTok with 1 billion monthly active users (Statista, 2022).

Social media is associated with positive social behavior as it enables social interactions among people worldwide (Robinson et al., 2019). However, there is also a downside to it, which are a high tendency to compare oneself with others and a chance for SNS addiction (Robinson et al., 2019; Zheng & Lee, 2016). Social comparison (SC) describes the need of people to compare themselves with others in order to get information about their own selves. By comparing themselves to others, people evaluate their abilities and opinions, which helps them to define the self (Festinger, 1954). Based on the idea that people may vary in their extent and frequency of making SCs, Gibbons and Buunk (1999) developed a measure of social comparison orientation (SCO). SCO can be described as the individual tendency to compare oneself with others (Gibbons & Buunk, 1999).

Since the internet provides much information about others and people are spending a lot of time online (Lee, 2014), on average more than two hours daily worldwide (Statista, 2022), they are more likely to engage in SC (Lee, 2014). The rising number of SNSs offer additional space, where people can evaluate their opinions and abilities through SC at an unprecedented scale (Festinger, 1954; Lee, 2014; Verduyn et al., 2020). Online SC can result in depressive symptoms (Feinstein et al., 2013; Steers et al., 2014), lower subjective well-being (Schmuck et al., 2019; Verduyn et al., 2021), lower self-esteem (Schmuck et al., 2019; Vogel et al., 2015), more negative affect (de Vries et al., 2018; Vogel et al., 2015) and SNS addiction (Kim et al., 2021).

Contrastingly, one could assume that SNSs fulfill people's basic needs for self-evaluation (Festinger, 1954) and social connection (Baumeister & Leary, 1995) through SC processes (Verduyn et al., 2020). However, several researchers report the opposite in showing negative effects of SNS use on indicators of subjective well-being (Appel et al., 2020; Brailovskaia et al., 2020; Kross et al., 2013; Schmuck et al., 2019; Yoon et al., 2019). A potential underlying mechanism of this negative impact might be online SC (Krause et al., 2021; Verduyn et al., 2017; Verduyn et al., 2021). One explanation is that SNS environment promotes more positive events and successes, what makes upward SCs more likely to occur (Kross et al., 2013; Lin & Utz, 2015), which in turn can lead to negative emotions like depression or shame (Smith, 2000). Another belief is that passive use of SNSs leads to more upward SCs and feelings of envy, which in turn negatively affects subjective well-being (Verduyn et al., 2017).

Public concern about SNS addiction and online SC is rising and therefore research interest in this area is growing (Griffiths et al., 2014; Shahnawaz & Rehman, 2020; Verduyn et al., 2020; Wadsley & Ihssen, 2022). The negative impact of online SC on subjective well-being (Verduyn et al., 2020) points out the importance of this relatively new research field. Moreover, the tendency to engage in SC has been found to relate with higher SNS use and investing more energy on SNSs (Vogel et al., 2015). Even though the number of social media addicted individuals is growing (Dailey et al., 2020; Echeburua & de Corral, 2010; Zheng & Lee, 2016), scientific literature addressing SC on SNS's (Lee, 2014) and the antecedents of SNS addiction (Dailey et al., 2020; Griffiths et al., 2014; Kim et al., 2021) is scarce. Present research in this area lacks in conceptualizing and defining the concept of 'Internet addiction' (Hussain & Starcevic, 2020; Müller et al., 2018). For instance, terms like 'Problematic Social Networking Site Use' (Hussain & Starcevic, 2020), 'Internet addiction' (Müller et al., 2018), 'Online Social Network Site Addiction' (Andreassen, 2015), 'Social Networking Addiction' (Griffiths et al., 2014) or 'Social Media Disorder' (Luo et al., 2021) are used in this research field. For this reason, the following study used the term 'SNS addiction' referring to excessive or addictive use of SNSs.

Till this date, research on SNS addiction investigated variables like self-esteem (Błachnio et al., 2016; Schmuck et al., 2019; Vogel et al., 2014), subjective well-being (Kuss & Griffiths, 2011; Schmuck et al., 2019), depression (Robinson et al., 2019; Samra et al., 2022), or SC (Schmuck et al., 2019; Wang et al., 2017). Especially, SC has been found to be an important predictor of SNS addiction (Kim et al., 2021). Most of the studies on SC and SNS addiction, used SC as a mediator between SNS addiction and other psychological outcomes (Kim et al., 2021; Samra et al., 2022).

However, in the present study online SC was used as the independent variable to investigate if people show addictive tendencies in the act of engaging in online SC. Therefore, five rewards (favorite food, favorite sexual activity, favorite alcohol, online upward assimilative SC, online downward contrastive SC) were defined as independent variables, which would indicate different 'liking' and 'wanting' rates (dependent variables) for each reward within each subject. First, liking and wanting of online upward and downward SC were compared to other pleasant rewards. In addition, the difference between liking and wanting of each single reward was calculated. Higher wanting than liking of online SC would be interpreted as a sign for being addicted to it (Berridge & Robinson, 2016). Second, wanting of online SC was further correlated with SNS addiction and online social comparison tendency to have a correlative insight in the relationship between these constructs. Previous research only measured the general tendency to engage in social comparison (Kim et al., 2021; Vogel et al., 2015), which was expanded in this study by measuring the tendency to engage in online social comparison. Third, past research indicated that SNS addiction leads to higher self-esteem through feelings of contentment after downward SC and to lower self-esteem through envy and depression felt after engaging in upward SC (Kim et al., 2021). This is the reason why self-esteem could affect liking and wanting of upward and downward SC differently. Therefore, self-esteem was included as a possible confounding variable in order to see if it would change preference order of the rewards, especially of upward and downward SC. Finally, for investigating the research question if online

social comparison indicates addictive behavior, an Austrian college student sample was used. Compared to adults, college students are more likely to engage in SC (Stipek & Tannatt, 1984) and are more at risk for social media addiction (Dailey et al., 2020). The following part will give an introduction on (1) SC related theories, (2) SNS addiction, and (3) how SC and SNS addiction might be related to each other.

Social Comparison Theory

SC can be described as a prevalent social phenomenon (Suls et al., 2002). Individuals compare themselves with others to satisfy their psychological need for self-evaluation. Comparing oneself with others provides information on one's opinions and abilities (Festinger, 1954). The tendency to compare oneself with others can vary among different people and is often described by the term 'social comparison orientation' (SCO) (Gibbons & Buunk, 1999).

SC can be classified in the direction (upward vs. downward) and consequence (assimilation vs. contrast) of comparison (Gilbert et al., 1995). The direction depends on the comparison target, who can be seen as superior (upward comparison; Collins, 1996) or inferior (downward comparison; Wills, 1981) to oneself. Therefore, upward SC occurs when someone compares oneself with a person who is perceived as 'better off', whereas the downward SC target is perceived as 'worse off' compared to oneself (Collins, 1996).

Consequences of such SCs can be assimilation toward the comparison target or contrast away from the target (Mussweiler et al., 2004). Assimilation takes place, when the evaluator identifies with the target and perceives similarities between himself and the target (Collins, 2000; Mussweiler et al., 2004; Suls et al., 2002). Contrarily, contrastive comparison happens when the evaluator focuses on the differences between himself and the target (Mussweiler et al., 2004). Smith (2000) argues that SC can be assimilative or contrastive depending on the perceived control over the discrepancy between the evaluator and target. In his theory, assimilation takes place when the evaluator can close the difference gap while upward SC. On the other hand,

contrasting happens when the difference between the evaluator and the target is being maintained during downward comparison (Smith, 2000).

A further result of SCs are emotional responses to it. Smith (2000) argues there are upward contrastive emotions (UCE), upward assimilative emotions (UAE), downward contrastive emotions (DCE) and downward assimilative emotions (DAE).

UCE are depression/shame, resentment and envy. They are usually experienced when a person compares him or herself with a superior other (Smith, 2000). When the felt inferiority in a comparison situation is seen as self-produced, shame might be the resulting emotion. Resentment could be felt in the same situation if the person thinks that the inferiority is caused by the underserved advantage of the comparison target. Envy can go in both directions depending on the focus of the person, either the situation is seen as personal disadvantage or the other's advantage (Smith, 2000). Interestingly, research showed that a stronger ability-based SC orientation within Facebook users was associated with lower well-being through emotions of depression and envy. Contrarily, Facebook users with opinion-based SC orientation showed better well-being through low feelings of depression and envy toward the other (Park & Baek, 2018). Other findings indicated that a high SCO was related to experiencing more unpleasant feelings after engaging in upward contrastive SC (Buunk & Gibbons, 2005).

UAE include optimism, admiration and inspiration. They are felt when a person focuses on the positive aspects of someone's superiority (Smith, 2000). When people see some positive aspects in someone's superiority, it might lead to optimism. Admiration on the other side is felt when the comparison action is seen as praiseworthy. Inspiration can have a dual focus, which means that someone's superiority impacts the self and the model in a positive way (Smith, 2000). For example, it was shown that Facebook users with opinion-based SC orientation showed better well-being through strong feelings of inspiration and optimism (Park & Baek, 2018). Furthermore, SCO can also provoke UAE. Previous research indicated that people high in SCO responded positively to upward SC, when their comparison target was within reach (Buunk & Gibbons,

2005). There is also evidence for UCE and UAE to coexist at the same time (Rosenthal-von der Pütten et al., 2019). Rosenthal-von der Pütten et al. (2019) found that while participants wanted to be in the situation of the superior other (UAE), they also reported emotions of sadness, envy and resentment (UCE) after upward SC.

DCE are pride, contempt/scorn and schadenfreude. These emotions are experienced when someone compares him or herself with an inferior other. In this case, pride would be desirable for the self with a self-oriented focus, whereas contempt or scorn are felt when the evaluator focuses on someone's blameworthy behavior. Schadenfreude is experienced when focusing on both, the superior self, and the shameful actions of the other (Smith, 2000). There is evidence that contrastive downward SC can positively impact individuals (Buunk & Gibbons, 2005). For example, Buunk and Gibbons (2005) found that individuals high in SCO, who were involved in stressful relationships at that moment, described greater satisfaction with their relationship after concentrating on what is better about their relationships compared to the 'worse off' one. However, in the case of SNS environment, DCE like pride and schadenfreude failed to mediate the relationship between SCO and well-being (Park & Baek, 2018). Another study by Rosenthal-von der Pütten et al. (2019) found that participants reported more emotions of schadenfreude and superiority (DCE) after engaging in downward SC in a constructed SNS setting. At the same time, they felt happier, more relieved, and less pleased about the inferior situation of the other (DAE). There is evidence that upward as well as downward SC on SNSs can lead to positive and negative emotional consequences (Rosenthal-von der Pütten et al., 2019). However, effect sizes in the study of Rosenthal-von der Pütten et al. (2019) indicated that downward SC might elicit DAE more strongly than DCE, whereas upward SC might provoke UCE more strongly than UAE.

DAE include pity, sympathy and worry/fear. DAE are experienced when the person compares and identifies him or herself with an inferior other. One can experience worry and fear when a misfortune event in future is seen as likely to happen to oneself. On the other side, pity

can be felt when that expected misfortune of the other is seen as unlikely going to happen to oneself. In this case, sympathy involves a dual focus on the self and other (Park & Baek, 2018; Smith, 2000). Usually, well-being increases when people show feelings of worry and sympathy toward the comparison target (Park & Baek, 2018). This was shown for the SNS environment, where Facebook users with stronger ability-based SCO showed better well-being through DAE like worry and sympathy (Park & Baek, 2018). Lastly, a high SCO was found to relate with experiencing unpleasant feelings after engaging in downward SC. One explanation for this pattern is that people may be concerned about becoming their downward target (Buunk & Gibbons, 2005).

Taken together, upward and downward SC can both result in either positive or negative emotions (Buunk & Gibbons, 2005; Park & Baek, 2018) depending on their desirability (positive or negative) and focus of attention (self or other) (Smith, 2000).

SNS Addiction As A Behavioral Addiction?

Conceptualizing addiction has led to many discussions in literature. Old views on addiction involve taking the drug. More recent research suggests existing behavioral addictions without direct substance use (Griffiths, 2005). Therefore, potentially addictive behaviors can be gambling, sex, exercise, playing videogames, internet use or overeating. Widely researched symptoms of addiction are (1) salience, (2) mood modification, (3) tolerance, (4) withdrawal, (5) conflict, and (6) relapse (Griffiths, 2005).

An essential approach in drug research is the incentive-sensitization theory by Berridge and Robinson (2016). It suggests that psychological wanting is a key component in drug addiction and can biologically be distinguished from psychological liking. Liking refers to a state of pleasure, whereas wanting defines a state of consumption and desire. When the brain is processing the state of wanting, dopamine-related brain regions are activated, which is not the case when people like something. Over time wanting can become stronger and addictive due to sensitization of the mesolimbic systems, without changes in liking (Berridge & Robinson, 2016).

This means that different rewards can be liked and wanted to varying degrees. Someone can for example want to eat something sweet even if it is not that likeable (Bushman et al., 2011).

Interestingly, wanting processes can manifest themselves on a conscious (e.g., direct approach behavior) and subconscious level (e.g., implicit motivational changes) (Berridge & Robinson, 2003; Berridge & Robinson, 2016).

When distinguishing between primary (e.g., food, sex) and secondary rewards (e.g., money), research showed that both are associated with activation in the same reward-related brain areas (e.g., Ventromedial Prefrontal Cortex, Amygdala, Anterior Insula, Ventral Stratum and Mediodorsal Thalamus), but to varying degrees (Sescousse et al., 2013). Primary rewards such as food and sex were stronger located in the Anterior Insula or Amygdala, whereas secondary rewards such as money activated more recent brain regions. This indicates that reward value is produced by the brains reward system with different structures involved to varying degrees, depending on the reward type (Sescousse et al., 2013).

In the context of this study, a potential secondary reward could be any SNS. There is little research on reward related processes of excessive SNS behavior. Importantly, one study found that SNS logos triggered more strongly approach reactions than control stimuli, and the stronger those reactions were the more SNSs had been checked (Wadsley & Ihssen, 2022). These results are in accordance with the incentive-sensitization theory, where strong wanting of rewards is interpreted as approach behavior and is associated with activation in the brains reward system (Berridge & Robinson, 2016). However, there are contradictory findings if SNS approach is a predictor of problematic SNS use (Juergensen & Leckfor, 2019; Wadsley & Ihssen, 2022). While Wadsley and Ihssen (2022) showed that SNS approach only predicted higher SNS use, but not problematic SNS use, the opposite was shown by Juergensen and Leckfor (2019), where Facebook approach predicted Facebook addiction. Nevertheless, wanting rates were stronger related to both SNS use and problematic SNS use, compared to liking rates (Wadsley & Ihssen,

2022). These findings indeed indicate that SNS addiction is related to approach behavior, which further marks the importance of operationalizing SNS addiction.

The term 'SNS addiction' lacks in conceptualization and definition (Hussain & Starcevic, 2020). Therefore, there are various terms like 'Problematic Social Networking Site Use' (Hussain & Starcevic), 'Internet addiction' (Müller et al., 2018), 'Online Social Network Site Addiction' (Andreassen, 2015), 'Social Networking Addiction' (Griffiths et al., 2014) or 'Social Media Disorder' (Luo et al., 2021) referring to the similar construct. For example, the term 'internet addiction' is often used for any problematic behavior regarding the internet, which can refer to computer games, online shopping, or social media (Müller et al., 2018). Symptoms associated with internet addiction are problems with motivation, sleep, concentration, self-esteem, anxiety and feelings of shame or loneliness (Müller et al., 2018). Officially formalized behavioral addictions in this area are 'Gaming Disorder' in ICD-11 (World Health Organization, 2019) and 'Internet Gaming Disorder' in DSM-5 (American Psychiatric Association, 2015). According to the American Psychiatric Association (2015) at least five of the following criteria must be present for the diagnosis of 'Internet Gaming Disorder'

- (1) excessive preoccupation; (2) withdrawal symptoms; (3) development of tolerance; (4) unsuccessful attempts to control playing (5); loss of interest in previous hobbies and activities as a result of playing; (6) continuation of excessive playing despite insights into the psychological consequences; (7) deceiving family members, therapists, or others regarding the scope of gaming; (8) use of games to escape or weaken negative moods; and (9) risks or loses an important relationship, job, or education or training/career opportunity because of playing (Wartberg et al., 2017, p. 421).

SNS addiction has not yet been formalized as a psychological diagnosis, even if it shows many similarities to other addictions (Andreassen, 2015) and to the listed symptoms above.

Andreassen and Pallesen (2014) suggested three components of SNS addiction, which are (1) being overly concerned about SNSs (e.g., salience; Griffiths, 2005) (2) having a strong drive or

motivation to use SNS (e.g., withdrawal; Griffiths, 2005), and (3) spending so much time and effort on SNSs that it negatively affects certain life domains as work/school, relationships, social activities, and well-being (e.g., conflict; Griffiths, 2005). People who are addicted to social media continue to use it compulsively and excessively besides the negative consequences as interpersonal conflicts or sleep deprivation (Andreassen, 2015; Andreassen et al., 2016).

Excessive social media use is often measured through frequency, which is the time spent on SNSs (Hong et al., 2014; Koc & Gulyagci, 2013). Dailey et al. (2020) recommended using an intensity scale, which measures to what extent people are invested in social media on an emotional level. They showed that intensive use of Snapchat, Facebook and Twitter predicted SNS addiction, and that stress and depressive symptoms were also related to SNS addiction (Dailey et al., 2020).

Neuropsychological evidence found that SNS addiction showed similar changes in brain structure (e.g., reduced Gray Matter Volume of the Amygdala) to other substance addictions, such as alcohol abuse (Makris et al., 2008), opioid abuse (Younger et al., 2011), cannabis abuse (Gilman et al., 2014), or behavioral addictions like gambling (Canessa et al., 2013). These changes in the Amygdala are associated with strong compulsive behavior (He & Bechara, 2017). Other findings indicated that contrarily to other substance addictions, SNS addiction showed increased Gray Matter Volume in frontal cortical regions, which are responsible for self-control and decision-making (He & Bechara, 2017). Furthermore, the Nucleus Accumbens, which plays an important part in reward processing and motivating behavior, did not show structural changes in SNS addiction (He & Bechara, 2017) but in substance addictions (Gilman et al., 2014; Markis et al., 2008). These finding implicate that SNS addiction could need specific treatment interventions than other addictions (He & Bechara, 2017).

The Relationship Between SC and SNS Addiction

Many social media apps are designed to prolong app usage and are constructed with addictive features. Those features underlie psychological mechanisms like SC or social reward (Montag et al., 2019). Since human beings have a natural desire for SC to get information about

themselves (Festinger, 1954) and SNSs offer additional rooms for SCs on the internet (Liu et al., 2017) people may engage more frequently in online SC (Lee, 2014) and eventually become addicted to it.

On social media information is mostly presented in a positive way, which leads users into more upward SCs (Feinstein et al., 2013; Kross et al., 2013; Verduyn et al., 2017). In past research, online upward SC was associated with feelings of envy (Verduyn et al., 2017) and depression (Liu et al., 2017). Interestingly, emotions of depression and envy felt after SC on SNS's mediated the link between SNS addiction and a lower self-esteem (Kim et al., 2021). These findings indicate that there is a link between online SC and SNS addiction (Kim et al., 2021; Verduyn et al., 2017). Many studies have argued that SC could be the main mechanism of SNS addiction and other negative psychological outcomes (Kim et al., 2021; Krause et al., 2021; Samra et al., 2022; Verduyn et al., 2021). Online upward SCs have been found to partially mediate the link between SNS addiction and depression (Samra et al., 2022). Another study revealed that people with major depressive disorder showed a higher tendency for upward SCs, which made them more vulnerable to SNS addiction (Robinson et al., 2019). In general, findings indicate that SNS addiction is linked to depression (Dailey et al., 2020; Robinson et al., 2019; Samra et al., 2022), lower self-esteem (Kim et al., 2022; Samra et al., 2022), and negative comparisons on SNSs (Samra et al., 2022).

Moreover, the general tendency to engage in SC of ability has been found to predict SNS addiction (Kim et al., 2021). Especially, a high SCO was associated with spending more time and energy on SNSs (Vogel et al., 2015). The tendency to engage in ability-comparisons can lead to lower well-being and higher stress through SNS addiction (Kim et al., 2021). In line with this, Park and Baek (2018) found that SNS users with a high SCO of ability experienced more unpleasant feelings of envy or depression. However, a high SCO of opinion in SNS users was associated with greater life satisfaction and less unpleasant emotions (Park & Baek, 2018). These findings show

the complexity of social comparison processes and the importance of the differentiation between ability- and opinion-based comparisons.

Most of the studies reported greater effects of upward SC than downward SC on SNS addiction (Kim et al., 2022; Robinson et al., 2018). However, contentment felt after downward SC has been found to mediate the link between SNS addiction and higher self-esteem (Kim et al., 2022). Excessive use of SNSs, in form of frequent SCs, could increase the probability of feeling content with oneself and explain why people can get addicted to such behavior even if they experience negative feelings more often (Kim et al., 2022). People could use downward SC on SNSs as a source for mood modification (e.g., to feel better afterwards, escape negative emotions), which is one of six symptoms of addiction (Griffiths, 2005). From a theoretical perspective upward and downward SCs can both contribute to maintaining one's identity (Tajfel & Turner, 1986). This could explain why upward and downward SCs both are positively related to SNS addiction (Dailey et al., 2020).

From a neuropsychological perspective, there exists study support that SC is associated with reward-related brain activity (Fliessbach et al., 2007). In one study, receiving less monetary reward than someone else was associated with lower activity in the Ventral Striatum. These findings implicate that upward SC (e.g., the "better off" one gets more money) does change reward-related brain structures (Fliessbach et al., 2007).

Taken together, this study wanted to contribute to the current research gap of online SC and SNS addiction. In order to do that, a previous study of Bushman et al. (2011) was used as a framework. Bushman et al. (2011) found in two studies that people valued self-esteem boosts over other pleasant rewards like their favorite sexual activity, favorite food, seeing best friend, drinking alcohol, or receiving the paycheck. Based on this research method, the aim of this study was to test if online upward and downward online SC is valued over favorite food, favorite sexual activity, and alcohol. In line with the theory of Berridge and Robinson (2016) stronger wanting than liking of the drug would be an indication for addictive behavior. Hence, the assumption

made was that stronger wanting than liking of upward and downward online SC could be interpreted as an addictive sign.

The present study

The aim of the present study was to investigate if there is an indication of behavioral addiction in the act of engaging in online social comparisons. The specific hypotheses to be examined were as follows. For visualization purposes Figure 1 depicts the research model with the hypotheses (see p.20).

H1. Engaging in online social comparison (SC) is more rewarding than other pleasant rewards

H1a. Upward assimilative SC is more liked than other pleasant rewards

H1b. Upward assimilative SC is more wanted than other pleasant rewards

H1c. Downward contrastive SC is more liked than other pleasant rewards

H1d. Downward contrastive SC is more wanted than other pleasant rewards

H2. Online social comparison (SC) is stronger wanted than liked

H2a. Upward assimilative SC is stronger wanted than liked

H2b. Downward contrastive SC is stronger wanted than liked

H3. Wanting to engage in online social comparison (SC) correlates with social network site (SNS) addiction

H3a. Wanting to engage in upward assimilative SC correlates with SNS addiction

H3b. Wanting to engage in downward contrastive SC correlates with SNS addiction

H4. The tendency to engage in online social comparison (SC) correlates with the value of engaging in online SC

H4a. Higher tendency to engage in online SC correlates with higher liking of upward assimilative SC

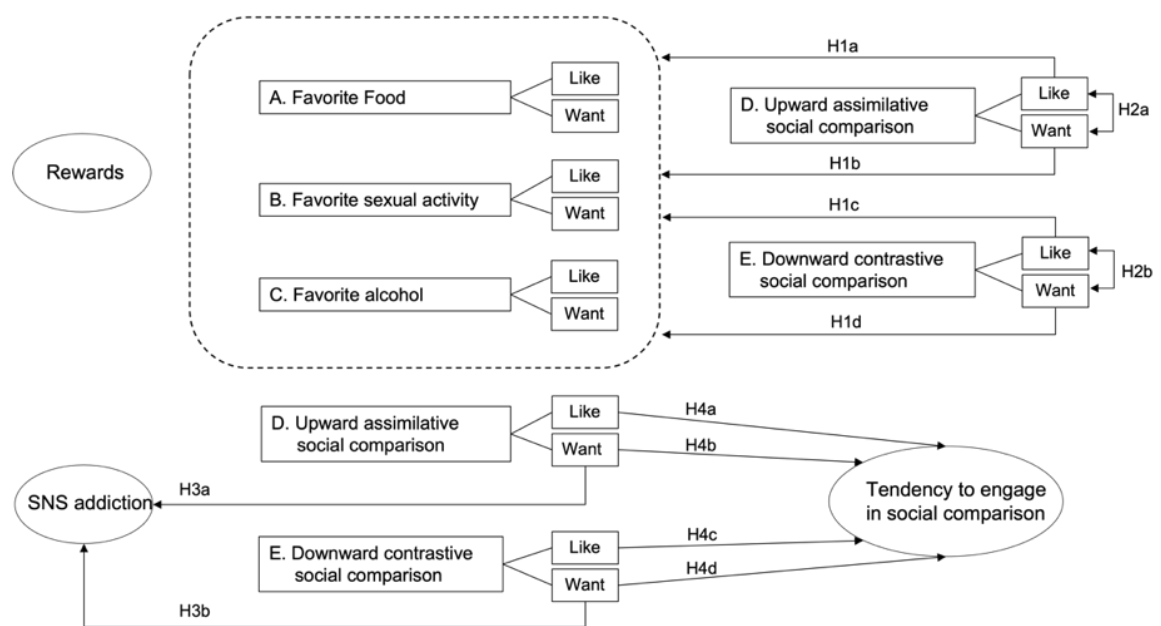
H4b. Higher tendency to engage in online SC correlates with higher wanting of upward assimilative SC

H4c. Higher tendency to engage in online SC correlates with higher liking of downward contrastive SC

H4d. Higher tendency to engage in online SC correlates with higher wanting of downward contrastive SC

Figure 1

Research model and hypotheses



Materials and methods

Participants

The sample size was based on previous studies with the same research design, where a sample size of 130 college students was used (Bushman et al., 2011). Additionally, a sample size of 120 was calculated a priori with G*Power (Faul et al., 2007) to achieve over 80% ($\alpha = .05$) power with a small effect size ($f^2 = .10$).

Overall, 131 Austrian college students were recruited through the Laboratory Administration for Behavioral Sciences (LABS) of the Faculty of Psychology at University of

Vienna, and through mouth propaganda at the University of Vienna. In this way, 90 students were recruited through the LABS and were rewarded with course credits, and 41 voluntary participants were rewarded with sweets and apples. All participants undertook a 20-minute online survey in a laboratory setting at the University of Vienna.

Participants who failed the seriousness check ($n=1$) and for who the inclusion criterion ('Do you use SNSs?') was inapplicable ($n= 1$) were excluded. A final sample size of 129 participants ($M_{age} = 22.49$ years, $SD_{age} = 3.94$) was used for further analysis (40 males, 86 females, 3 other gender). 114 participants were psychology students and 13 from other fields (e.g., social and cultural anthropology, sociology, gender studies, economy, law, medicine, teaching, transcultural communication). Two participants did not study at all but were included due to similar age as college students. Most of the participants (82) had finished higher academic schools (AHS/BHS) or had a university degree (39). Only eight participants reported to have reached mid-level qualification (Lehrabschluss).

As shown in Table 1, most participants reported to use SNSs often, 33 occasionally and only 13 rarely. The most preferred way to use SNSs was via smartphone ($n= 124$; 96.1 %). The number of actively used SNSs varied among the participants, 3 SNSs were actively used by 51 participants, 2 SNSs by 31 participants, 4 SNSs by 29 participants, and more than 4 by 17 participants. Most of the participants ($n= 66$) reported to check their SNSs more than nine times per day and 58.9% of participants ($n= 76$) reported to be about 3 to 4 hours per day on SNSs. Especially during evening hours SNS activity seem to be the highest among the participants ($n= 62$). Table 2 depicts the frequency of using different SNS platforms. The four most daily used SNSs were WhatsApp with 97.7 % ($n= 126$), Instagram 61.2 % ($n= 79$), YouTube 45.0 % ($n=58$) and Snapchat 27.1% ($n= 35$).

Table 1*General SNS usage reported on the SNUN measure*

Category	Value	Frequency	Percentage
1. SNS usage	Often	83	64.3
	Occasionally	33	25.6
	Rarely	13	10.1
	Never	--	--
2. Preferred device to use SNSs	Computer	1	0.8
	Laptop	3	2.3
	Smartphone	124	96.1
	Tablet	--	--
	Other	1	0.8
3. Number of actively used SNSs	1	1	0.8
	2	31	24.0
	3	51	39.5
	4	29	22.5
	5 or more	17	13.2
4. Amount of daily checking of SNSs	1-2 per day	6	4.7
	3-4 per day	9	7.0
	5-6 per day	19	14.7
	7-8 per day	20	15.5
	9+ per day	66	51.2
	At each notification tone	9	7.0
5. Daily hours spent on SNSs	1-2 hours	45	34.9
	3-4 hours	76	58.9
	5-6 hours	8	6.2
	7-8 hours	--	--
	9 hours and more	--	--
6. Time of increased use of SNSs	During the day	26	20.2
	In the evening	62	48.1
	At night	18	14.0
	On weekends	8	6.2
	Other	15	11.6
7. First registration on SNSs	Less than one year ago	4	3.1
	1-2 years ago	2	1.6
	3-4 years ago	4	3.1
	5-6 years ago	20	15.5
	7-8 years ago	44	34.1
	9-10 years ago	29	22.5
	More than 10 years ago	26	20.2

Table 2*Frequency of using different SNS platforms*

Name of SNS	Everyday	3 to 5 times a week	Occasionally	Rarely	Never
Facebook	11.6	7.8	20.9	20.2	39.5
Facebook Messenger	3.1	2.3	9.3	22.5	62.8
Twitter	10.1	4.7	4.7	14.0	66.7
WhatsApp	97.7	1.6	0.8	--	--
MySpace	--	--	--	--	100
Instagram	61.2	20.9	6.2	3.1	8.5
YouTube	45.0	34.1	18.6	2.3	--
Snapchat	27.1	16.3	10.9	6.2	39.5
Google+	0.8	5.4	4.7	3.1	86.0
LinkedIn	0.8	--	7.8	9.3	82.2
TikTok	16.3	9.3	3.9	5.4	65.1
Signal	10.9	7.8	12.4	7.8	61.2

Note. Numbers in Percentage**Procedure And Measures**

At the beginning of the survey, participants had to accept a declaration of consent and where asked if they use SNSs. Only SNS users could execute the whole survey (see Appendix B). After demographics were answered, the following measures were presented in the study. The order of the presented measures was the same as listed below. Translation of the items are in Appendix A.

Iowa Netherlands Comparison Orientation Measure (INCOM)

The original 11-item scale of INCOM was developed by Gibbons and Buunk (1999) to test SC of ability and opinion. The German translated short version of INCOM (Schneider & Schupp, 2013) was used in a self-adapted version to measure the tendency to engage in online SC. The 6-item scale of INCOM (Schneider & Schupp, 2013) measures the tendency to engage in SC (e.g., “I always pay a lot of attention to how I do things compared with how others do things.”), whereas

this study adapted each item to measure the tendency to engage in SC on SNSs (e.g., “On social media, I always pay a lot of attention to how I do things compared with how others do things.”) as shown in Table A1. The answers were added on a 5-point-likert scale from 1 (*I disagree strongly*) to 5 (*I agree strongly*). Higher scores described stronger tendency to engage in online SCs. The reliability for this adapted version of INCOM is acceptable ($M = 18.60$, $SD = 4.55$, $\alpha = .69$).

Sensitivity To Reinforcement of Addictive and other Primary Rewards (STRAP-R)

The original version of STRAP-R (Goldstein et al., 2010) was constructed to examine preference of drug rewards over other pleasant rewards in addicted people. Therefore, STRAP-R accesses ‘liking’ and ‘wanting’ rates of the addictive drug compared to favorite food and favorite sexual activity. In its original form, participants state ‘liking’ and ‘wanting’ of each reward over three different states (‘current’, ‘in general’, ‘under drug influence’) leading to six question per reward (Goldstein et al., 2010). However, Bushman et al. (2011) modified the STRAP-R to explore liking and wanting of self-esteem versus other rewards, over four different states (‘current’, ‘in general’, ‘the last time their self-esteem was high’, ‘the last time their self-esteem was low’). In the current study, a back-translated (Brislin, 1970) and further modified STRAP-R was used to test whether online upward and downward SC is valued over food, sex, and alcohol. For this purpose, participants had to think about their favorite food, sexual activity, and alcohol as in previous studies (Bushman, 2011) and were additionally instructed to think about a scenario on their favorite SNS, where they engage in online upward SC (e.g., ‘You look up to this person and admire this profile’; see Table A3 for full scenario) and online downward SC (e.g., ‘The profile of this person triggers a proud feeling in you, you feel good enough the way you are’; see Table A3). On a 5-point-Likert scale (1= *not at all* to 5= *extremely*), participants rated how much they ‘liked’ and ‘wanted’ each reward in general (e.g., ‘How much do you like/want to eat it in general?’ or ‘How much do you like/want to look at this profile in general?’). Since Bushman et al. (2011) did not find significant changes between the four states and combined them for all analysis, the current study only tested each reward in the ‘in general’ state, leading to two questions per reward (general ‘liking’ and

‘wanting’ of food, sex, alcohol, online upward and online downward SC). The rewards were presented in a randomized order. The INCOM was presented before the STRAP-R to ease the imagination of the online SC scenarios.

Social Networking Sites Usage and Needs Scale (SNUN)

To investigate participants’ general social media behavior a German shortened version of SNSUN (Kim et al., 2021) was used. The scale depicts how often participants use SNSs, which devices they use, what type of SNSs they mostly use, how many SNSs they use, their daily use of SNSs and when they first started to use SNSs (Ali et al., 2020). One example item is ‘How often do you use social network sites?’ with answers ranging from 1 (*never*) to 4 (*often*). The SNUN investigates the explicit usage of many different SNSs (e.g., Facebook, Twitter, Instagram, Youtube, WhatsApp etc.). To exclude possible priming effects the SNUN was presented after INCOM and STRAP-R to ensure participants could imagine any SNS in the measures before.

Bergen Social Media Addiction Scale (BSMAS)

In order to measure excessive and addictive social media behavior, a German back-translated version of the BSMAS was presented (Kim et al., 2021). The 6-item BSMAS (Andreassen et al., 2016) was designed to investigate how often people have struggled with their social media usage within last year. For example, one question is ‘How often during the last year have you tried to cut down on the use of social media without success?’ with answers on a 5-point-Likert scale from 1 = *never* to 5 = *very often*. High scores are an indicator for excessive SNS usage and addiction. In this study, the BSMAS showed good reliability ($M = 16.11$, $SD = 4.43$, $\alpha = .77$).

Self-esteem

To measure the possible confounding variable of self-esteem, one single item ‘I have high self-esteem’ with a 5-point-Likert scale (1 = *not very true of me* and 5 = *very true of me*) was back-translated in German (Kim et al., 2021; Robins et al., 2001).

Results

The main interest of the study was to investigate if online upward and downward SC are valued over food, sex, and alcohol. Therefore, data were analyzed using a 5 (Reward: food, sex, alcohol, online upward SC, online downward SC) x 2 (Value: like, want) repeated measures ANOVA. Before the main analysis, descriptive data and correlations among the measures were depicted. The tool used for the analysis was IBM SPSS Statistics (IBM Corp., 2021).

First, descriptive statistics and intercorrelations were analyzed as shown in Table 3. Results showed that the tendency to engage in online SC significantly and positively correlated with SNS addiction ($r(127) = .47, p < .001$), with wanting online upward SC ($r(127) = .21, p = .019$), with both liking ($r(127) = .21, p = .017$) and wanting online downward SC ($r(127) = .23, p < .001$), with daily SNS usage ($r(127) = .27, p < .001$), and negatively with self-esteem ($r(127) = -.25, p < .001$). Other results were found for SNS addiction. SNS addiction resulted in a significant positive relationship with liking online downward SC ($r(127) = .17, p = .049$), with liking food ($r(127) = .18, p = .037$), with daily SNS usage ($r(127) = .23, p < .001$), and negatively with self-esteem ($r(127) = -.22, p = .012$). Furthermore, self-esteem was found to be positively correlated with wanting sex ($r(127) = .20, p = .023$), and negatively with daily SNS usage ($r(127) = -.18, p = .041$). Regarding SC, liking online upward SC indicated a significantly positive relationship with wanting online upward SC ($r(127) = .40, p < .001$). Wanting online upward SC positively correlated with wanting food ($r(127) = .19, p = .029$) and daily SNS usage ($r(127) = .25, p < .001$). On the other hand, liking online downward SC correlated with wanting downward SC ($r(127) = .54, p < .001$) and with liking favorite food ($r(127) = .27, p < .001$). Wanting online downward SC correlated with wanting favorite food ($r(127) = .20, p = .020$). Liking favorite food not only was positively related to wanting favorite food ($r(127) = .22, p = .012$), but also to liking sex ($r(127) = .18, p = .048$), liking alcohol ($r(127) = .25, p < .001$) and also to daily SNS usage ($r(127) = .22, p = .215$). On the other hand, wanting favorite food did not show any correlative associations. Regarding sex, liking sex was correlated with wanting sex ($r(127) = .52, p < .001$), whereas wanting sex was only negatively

correlated with daily SNS use ($r(127) = .20, p = .021$). Liking and wanting favorite alcohol was found to be positively related to each other ($r(127) = .67, p < .001$).

Correlational data did not show support for Hypothesis 3. Wanting to engage in upward assimilative SC did not correlate with social network addiction (H3a; $r(127) = .14, p = .11$), nor with wanting to engage in downward contrastive SC did not correlate with social network addiction (H3b; $r(127) = .16, p = .07$). However, Hypothesis 4 could mostly be supported by the data. Higher tendency to engage in online SC correlated positively with higher wanting of upward assimilative SC (H4b; $r(127) = .21, p = .02$). This relationship could not be shown for higher liking of upward assimilative SC, which did not correlated with higher tendency to engage in online SC (H4a; $r(127) = -.01, p = .90$). Contrarily, the negative coefficient implies that higher online SC tendency is somehow related to lower liking of upward assimilative SC on SNSs. On the other hand, both was found for downward SC. Higher tendency to engage in online SC correlated with both higher wanting (H4d; $r(127) = .23, p = .010$) and liking downward contrastive SC on SNSs (H4c; $r(127) = .21, p = .017$).

Table 3*Descriptive statistics and intercorrelations among measures*

Measures	<i>M (SD)</i>	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. OSC tendency	3.10 (.75)	--													
2. SNS addiction	2.68 (.73)	.47**	--												
3. Self-esteem	3.42 (.94)	-.25**	-.22**	--											
4. USC Like	3.26 (.91)	-.01	.08	.07	--										
5. USC Want	3.34 (1.07)	.21*	.14	-.02	.40**	--									
6. DSC Like	3.50 (.90)	.21*	.17*	.04	.09	.14	--								
7. DSC Want	2.88 (.92)	.23**	.16	-.01	.14	.17	.55**	--							
8. Food Like	4.53 (.60)	.02	.18*	.09	.09	-.03	.27**	.13	--						
9. Food Want	4.12 (.74)	.16	.06	.06	-.05	.19*	.16	.20*	.22*	--					
10. Sex Like	4.34 (.66)	.01	-.06	.15	-.04	-.02	.13	.08	.17*	.03	--				
11. Sex Want	3.88 (.76)	-.03	-.13	.20*	-.04	-.13	.16	.08	-.05	.04	.52**	--			
12. Alcohol Like	3.51 (.95)	.09	.09	-.01	-.08	-.11	.14	-.01	.25**	-.07	.09	.05	--		
13. Alcohol Want	2.70 (.97)	.11	.15	-.01	-.04	-.06	-.00	.03	.12	.03	.13	.17	.67**	--	
14. SNS usage	1.71 (.58)	.27**	.23**	-.18*	.10	.25**	.07	-.00	.22*	.16	-.05	-.20*	.13	.11	--

Note. SC = SC; OSC = Online SC; SNS = Social Network Site; USC = (online) Upward SC; DSC = (online) Downward SC

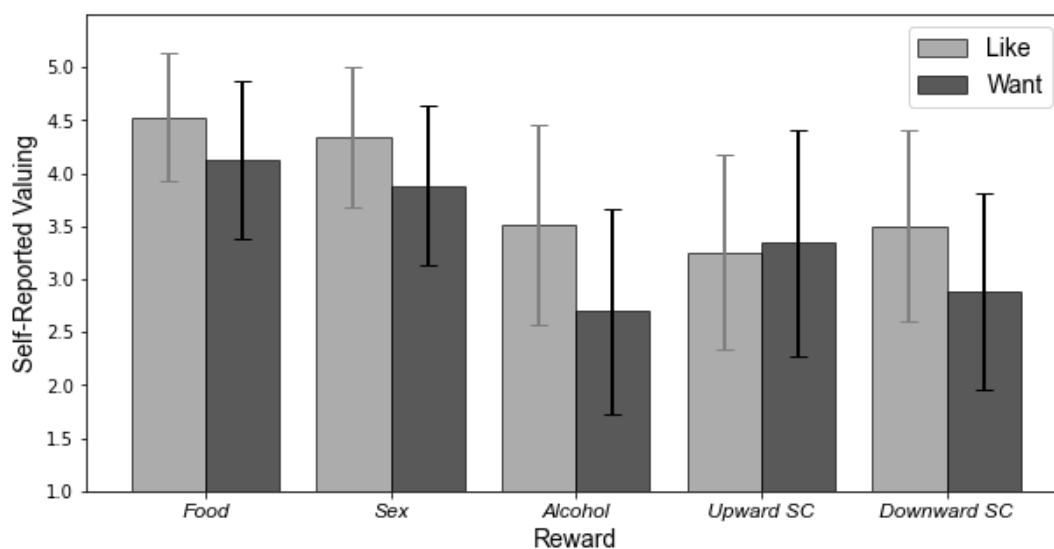
*. $p < .05$., **. $p < .01$.

Wanting And Liking Of Different Rewards

For the main analysis a 5 (Reward: favorite food, favorite sexual activity, favorite alcohol, upward assimilative SC, downward contrastive SC) x 2 (Value: like, want) repeated measures ANOVA, was conducted. The Greenhouse-Geisser correction was used due to violation of the assumption of sphericity. The analysis revealed a statistically significant main effect for the reward type ($F[3.44, 439.86] = 81.69, p < .001, \eta^2 = .39$) and reward value ($F[1, 128] = 120.77, p < .001, \eta^2 = .49$). Furthermore, the interaction between reward type and value has also been found to be significant ($F[3.43, 438.35] = 21.37, p < .001, \eta^2 = .14$). These results suggest that there is not only a statistically significant difference between liking and wanting of rewards (reward value), but also between the different rewards (reward type). Post-hoc analysis was based on pairwise comparisons using a Bonferroni-adjustment to avoid Type-2 error. Figure 2 depicts the findings, which are described afterwards.

Figure 2

Valuing different rewards



Note. SC = SC. Mean ($\pm$ standard error) self-reported liking and wanting of different rewards: Favorite food, favorite sexual activity, favorite alcohol, online upward assimilative SC, online downward contrastive SC.

Liking Of Rewards

In the present study, it was hypothesized that upward assimilative SC (H1a) and downward contrastive SC (H1c) are more liked than other pleasant rewards. Against H1a, *upward SC* was less liked than food ($M_{\text{Diff}} = -1.27, p < .001, 95\% \text{ -CI } [-1.53, -1.01]$) and sex ($M_{\text{Diff}} = -1.09, p < .001, 95\% \text{ -CI } [-1.37, -.80]$). However, no difference in liking between upward SC and alcohol was found ($M_{\text{Diff}} = -.26, p = .35$), and further between upward SC and downward SC ($M_{\text{Diff}} = -.25, p = .23$). Against H1b, *downward SC* was less liked than food ($M_{\text{Diff}} = -1.02, p < .001, 95\% \text{ -CI } [-1.26, -.79]$) and sex ($M_{\text{Diff}} = -.84, p < .001, 95\% \text{ -CI } [-1.10, -.58]$). Nevertheless, no significant difference in liking could be shown between downward SC and alcohol ($M_{\text{Diff}} = -.01, p = 1.00$), and downward and upward SC ($M_{\text{Diff}} = .25, p = .23$).

Favorite food was more liked than alcohol ($M_{\text{Diff}} = 1.02, p < .001, 95\% \text{ -CI } [.77, 1.26]$), upward ($M_{\text{Diff}} = 1.27, p < .001, 95\% \text{ -CI } [1.01, 1.53]$) and downward SC ($M_{\text{Diff}} = 1.02, p < .001, 95\% \text{ -CI } [.79, 1.26]$), but there was no significant difference in liking between food and favorite sexual activity ($M_{\text{Diff}} = .19, p = .10$). Same results were found for *favorite sexual activity*, which was liked over alcohol ($M_{\text{Diff}} = .83, p < .001, 95\% \text{ -CI } [.55, 1.11]$), upward ($M_{\text{Diff}} = 1.09, p < .001, 95\% \text{ -CI } [.80, 1.37]$) and downward SC ($M_{\text{Diff}} = .84, p < .001, 95\% \text{ -CI } [.58, 1.10]$), but showed no difference to liking food ($M_{\text{Diff}} = -.19, p = .10$). As it follows, *alcohol* was less liked than food ($M_{\text{Diff}} = -1.02, p < .001, 95\% \text{ -CI } [-1.26, -.77]$) and sex ($M_{\text{Diff}} = -.83, p < .001, 95\% \text{ -CI } [-1.11, -.55]$). However, there was no significant difference between liking alcohol and upward SC ($M_{\text{Diff}} = .26, p = .35$), and liking alcohol and downward SC ($M_{\text{Diff}} = .01, p = 1.00$).

Wanting Of Rewards

Another assumption was that upward assimilative SC (H1b) and downward contrastive SC (H1d) are more wanted than other pleasant rewards. Wanting rates of each reward showed many similarities with the liking results with respect to upward SC. First, wanting *upward SC* compared to other rewards resulted in some similarities with liking rates. Equal to liking, upward SC was less wanted than food ($M_{\text{Diff}} = -.78, p < .001, 95\% \text{ -CI } [-1.08, -.49]$) and sex ($M_{\text{Diff}} = -.54, p < .001, 95\% \text{ -CI } [-$

.89, -.19]). However, upward SC was more wanted than alcohol ($M_{\text{Diff}} = .64, p < .001, 95\% \text{-CI} [.27, 1.02]$) and downward SC ($M_{\text{Diff}} = .46, p < .001, 95\% \text{-CI} [.13, .78]$). This relationship was not found for liking, where upward SC did not show any significant difference to liking alcohol and downward SC. Second, compared to liking of *downward SC* one difference could also be found for wanting. Equal to liking, downward SC was less wanted than food ($M_{\text{Diff}} = -1.24, p < .001, 95\% \text{-CI} [-1.51, -.97]$) and sex ($M_{\text{Diff}} = -1.00, p < .001, 95\% \text{-CI} [-1.29, -.71]$), with no significant difference to alcohol ($M_{\text{Diff}} = .19, p = .10$). Contrarily to liking, downward SC was less wanted than upward SC ($M_{\text{Diff}} = -.46, p < .001, 95\% \text{-CI} [-.78, -.13]$). In the case of liking, no significant relationship was found between downward SC and upward SC.

Third, for *favorite food* the same preference order was found for wanting as for liking rates. Therefore, favorite food was more wanted than favorite alcohol ($M_{\text{Diff}} = 1.43, p < .001, 95\% \text{-CI} [1.13, 1.73]$), upward SC ($M_{\text{Diff}} = .78, p < .001, 95\% \text{-CI} [.49, 1.08]$) and downward SC ($M_{\text{Diff}} = 1.24, p < .001, 95\% \text{-CI} [.97, 1.51]$). There was no significant difference between wanting favorite food and favorite sexual activity ($M_{\text{Diff}} = .24, p = .10$). Second, the same preference order could also be shown for *favorite sexual activity*. This means, that favorite sexual activity was more wanted than favorite alcohol ($M_{\text{Diff}} = 1.19, p < .001, 95\% \text{-CI} [.90, 1.47]$), upward SC ($M_{\text{Diff}} = .54, p < .001, 95\% \text{-CI} [.19, .89]$) and downward SC ($M_{\text{Diff}} = 1.00, p < .001, 95\% \text{-CI} [.71, 1.29]$). No significant difference in wanting of favorite sexual activity and food could be found ($M_{\text{Diff}} = -.24, p = .10$). Fourth, preference order of wanting *favorite alcohol* showed some similarities to liking rates. Equal to liking, alcohol was less wanted than food ($M_{\text{Diff}} = -1.43, p < .001, 95\% \text{-CI} [-1.73, -1.13]$) and sex ($M_{\text{Diff}} = -1.19, p < .001, 95\% \text{-CI} [-1.47, -.90]$), and showed no significant difference with wanting downward SC ($M_{\text{Diff}} = -.19, p = .10$). However, alcohol was also less wanted than upward SC ($M_{\text{Diff}} = -.64, p < .001, 95\% \text{-CI} [-1.02, -.27]$), whereas liking rates did not show any significant difference between those two rewards.

To sum up, favorite food and favorite sexual activity were equally more liked and wanted than all other rewards (favorite alcohol, upward and downward SC). These results are against Hypothesis 1, which suggested that upward assimilative SC is more liked (H1a) and wanted (H1b)

than other rewards and downward contrastive SC is more liked (H1c) and wanted (H1d) than other rewards. Still, regarding H1a, it could be shown that participants equally liked upward SC, alcohol, and downward SC. Importantly, H1b could partly be supported, given that upward SC was more wanted than alcohol and downward SC. On the other hand, downward SC was equally liked as alcohol and upward SC (H1c) and equally wanted as alcohol (H1d).

Liking Versus Wanting

The main effect of reward value ($F[1, 128] = 120.77, p < .001, \eta^2 = .49$) revealed that participants liked most of the rewards more than they wanted them. Liking exceeded wanting for favorite food ($M_{\text{Diff}} = .40, p < .001, 95\% \text{ -CI } [.26, .55]$), favorite sexual activity ($M_{\text{Diff}} = .46, p < .001, 95\% \text{ -CI } [.34, .58]$), favorite alcohol ($M_{\text{Diff}} = .81, p < .001, 95\% \text{ -CI } [.68, .95]$) and downward SC activity ($M_{\text{Diff}} = .62, p < .001, 95\% \text{ -CI } [.47, .77]$). One exception was upward SC, where no significant difference between liking and wanting rates could be found ($M_{\text{Diff}} = -.09, p = .379$). This means that participants equally liked and wanted upward SC. Online upward SC was the only reward where wanting rates were slightly, but not significantly higher, than liking rates. Therefore, Hypothesis 2 suggesting that upward assimilative SC is stronger wanted than liked (H2a) and downward contrastive SC is stronger wanted than liked (H2b), could not be confirmed. Nevertheless, no difference between liking and wanting of upward SC (H2a) are important findings further to be discussed.

Self-esteem

One self-esteem item was included in the survey as a possible confounding factor and for exploratory purpose. Therefore, it was not part of the main hypothesis testing. At first, correlational data showed that self-esteem was positively correlated with wanting favorite sexual activity ($r(127) = .20, p = .023$) and negatively with daily SNS usage ($r(127) = -.18, p = .041$). These results suggest that higher self-esteem is related to higher wanting of sex and lower time spent on SNSs. Secondly, self-esteem was taken as a covariate in the repeated measures ANOVA. Results did not show any significant interaction between Reward and Self-esteem ($F[3.43, 435.08] = .66, p = .60$) or between

Value and Self-esteem ($F[1, 127] = .13, p = .72$), and the Reward x Value x Self-esteem interaction remained also nonsignificant ($F[3.43, 435.26] = .50, p = .71$) suggesting that self-esteem did not influence liking and wanting rates of the rewards. Importantly, after controlling for self-esteem, the Reward x Value interaction remained significant ($F[3.43, 435.26] = 2.87, p = .03, \eta^2 = .02$).

Gender

Lastly, gender was considered as a confounding variable in the model. The Reward x Gender interaction was significant ($F[3.43, 437.44] = 4.35, p = .003, \eta^2 = .03$). This interaction revealed that men wanted their favorite sexual activity more than women ($M_{\text{Diff}} = .35, p = .05, 95\% \text{ -CI } [.00, .69]$), and that women liked downward SC more than men ($M_{\text{Diff}} = .59, p < .05, 95\% \text{ -CI } [.18, .99]$). However, there was no gender difference in valuing upward SC ($ps > .42$), food ($ps > .32$) or alcohol ($ps > .08$). Furthermore, women valued food over all other rewards ($ps < .05$) whereas men valued food over alcohol ($p < .001$), upward ($p < .001$) and downward SC ($p < .001$), but equally with sex ($p = 1.00$).

Discussion

The aim of this study was to investigate if the act of engaging in online social comparison shows indication for addictive behavior. For this purpose, 'liking' and 'wanting' rates of online upward assimilative and downward contrastive SC were compared with other pleasant rewards such as favorite food, favorite sexual activity, and favorite alcohol. Following the incentive-sensitization theory, higher wanting than liking of rewards would indicate addictive behavior (Berridge & Robinson, 2016). There are four key findings of the present research. First, results revealed that among Austrian college students' food and sex were valued, thus liked and wanted, over all other pleasant rewards (against H1). However, despite food and sex, online upward assimilative SC was more wanted than alcohol and online downward contrastive SC (partly supporting H1b). Second, liking exceeded wanting for all rewards with one exception that was online upward assimilative SC, which was equally liked and wanted (against H2). This result represents the first indication that online upward assimilative SC could be an especially desired reward since it was the reward with the

smallest discrepancy between liking and wanting. Third, the present research could not find support that wanting of online upward assimilative and downward contrastive SC is associated with higher SNS addiction scores (against H3). However, results indicated that higher wanting of online upward assimilative and downward contrastive SC were associated with a higher tendency to engage in online SC (supporting H4). Thus, those who wanted more online SC tended to compare their opinions and abilities on SNSs more frequently. For visualization purposes the main findings are depicted in Figure 2.

The main aim of the study was to find out, if online upward assimilative (H2a) and downward contrastive SC (H2b) are more wanted than liked. Higher wanting than liking rates of reward would be the most valid interpretation for a reward being potentially addictive. Although 'liking' and 'wanting' are both present in addiction, the wanting-system is more strongly activated due to sensitization of the mesolimbic system (Robinson & Berridge, 2004). In this way, people can be addicted and want a reward more than they like the same reward (Berridge & Robinson, 2016). In the present study, liking exceeded wanting for favorite food, favorite sexual activity, favorite alcohol, and downward SC (contrarily to H2). Given these results, it must be concluded that participants did not show indication of being addicted to downward SC, alcohol, food, or sex. Importantly, only upward assimilative SC showed no difference between liking and wanting. Online upward assimilative SC was the only reward, which was equally liked and wanted with slightly, but not significantly, higher wanting rates. Although this result does not give enough support for the interpretation that online upward SC is something people can get addicted to, it is the one reward with the most noticeable indicator for addictive behavior. This result might reveal an important insight in potentially addictive features of SNSs. One possible explanation for this result only found for upward SC, but not downward SC, may be that information on SNSs is mostly presented in a positive light, automatically leading into more upward SCs (Feinstein et al., 2013; Kross et al., 2013). Thus, SNS users might be more exposed to upward SC on SNSs. The effect of both SCs was described in early theories for downward SC as being self-enhancing and upward SC being ego-deflating

(Collins, 1996). However, upward SC is also an important source for self-improvement and self-enhancement (Collins, 1996; Wheeler, 1966). Wheeler (1966) described the positive effect of upward SC to be the feeling of almost belonging to the 'very good ones'. Regarding oneself as the 'better ones' might be a more pleasurable state than 'not belonging to the worse ones' making upward SCs more efficient in self-enhancement (Collins, 1996). This could explain why people have a stronger desire for upward than downward SCs on SNSs as shown in this study. Self-enhancement could further boost self-esteem, and as Bushman et al. (2011) showed self-esteem boost was valued over other pleasant rewards. In the end, people may be rewarded by what makes them feel good in the SC process. This is an assumption for future research to gain a better understanding of what it is about upward SC on SNSs that people may be driven to.

Another finding of the present study was that participants equally liked upward SC, alcohol, and downward SC (H1a, H1c). It is important to note that liking rates refer to a state of pleasure and are not enough support for indication of addictive behavior (Berridge & Robinson, 2016). Nevertheless, it is interesting that people liked upward assimilative and downward contrastive SC equally since the first one is associated with pleasant feelings of optimism, admiration, and inspiration, whereas the latter provokes feelings of pride, contempt, or schadenfreude (Smith, 2000). It may be due to the basic psychological need of people for self-evaluation, which is the main function of SC (Festinger, 1954) that they liked both directions of SC equally. Previous research showed that online upward SC can result in feelings of envy (Verduyn et al., 2017) or depression (Liu et al., 2017). Those feelings are known as UCE (Smith, 2000), which were not intended to be measured in this study. In the present study, UAE as optimism, admiration, and inspiration (Smith, 2000) as well as DCE like pride, contempt, and schadenfreude (Smith, 2000) could be equally liked, because they both trigger rather pleasant than unpleasant feelings for the self. On the other side, UCE like depression/shame, resentment, and envy (Smith, 2000) or DAE as pity, sympathy, and worry/fear (Smith 2000) felt after engaging in SC may trigger other feelings and be valued differently. This assumption should further be tested in the future to better understand how SC emotions relate

to SNS addiction. For example, previous research in this area found that feeling content after engaging in downward SC mediated the link between SNS addiction and higher self-esteem (Kim et al., 2022). Furthermore, people may like downward SC due to the theoretical approach that experiencing unpleasant emotions through comparing oneself with an inferior person can increase ones' well-being (Wills, 1981).

Interestingly, a further noticeable finding with implications for future research is that alcohol was equally liked as online upward assimilative and downward contrastive SC. This result has many values as alcohol was the only potential substance-related drug in the questionnaire and alcohol is a well-known abused drug among college students (Carey et al., 2007). This idea was further supported by the finding that online upward assimilative SC was more wanted than alcohol and downward contrastive SC (partly supporting H1b). Given these results and the finding that online upward SC was the only reward with slightly (although not significantly) higher wanting than liking rates, there is an indication that online upward assimilative SC could be a reward that is more frequently used among college students than alcohol or downward contrastive SC. Similar applies to online downward contrastive SC, which was equally wanted as alcohol (H1d). Both results indicate that people can continuously go back to such reward types. There is a large body of work showing that college students around the world are especially at risk of problematic and abusive drinking behavior (Carey et al., 2007; Ganz et al., 2017; Karam et al., 2007; Knight et al., 2002), which underlines the importance of the comparison of these two rewards. Despite the limiting validation of online upward SC being a reward people can get addicted to, comparing its reward value to alcohol suggests several theoretical and practical implications.

A further way to explore addictive associations of online SC was to use additional measures as the Bergen Social Media Addiction Scale (BSMAS). However, there was no evidence supporting Hypothesis 3 in the current study. Hence, no relationship between wanting to engage in upward assimilative SC (H3a), wanting to engage in downward contrastive SC (H3b), and SNS addiction could be found. Interestingly, only liking of downward contrastive social comparison correlated positively

with SNS addiction scores. Contrarily to these results, Dailey et al. (2020) found that both upward and downward SCs were positively linked to SNS addiction. The relationship between SC and SNS addiction has been shown before (Kim et al., 2021; Samra et al., 2022; Verduyn et al., 2017). Previous research suggested SC to be a mediator of SNS addiction and other negative psychological outcomes (Kim et al., 2021; Krause et al., 2021; Samra et al., 2022; Verduyn et al., 2021) as for example depression (Samra et al., 2022) or self-esteem (Kim et al., 2021). Whereas past researchers assessed SC in different ways as for example by measuring SC emotions (Kim et al., 2021) or negative comparisons on SNSs (Samra et al., 2022), the present study focused explicitly on wanting to engage in online SC. Thus, comparing these results to other studies are limited due to measuring different aspects of SC. In the context of SNS addiction, one study showed that Facebook approach behavior, which can be described as strong wanting of reward (Berridge & Robinson, 2016), was a predictor of Facebook addiction (Juergensen & Leckfor, 2019). Nevertheless, much work remains to be done before a full understanding of how and why SC is related to SNS addiction is established.

People vary in their extent of comparison with others (Gibbons & Buunk, 1999). Related to this idea, this study showed that a higher tendency to engage in online SC positively correlated with higher wanting of upward assimilative comparison (H4b), but not with liking it (H4a), and with both higher liking (H4c) and higher wanting (H4d) of downward contrastive SC. These results gave support for the idea that higher wanting of online SC, thus having reward potential, is related to more frequently SCs on SNSs. The tendency to engage in SC refers to how often people compare their views and behaviors to others (Festinger, 1954; Gibbons & Buunk, 1999). People high in SCO, thus with higher tendency to engage in SC, have some uncertainty about themselves and try to reduce this uncertainty (Gibbons & Buunk, 1999). This is the reason why they are more influenced by the attitudes or behaviors of others (Litt et al., 2019). Consistent with other findings, the tendency to engage in SC was associated with spending more energy and time on SNSs (Vogel et al., 2015). The importance of SC theory in risky behaviors have been pointed out in recent research (Litt et al., 2019). For example, comparing drinking habits to peers, thus alcohol-related SC tendency, was

associated with higher alcohol use (Litt et al., 2019). Similarly, this study found that comparing one's opinions and abilities on SNSs was related to a higher desire to engage in online SC. Furthermore, individuals high in SCO do not only engage more frequently in social comparison but are also emotionally more affected by it (Buunk & Gibbons, 2005). This could mean that a high online SCO could lead to more intense emotions after SNS activity.

Bushman et al. (2011) showed that college students valued a self-esteem boost over other pleasant rewards. Based on this idea, one assumption of the current study was that engaging in online upward assimilative SC is more liked (H1a) and wanted (H1b) than other pleasant rewards, and that downward contrastive SC is more liked (H1c) and wanted (H1d) than other pleasant rewards, which could not be supported by data. Against the hypothesis, participants liked and wanted their favorite food and favorite sexual activity equally and over all other rewards (favorite alcohol, upward and downward SC). The results are in line with Goldstein et al. (2010), who developed the STRAP-R questionnaire for drug research purposes and found that in the situation 'in general' food and sex were more valued than the drug cocaine in addicts. However, when cocaine addicts were asked about the situation 'under drug influence' the drug was valued over food (Goldstein et al., 2010). Since this study only included the 'in general' state, valuing food and sex over other pleasant rewards does not necessarily exclude the assumption that people can get addicted to the less preferred 'drug', in this case to online SC. Whereas Bushman et al. (2011), who also used the STRAP-R, found that people valued their favorite self-esteem boost over food, alcohol and sex, this pattern could not be shown for online SC. However, favorite food and sexual activity were equally liked and wanted, which was consistent with Bushman et al. (2011). The remaining question is, why people place most value on food and sex. One explanation could be that food and sex are so-called 'primary rewards', which are associated with activation in other brain regions (Anterior Insula, Amygdala) than secondary rewards (Sescousse et al., 2013) such as SNSs. Even though it is known that people can get addicted to food or sex, they are not classified as addiction disorders (Potenza,

2014). Nevertheless, eating and substance disorders share many parallels to addiction, which are for example impulsivity and loss of control or biological vulnerability (Power, 2005).

Lastly, interactions with self-esteem and gender showed that higher self-esteem was related to higher wanting of sex and lower time spent on SNSs. This result is in line with a meta-analysis from Saiphoo et al. (2020) showing that a lower self-esteem is related to more SNS use. Moreover, in the present study self-esteem did not influence the value of the different rewards in this study. When looking at gender, men wanted their favorite sexual activity more than women, whereas women liked downward SC more than men. There was no gender difference in valuing upward SC, food, or alcohol.

Taken together, higher wanting of online upward assimilative and downward contrastive SC were associated with higher tendency to engage in online SC (H4), but not with SNS addiction scores (H3). People could especially derive reward value from online upward SC compared to other pleasant rewards. This can be explained by the circumstance that participants wanted online upward SC more than alcohol and downward SC (H1) and that they liked and wanted online upward SC equally (H2).

Limitations

The first limitation of the current study is that the results are based on self-reports and imaginary questions, where people had to think about pleasant rewards. Furthermore, it must be mentioned that two items were newly developed for the STRAP-R questionnaire to measure online upward assimilative and downward contrastive SC. Therefore, validity of these questions can be questioned, because it is unable to surely know what social media profiles participants had imagined. Nevertheless, to maintain a certain validity, those items were constructed regarding a theoretical framework. Smith's (1999) theory of SC emotions and Festinger's (1954) SC theory were the foundation for the upward assimilative and downward contrastive SC items (see Table A3). The items were designed carefully to secure that participants would be comfortable thinking about it and to avoid social desirability.

Secondly, the INCOM was also adapted to not only measure the general tendency to engage in SC, but specifically on SNSs ($\alpha = .69$; see A1 Table). Nevertheless, to bolster the self-reports and make sure that participants fulfilled the questionnaire with attention, a laboratory setting was ensured. On the other side, the laboratory setting at the University of Vienna had the downside that using a convenience sample was not representative for a typical SNS user due to uniform higher-level education.

Moreover, the results cannot be generalized to other cultures or to other age groups since the sample consisted of an Austrian college sample ($M_{age} = 22.49$ years, $SD_{age} = 3.94$). Further, most of the participants were female (86 females, 40 males, 3 other gender) and have studied psychology (114 psychology students, 13 other students). Thus, future research should include more diverse participants to investigate if different populations can get addicted to various features of SNSs. Importantly, SNS users under 18 years should also be included in future studies, because they are a vulnerable group being at risk to suffer from SNS addiction. Limiting to the results might also be the circumstance that no clinical population with SNS addiction was used in this case. For future studies it would be important to investigate how SC relates to SNS addiction in SNS addicted people.

Conclusion

In summary, this study showed that higher wanting of upward assimilative and downward contrastive SC was associated with a higher tendency to engage in online SC, but not with SNS addiction. Thus, participants who had a stronger desire for online SC tended to engage more frequently in SCs on SNSs. People could especially derive more reward value from online upward SC compared to other pleasant rewards as their favorite food, favorite sexual activity, alcohol, or downward SC. This can be explained by the circumstance that participants wanted online upward SC more than alcohol and downward SC, and that the only reward they equally liked and wanted was online upward SC. This interpretation is based on neuropsychological findings, which showed that the wanting-system is stronger activated in addiction and is dissociable from the liking-system (Robinson & Berridge, 2003). Overall, much work remains to be done to establish a full

understanding of online SC as a potential addictive feature of SNSs. In fact, this study indicates that people prefer comparing themselves with especially the 'better ones' on the internet. One can only derive parallels to the components of SNS addiction suggested by Andreassen & Pallesen (2014), which are (1) being overly concerned about SNSs (e.g., being overly concerned what others do/state on SNSs), (2) having a strong drive or motivation to use SNS (e.g., wanting to engage in SC on SNSs), and (3) spending so much time and effort on SNSs that it negatively affects certain life domains as work/school, relationships, social activities, and well-being (e.g., engaging too much in SC on SNSs). Those three components regarding online SC should be addressed in upcoming research. It is important to note, that SC is an essential human need from which people derive information about themselves and motivation to do better. There is nothing bad in comparing oneself to others even on SNSs as long as it is functional. It becomes a problem when it is dysfunctional for the health of people. For future implications, it would be from great importance to understand *what* it is about social media that people are addicted to. For one it may be the likes or views, for another it may be staying informed, and for the third it may be comparing themselves with others to change the current mood. Since social media pretends to be the ideal world, and therefore implies that one may feel better afterwards, people may try mood modification through SCs.

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Appendix A**Table A 1**

German short version of Iowa Netherlands Comparison Orientation Measure (INCOM)

– adapted for this study

„Die meisten Menschen vergleichen sich ab und an mit anderen. Zum Beispiel vergleichen sie, wie sie sich fühlen, ihre Meinungen, Fähigkeiten und/oder ihre Situation mit der anderer Menschen. Es gibt nichts, was besonders „gut“ oder „schlecht“ an dieser Art von Vergleichen wäre, und einige Menschen tun dies öfter als andere. Wir möchten nun herausfinden, wie oft Sie sich mit anderen Menschen auf sozialen Netzwerkseiten vergleichen. Um dies zu erfahren, möchten wir Sie bitten uns mitzuteilen, wie sehr Sie den folgenden Aussagen zustimmen.“

Bitte antworten Sie anhand der folgenden Skala:

Der Wert 1 bedeutet: stimme überhaupt nicht zu.

Der Wert 5 bedeutet: stimme voll und ganz zu.

Mit den Werten zwischen 1 und 5 können Sie Ihre Meinung abstufen.

Wie sehr stimmen Sie folgenden Aussagen zu?

1. Ich achte auf Social Media immer sehr stark darauf, wie ich Dinge im Vergleich zu anderen mache.
 2. Ich vergleiche auf Social Media meine sozialen Fähigkeiten und meine Beliebtheit mit denen anderer Personen.
 3. Ich bin nicht der Typ Mensch, der sich auf Social Media oft mit anderen vergleicht.
 4. Ich versuche auf Social Media herauszufinden, was andere denken, die mit ähnlichen Problemen konfrontiert sind wie ich.
 5. Ich möchte auf Social Media immer gerne wissen, wie sich andere in einer ähnlichen Situation verhalten würden.
 6. Wenn ich auf Social Media über etwas mehr erfahren möchte, versuche ich herauszufinden, was andere darüber denken oder wissen.
-

Table A 2

Original short version of Iowa Netherlands Comparison Orientation Measure (INCOM; Gibbons & Buunk, 1999; Schneider & Schupp, 2013)

“Most people compare themselves from time to time with others. For example, they may compare the way they feel, their opinions, their abilities, and/or their situation with those of other people. There is nothing particularly “good” or “bad” about this type of comparison, and some people do it more than others.

We would like to find out how often you compare yourself with other people. To do that we would like you to indicate how much you agree with each statement below, by using the following scale.”

- (a) I disagree strongly
- (b) I disagree
- (c) I neither agree nor disagree
- (d) I agree
- (e) I agree strongly

-
1. I always pay a lot of attention to how I do things compared with how others do things.
 2. I often compare how I am doing socially (e.g., social skills, popularity) with other people.
 3. I am not the type of person who compares often with others. (reversed)
 4. I often try to find out what others think who face similar problems as I face.
 5. I always like to know what others in a similar situation would do.
 6. If I want to learn more about something, I try to find out what others think about it.
-

Table A 3

German version of Sensitivity To Reinforcement of Addictive and other Primary Rewards (STRAP-R; Goldstein et al., 2010) – adapted for this study

„Im nächsten Teil werden Sie danach befragt, **wie angenehm Sie unterschiedliche Belohnungen finden und wie stark Sie diese im Allgemeinen haben wollen**. Versuchen Sie dabei, sich die Belohnungen so gut wie möglich vorzustellen und sich in die Szenarien einzufühlen.“

Verwenden Sie beim Antworten folgende Skala:

1 = Gar nicht 2 = Etwas 3 = Mäßig 4 = Sehr 5 = Extrem

A. Denken Sie an Ihr Lieblingsessen.

1. Wie **angenehm** ist es, dieses Essen allgemein zu essen?
 2. Wie **sehr wollen** Sie dieses Essen allgemein essen?
-

B. Denken Sie an Ihre sexuelle Lieblingsaktivität.

1. Wie **angenehm** ist es, diese Aktivität allgemein auszuüben?
 2. Wie **sehr wollen** Sie diese Aktivität allgemein essen?
-

C. Denken Sie an Ihren Lieblingsalkohol.

1. Wie **angenehm** ist es, diesen allgemein zu trinken?
 2. Wie **sehr wollen** Sie diesen allgemein trinken?
-

D. Stellen Sie sich vor, Sie scrollen auf Ihrer Lieblings-Social-Media-Seite. Sie landen auf dem Profil einer Person, die etwa in Ihrem Alter ist und das gleiche Geschlecht hat. Sie schauen zu dieser Person hinauf und Sie bewundern Ihr Profil. Beim Betrachten des Profils denken Sie „Ich wäre gerne so wie diese Person“. Das Profil dieser Person inspiriert und motiviert Sie besser zu werden, weil Sie ähnliche Ziele erreichen wollen. Auch wenn Sie vielleicht manchmal etwas **Neid** verspüren, lösen die Postings der Person vorwiegend Gefühle von **Motivation und Bewunderung** aus. Nach dem Betrachten des Profils fühlen Sie sich inspiriert Dinge in Ihrem Leben zu verbessern und anzugehen. Versuchen Sie daran zu denken, wie Sie sich gefühlt haben, als Sie auf so einem Profil waren.

1. Wie **angenehm** ist es, dieses Profil allgemein anzuschauen?
 2. Wie **sehr wollen** Sie dieses Profil allgemein anschauen?
-

E. Stellen Sie sich vor, Sie scrollen auf Ihrer Lieblings-Social-Media-Seite. Sie sehen sich ein Profil von einer Person an, deren Bilder Sie ganz in Ordnung finden. Beim Betrachten der Bilder denken Sie „Ich bin eigentlich ganz zufrieden mit mir selbst“. Das Profil dieser Person löst in Ihnen ein stolzes Gefühl aus, **Sie fühlen sich gut genug, so wie Sie sind**. Auch wenn Sie manchmal etwas Sympathie für diese Person verspüren, fühlen Sie sich nach dem Betrachten des Profils besser als vorher. Versuchen Sie sich vorzustellen, wie es sich angefühlt hat, als Sie auf so einem Profil waren.

1. Wie **angenehm** ist es, dieses Profil allgemein anzuschauen?
 2. Wie **sehr wollen** Sie dieses Profil allgemein anschauen?
-

Table A 4

Original version of Sensitivity To Reinforcement of Addictive and other Primary Rewards (STRAP-R; Goldstein et al., 2010).

Use the following rating scale when answering the questions below:	
	1. somewhat 2. slightly 3. moderately 4. very 5. extremely
	PL time: _:_ MP time: _:_
A. Think about your most favorite food	
Currently	1. How pleasant would it be to eat it right now?
	2. Do you want to eat it right now?
In general	3. How pleasant is eating it in general?
	4. How much do you want to eat in general?
Under the influence/high	5. How pleasant was eating it the last time you were high/buzzed?
	6. How much did you want to do it the last time you were high/buzzed?
B. Think about your most favorite sexual activity	
Currently	1. How pleasant would it be to do it right now?
	2. Do you want to do it right now?
In general	3. How pleasant is doing it in general?
	4. How much do you want to do it in general?
Under the influence/high	5. How pleasant was doing it the last time you were high/buzzed?
	6. How much did you want to do it the last time you were high/buzzed?
C. Think about your most favorite drug or alcohol	
Currently	1. How pleasant would it be to use/drink it right now?
	2. Do you want to use/drink it right now?
In general	3. How pleasant is using/drinking it in general?
	4. How much do you want to use/drink it in general?
Under the influence/high	5. How pleasant was using/drinking it the last time you were high/buzzed?
	6. How much did you want to use/drink it the last time you were high/buzzed?
Raters comments:	
Do not ask for or write down the food, sexual activity or drug/alcohol the subject thinks about.	

Note. PL, placebo; MP, methylphenidate.

Table A 5*German version of Social Networking Sites Usage and Needs Scale (SNUN; Kim et al., 2021)*

1. Wie oft nutzen Sie soziale Netzwerke?					
1 = Oft		2 = Gelegentlich		3 = Selten 4 = Nie	
2. Welches Gerät bevorzugen Sie beim Nutzen sozialer Netzwerke?					
Stand-PC					
Laptop					
Handy					
Tablet					
Sonstiges					
3. Welches soziale Netzwerk nutzen Sie am häufigsten?					
Täglich		3-5 Mal die Woche		Gelegentlich: Ein paar Mal im Monat	
				Selten: Ein paar Mal im Jahr	
				Nie	
Facebook					
Facebook					
Messenger					
Twitter					
WhatsApp					
Myspace					
Instagram					
Youtube					
Snapchat					
Google+					
LinkedIn					
TikTok					
Signal					
Andere					
4. Wie viele soziale Netzwerke nutzen Sie aktiv?					
1					
2					
3					
4					
5 oder mehr					
5. Wie oft pro Tag werfen Sie durchschnittlich einen Blick in soziale Netzwerke?					
1-2 Mal am Tag					
3-4 Mal am Tag					
5-6 Mal am Tag					
7-8 Mal am Tag					
9+ Mal am Tag					
Bei jedem Benachrichtigungston					
6. Wie viel Zeit verbringen Sie durchschnittlich pro Tag in sozialen Netzwerken?					
1-2 Stunden					
3-4 Stunden					
5-6 Stunden					

7-8 Stunden
9 Stunden und mehr

7. Wann haben Sie das Gefühl, dass Ihre Aktivität in sozialen Netzwerken zunimmt?

Unter Tags
Abends
Nachts
Wochenends
Sonstiges

8. Wann wurden Sie zum ersten Mal Mitglied in einem von Ihnen genutzten sozialen Netzwerk?

Vor 1-2 Jahren
Vor 3-4 Jahren
Vor 4-5 Jahren
Vor 5-6 Jahren
Vor 7-8 Jahren
Vor 9-10 Jahren
Vor mehr als 10 Jahren

Table A 6

German version of Bergen Social Media Addiction Scale (BSMAS; Andreassen et al., 2016; Kim et al., 2021)

Wie oft haben Sie im letzten Jahr... [How often during the last year have you ...]
1. ...viel Zeit mit dem Nachdenken über Social Media oder geplante Nutzung von Social Media verbracht? [...spent time thinking about social media or the usage of social media?]
2. ... den Drang verspürt, Social Media immer mehr zu nutzen? [...felt an urge to use social media more and more?]
3. ...Social Media benutzt, um persönliche Probleme zu vergessen? [...used social media to forget about personal problems?]
4. ...versucht, die Benutzung von Social Media ohne Erfolg einzuschränken? [...tried to cut down on the use of social media without success?]
5. ... Social Media so viel genutzt, dass es einen negativen Einfluss auf Ihren Job/Ihr Studium hatte? [...used social media so much that it has had a negative impact on your job/studies?]
6. ... haben Sie sich unruhig oder bedrückt gefühlt, wenn Ihnen Social Media nicht zur Verfügung stand? [become restless or troubled if you have been prohibited from using social media?]

^a Participants were given a 5 point scale; 1 = *Nie* [never], 5 = *Sehr oft* [very often].

^b Original items are presented in brackets.

Table A 7*German Version of Self-Esteem Measure (Robins et al., 2001; Kim et al., 2021)*

Ich habe ein hohes Selbstwertgefühl.
[I have a high self-esteem]

-
1. *Trifft überhaupt nicht auf mich zu. [not very true of me]*
 - 2.
 - 3.
 - 4.
 5. *Trifft vollkommen auf mich zu. [very true of me]*
-

Appendix B

Figure B 1

Survey – Page 1



Liebe:r Teilnehmer:in,

herzlichen Dank für Ihre Bereitschaft, an dieser Studie des Instituts für Arbeit-, Wirtschafts- und Sozialpsychologie der Universität Wien teilzunehmen. Es soll hierbei untersucht werden, ob der soziale Vergleich auf sozialen Netzwerkseiten belohnend wirken kann.

Ablauf der Umfrage: Zu Beginn erhalten Sie einige demographische Fragen. Danach folgt eine kurze Befragung zu Ihrer Tendenz soziale Vergleiche auf sozialen Netzwerkseiten durchzuführen. Im dritten Teil wird erfragt, wie angenehm Sie unterschiedliche Belohnungen empfinden und wie sehr Sie diese haben wollen. Anschließend folgen allgemeine Fragen zu Ihrer persönlichen Nutzung von sozialen Medien. Zum Schluss werden noch ein paar Fragen zu Ihrem Gebrauch von sozialen Medien im letzten Jahr gestellt.

Zeitlicher Aufwand: Der Zeitaufwand für eine Teilnahme beträgt etwa 20 – 30 Minuten.

Vorteile der Studienteilnahme: Die Studienteilnahme wird mit 2 Credits des LABS Systems im Rahmen des Bachelorstudiums Psychologie vergütet. Sie können die Studie jederzeit abbrechen und eine alternative Leistung erbringen. Es entstehen durch einen Abbruch keine Nachteile für Sie und die erbrachte Zeit wird im Rahmen der Lehrveranstaltung berücksichtigt.

Ansprechperson für Rückfragen: Natalia Zaleska
(a01504551@unet.univie.ac.at)



Figure B 2*Survey – Page 2*

Einverständniserklärung

Die Studie dient ausschließlich wissenschaftlichen Zwecken. Die Befragung wird vom Institut für Arbeits-, Wirtschafts- und Sozialpsychologie der Universität Wien durchgeführt. Ihre Studienergebnisse werden streng vertraulich behandelt. Die Daten der Studien werden zu jedem Zeitpunkt vollständig anonymisiert. Die Ergebnisse und Daten dieser Studie werden unter Umständen veröffentlicht. Dies geschieht in anonymisierter Form, d.h. ohne, dass die Daten einer spezifischen Person zugeordnet werden können. Anonyme und anonymisierte Daten unterliegen nicht dem Datenschutz.

Die Teilnahme an der Studie ist freiwillig und mit keinen bekannten Risiken verbunden. Sie können die Teilnahme an dieser Untersuchung zu jedem Zeitpunkt ohne Angabe von Gründen abbrechen. Daraus ergeben sich keine Nachteile für Sie. Eine Löschung Ihrer Antworten zu einem späteren Zeitpunkt ist nicht möglich.

Ich habe die oben genannten Informationen gelesen und verstanden und erkläre mich mit den Teilnahmebedingungen einverstanden.

Ja ☐	Nein ☐
-----------------------------	-------------------------------



Figure B 3*Survey – Page 3***Bitte beantworten Sie folgende demographische Fragen.**

Nutzen Sie soziale Netzwerkseiten?

Ja	Nein
☐	☐



Universität Wien

Figure B 4*Survey – Page 4*

Mit welchem Geschlecht identifizieren Sie sich am meisten?

☐ Männlich

☐ Weiblich

☐ Andere



Universität Wien

Figure B 5*Survey – Page 5*

Bitte geben Sie Ihr Alter an:

Bitte geben Sie Ihren höchsten Bildungsgrad an.

☐ Pflichtschule

☐ Lehre/BMS

☐ AHS/BHS

☐ Universität/Fachhochschule



Figure B 6*Survey – Page 6*

Studieren Sie derzeit? Wenn ja, bitte die Studienrichtung angeben.

☐ Nein

☐ Ja, ich studiere Folgendes:



Figure B 7*Survey – Page 7*

Bekommen Sie für die Teilnahme an dieser Studie Lab-Credits?

Ja ☐	Nein ☐
-----------------------------	-------------------------------

Wo führen Sie diese Online-Befragung durch?

☐ Im Universitätslabor am Computer
☐ Privat am Computer
☐ Privat am Handy



Figure B 8*Survey – Page 8*

Teil 1/4:

Die meisten Menschen vergleichen sich ab und an mit anderen. Zum Beispiel vergleichen sie, wie sie sich fühlen, ihre Meinungen, Fähigkeiten und/oder ihre Situation mit der anderer Menschen. Es gibt nichts, was besonders „gut“ oder „schlecht“ an dieser Art von Vergleichen wäre und einige Menschen tun dies öfter als andere. Wir möchten nun herausfinden, **wie oft Sie sich mit anderen Menschen auf sozialen Netzwerkseiten vergleichen.** Um dies zu erfahren, möchten wir Sie bitten uns mitzuteilen wie sehr Sie den folgenden Aussagen zustimmen.

*Bitte antworten Sie anhand der folgenden Skala:**Der Wert 1 bedeutet: stimme überhaupt nicht zu.**Der Wert 5 bedeutet: stimme voll and ganz zu.**Mit den Werten zwischen 1 und 5 können Sie Ihre Meinung abstufen.*

Figure B 9

Survey – Page 9



Wie sehr stimmen Sie folgenden Aussagen zu?

	1 stimme überhaupt nicht zu	2	3	4	5 stimme voll und ganz zu
Ich achte auf Social Media immer sehr stark darauf, wie ich Dinge im Vergleich zu anderen mache.	☐	☐	☐	☐	☐
Ich vergleiche auf Social Media meine sozialen Fähigkeiten und meine Beliebtheit mit denen anderer Personen.	☐	☐	☐	☐	☐
Ich bin nicht der Typ Mensch, der sich auf Social Media oft mit anderen vergleicht.	☐	☐	☐	☐	☐
Ich versuche auf Social Media herauszufinden, was andere denken, die mit ähnlichen Problemen konfrontiert sind wie ich.	☐	☐	☐	☐	☐
Ich möchte auf Social Media immer gerne wissen, wie sich andere in einer ähnlichen Situation verhalten würden.	☐	☐	☐	☐	☐
Wenn ich auf Social Media über etwas mehr erfahren möchte, versuche ich herauszufinden, was andere darüber denken oder wissen.	☐	☐	☐	☐	☐



Figure B 10*Survey – Page 10*

Denken Sie an **Ihren Lieblingsalkohol.**

	Gar nicht	Etwas	Mäßig	Sehr	Extrem
Wie angenehm ist es, diesen allgemein zu trinken?	☐	☐	☐	☐	☐
Wie sehr wollen Sie diesen allgemein trinken?	☐	☐	☐	☐	☐



Figure B 11*Survey – Page 11*

Denken Sie an Ihre **sexuelle Lieblingsaktivität**.

	Gar nicht	Etwas	Mäßig	Sehr	Extrem
Wie angenehm ist es, diese Aktivität allgemein auszuüben?	☐	☐	☐	☐	☐
Wie sehr wollen Sie diese Aktivität allgemein ausüben?	☐	☐	☐	☐	☐



Figure B 12

Survey – Page 12

Denken Sie an Ihr **Lieblingessen**.

	Gar nicht	Etwas	Mäßig	Sehr	Extrem
Wie angenehm ist es, dieses Essen allgemein zu essen?	☐	☐	☐	☐	☐
Wie sehr wollen Sie dieses Essen allgemein essen?	☐	☐	☐	☐	☐



Figure B 13

Survey – Page 13



Stellen Sie sich vor, Sie scrollen auf Ihrer **Lieblings-Social-Media-Seite**. Sie landen auf dem Profil einer Person, die etwa in Ihrem Alter ist und das gleiche Geschlecht hat. **Sie schauen zu dieser Person hinauf und Sie bewundern Ihr Profil.** Beim Betrachten des Profils denken Sie „Ich wäre gerne so wie diese Person“. Das Profil dieser Person inspiriert und motiviert Sie besser zu werden, weil Sie ähnliche Ziele erreichen wollen. Auch wenn Sie vielleicht manchmal etwas **Neid** verspüren, lösen die Postings der Person vorwiegend Gefühle von **Motivation und Bewunderung** aus. Nach dem Betrachten des Profils fühlen Sie sich inspiriert Dinge in Ihrem Leben zu verbessern und anzugehen. Versuchen Sie daran zu denken, wie Sie sich gefühlt haben, als Sie auf so einem Profil waren.

	Gar nicht	Etwas	Mäßig	Sehr	Extrem
Wie angenehm ist es, dieses Profil allgemein anzuschauen?	☐	☐	☐	☐	☐
Wie sehr wollen Sie dieses Profil allgemein anschauen?	☐	☐	☐	☐	☐



Figure B 14.

Survey – Page 14



Stellen Sie sich vor, Sie scrollen auf Ihrer **Lieblings-Social-Media-Seite. Sie sehen sich ein Profil von einer Person an, deren Bilder Sie ganz in Ordnung finden.** Beim Betrachten der Bilder denken Sie „Ich bin eigentlich ganz zufrieden mit mir selbst“. Das Profil dieser Person löst in Ihnen ein stolzes Gefühl aus, **Sie fühlen sich gut genug, so wie Sie sind.** Auch wenn Sie manchmal etwas Sympathie für diese Person verspüren, fühlen Sie sich nach dem Betrachten des Profils besser als vorher. Versuchen Sie sich vorzustellen, wie es sich angefühlt hat, als Sie auf so einem Profil waren.

	Gar nicht	Etwas	Mäßig	Sehr	Extrem
Wie angenehm ist es, dieses Profil allgemein anzuschauen?	☐	☐	☐	☐	☐
Wie sehr wollen Sie dieses Profil allgemein anschauen?	☐	☐	☐	☐	☐



Figure B 15*Survey – Page 15*

Teil 3/4:

Im Folgenden Teil werden Ihnen Fragen zu Ihrer persönlichen
Nutzung von sozialen Medien gestellt.



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Figure B 16*Survey – Page 16*

Wie oft nutzen Sie soziale Netzwerke?

Oft	Gelegentlich	Selten	Nie
1	2	3	4

Bitte geben Sie hier Ihre Antwort an:



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Figure B 17*Survey – Page 17*

Welches Gerät bevorzugen Sie beim Nutzen sozialer Netzwerke?

☐ Stand-PC

☐ Laptop

☐ Handy

☐ Tablet

☐ Sonstiges (bitte angeben)



Figure B 18

Survey – Page 18



Welches soziale Netzwerk nutzen Sie am häufigsten?

	Täglich	3-5 mal die Woche	Gelegentlich: Ein paar Mal im Monat	Selten: Ein paar Mal im Jahr	Nie
Facebook	☐	☐	☐	☐	☐
Facebook_Messenger	☐	☐	☐	☐	☐
Twitter	☐	☐	☐	☐	☐
WhatsApp	☐	☐	☐	☐	☐
Myspace	☐	☐	☐	☐	☐
Instagram	☐	☐	☐	☐	☐
Youtube	☐	☐	☐	☐	☐
Snapchat	☐	☐	☐	☐	☐
Google+	☐	☐	☐	☐	☐
LinkedIn	☐	☐	☐	☐	☐
TikTok	☐	☐	☐	☐	☐
Signal	☐	☐	☐	☐	☐

Falls Sie andere soziale Netzwerkseiten häufig nutzen, können Sie diese hier angeben. Wenn nicht, können Sie diese Frage einfach überspringen.

	Täglich	3-5 Mal die Woche	Gelegentlich: Ein paar Mal im Monat	Selten: Ein paar Mal im Jahr	Nie
Sonstige (bitte angeben) 	☐	☐	☐	☐	☐
Sonstige (bitte angeben) 	☐	☐	☐	☐	☐



Figure B 19*Survey – Page 19*

Wie viele soziale Netzwerke nutzen Sie aktiv?

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5 oder mehr



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Figure B 20*Survey – Page 20*

Wie oft pro Tag werfen Sie durchschnittlich einen Blick in soziale Netzwerke?

- ☐ 1-2 mal am Tag
- ☐ 3-4 mal am Tag
- ☐ 5-6 mal am Tag
- ☐ 7-8 mal am Tag
- ☐ 9+ mal am Tag
- ☐ Bei jedem Benachrichtigungston



Figure B 21*Survey – Page 21*

Wie viel Zeit verbringen Sie durchschnittlich pro Tag in sozialen Netzwerken?

☐ 1-2 Stunden

☐ 3-4 Stunden

☐ 5-6 Stunden

☐ 7-8 Stunden

☐ 9 Stunden und mehr



Figure B 22*Survey – Page 22*

Wann haben Sie das Gefühl, dass Ihre Aktivität in sozialen Netzwerken zunimmt?

☐ Unter Tags

☐ Abends

☐ Nachts

☐ Wochenends

☐ Sonstiges (bitte angeben):



Figure B 23*Survey – Page 23*

Wann wurden Sie zum ersten Mal Mitglied in einem von Ihnen genutzten sozialen Netzwerk?

☐ Vor weniger als einem Jahr

☐ Vor 1-2 Jahren

☐ Vor 3-4 Jahren

☐ Vor 5-6 Jahren

☐ Vor 7-8 Jahren

☐ Vor 9-10 Jahren

☐ Vor mehr als 10 Jahren



Figure B 24*Survey – Page 24*

Wann wurden Sie zum ersten Mal Mitglied in einem von Ihnen genutzten sozialen Netzwerk?

☐ Vor weniger als einem Jahr

☐ Vor 1-2 Jahren

☐ Vor 3-4 Jahren

☐ Vor 5-6 Jahren

☐ Vor 7-8 Jahren

☐ Vor 9-10 Jahren

☐ Vor mehr als 10 Jahren



Figure B 25*Survey – Page 25*

Teil 4/4:

Sie sind nun am letzten Teil der Umfrage angekommen, wo Sie sechs kurze Fragen zu **Ihrem sozialen Medienkonsum innerhalb des letzten Jahres** beantworten sollen. Anschließend folgt eine Frage, wo Sie Ihr **Selbstwertgefühl** einschätzen sollen.



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Figure B 26*Survey – Page 26*

Wie oft haben Sie im letzten Jahr ...

	Nie	Selten	Manchmal	Oft	Sehr oft
... viel Zeit mit dem Nachdenken über Social Media oder geplante Nutzung von Social Media verbracht?	☐	☐	☐	☐	☐
... den Drang verspürt, Social Media immer mehr zu nutzen?	☐	☐	☐	☐	☐
... soziale Netzwerke benutzt, um persönliche Probleme zu vergessen?	☐	☐	☐	☐	☐
... versucht, die Benutzung von Social Media ohne Erfolg einzuschränken?	☐	☐	☐	☐	☐
... Social Media so viel genutzt, dass es einen negativen Einfluss auf Ihren Job/ Ihr Studium hatte?	☐	☐	☐	☐	☐
... haben Sie sich unruhig oder bedrückt gefühlt, wenn Ihnen Social Media nicht zur Verfügung stand?	☐	☐	☐	☐	☐



Figure B 27*Survey – Page 27*

Ich habe ein hohes Selbstwertgefühl.

Trifft
überhaupt
nicht auf mich
zu

1

2

3

4

Trifft
vollkommen
auf mich zu

5

Inwiefern stimmen Sie der Aussage zu?



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Figure B 28*Survey – Page 28*

Für die Datenauswertung ist es notwendig, dass Sie die Studie ernsthaft und gewissenhaft bearbeitet haben.

Ihrer ehrlichen Meinung nach, sollten Ihre Daten in der Auswertung berücksichtigt werden? (Ihre Antwort hat keinen Einfluss auf die Vergabe der Credits.)

Ja ☐	Nein ☐
-----------------------------	-------------------------------



Figure B 29*Survey – Page 29*

**Vielen Dank für Ihre Teilnahme an dieser Untersuchung –
Sie haben uns sehr geholfen!**

Anbei finden Sie Informationen zu den Zielen der Studie.

Wir möchten Sie bitten, diese konkreten Informationen für sich zu behalten und nicht mit anderen Personen über die Studie zu sprechen.

In dieser Studie untersuchen wir, ob sozialer Vergleich (Abwärts- und Aufwärtsvergleich mit anderen Personen) auf sozialen Netzwerkseiten süchtig machen kann. Es konnte bereits in einer Studie von Bushman, Moeller & Crocker (2011) gezeigt werden, dass ein positives Selbstwertgefühl stärker bevorzugt wird als andere Belohnungen, wie z.B. das Lieblingsessen. Die vorliegende Studie baut auf dieser auf. Es soll hier untersucht werden, ob sozialer Abwärts- und Aufwärtsvergleich auf sozialen Netzwerkseiten gegenüber den Belohnungen Lieblingsessen, sexuelle Lieblingsaktivität und alkoholisches Lieblingsgetränk stärker bevorzugt wird. Die Bevorzugung wird mit Fragen nach dem Empfinden und Wollen der einzelnen Belohnungen erfasst. Sollte diese Hypothese bestätigt werden, so kann das ein Hinweis sein, dass sozialer Vergleich auf sozialen Medien süchtig machen kann. Damit zusammenhängend wird untersucht, ob soziale Aufwärts- und Abwärtsvergleiche auf sozialen Netzwerkseiten stärker gewollt oder gemocht werden. Laut der Theorie könnte ein stärkeres Wollen von Belohnungen ein Hinweis auf suchterregendes Verhalten sein. Ebenso soll kontrolliert werden, ob das Wollen von sozialen online Vergleichen mit Social-Media-Sucht in Zusammenhang steht. Eine weitere Variable, die erfasst werden soll, ist die generelle Tendenz soziale Vergleiche auf sozialen Netzwerkseiten durchzuführen. Falls die Hypothese stimmt, dass soziale Vergleiche auf sozialen Netzwerkseiten süchtig machen können, so kann die Social-Media-Sucht durch eine sozialpsychologische Perspektive einen neuen Ansatzpunkt für weitere Forschung in dem Bereich liefern.

Für eventuelle Rückfragen, wenden Sie sich gerne an Natalia Zaleska (a01504551@unet.univie.ac.at) oder hinterlassen Sie uns ein Kommentar auf folgender Seite.



Figure B 30*Survey – Page 30*

Falls Sie einen Kommentar zu der Studie haben, können Sie diesen hier angeben. Falls nicht, dann klicken Sie bitte auf **Weiter**.

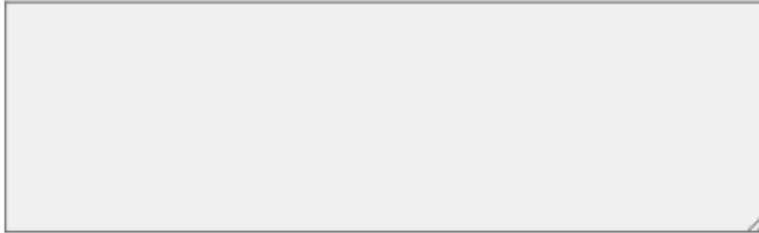
A large, empty rectangular box with a thin black border, intended for a comment.

Figure B 31

Survey – Page 31



Wir danken Ihnen für Ihre Teilnahme an dieser Umfrage.
Ihre Antwort wurde erfasst.

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Zusammenfassung

Die exzessive Nutzung von sozialen Netzwerkseiten (SNSs) wurde mit häufigen sozialen Vergleichen (SV) in der virtuellen Welt in Verbindung gebracht, worüber sich die Wissenschaft besorgt zeigt. Da es nur wenig Forschung über den Zusammenhang zwischen SNS-Sucht und SV gibt, zielte diese Studie auf die Untersuchung ab, ob soziale online Vergleiche Anzeichen von Verhaltenssüchten zeigen. Hierfür wurde eine Online-Befragung im Labor der Universität Wien durchgeführt, bei der das "Mögen" und "Wollen" von aufwärts-assimilativen und abwärts-kontrastiven sozialen Vergleichen auf SNS mit anderen angenehmen Belohnungen (Lieblingessen, bevorzugte sexuelle Aktivität, bevorzugter Alkohol) verglichen wurden. Ein höherer Anteil an "Wollen" als an "Mögen" würde auf süchtiges Verhalten hindeuten. Insgesamt *mochten* und *wollten* österreichische Studierende (N=129, $M_{\text{Alter}} = 22,49$) Essen und Sex mehr als alle anderen Belohnungen. Es konnte jedoch gezeigt werden, dass sie aufwärts-assimilative SV, abwärts-kontrastive SV und Alkohol gleichermaßen *mochten*. Ein wichtiger Hinweis ist, dass aufwärts-assimilative SV stärker *gewollt* wurden als abwärts-kontrastive SV und Alkohol. Auf der anderen Seite wurde der abwärts-kontrastive SV genauso *gewollt* wie Alkohol. Bei allen Belohnungen übertraf das *Mögen* das *Wollen*, außer bei dem aufwärts-assimilativen SV. Dies bedeutet, dass der aufwärts-assimilative SV die einzige Belohnung war, die gleichermaßen *gemocht* wie *gewollt* wurde, mit leicht, dennoch nicht signifikant höheren Werten im *Wollen* als im *Mögen*, was auf ein Suchtverhalten hindeuten könnte. Darüber hinaus korrelierte höheres *Wollen* von aufwärts-assimilativen und abwärts-kontrastiven SV mit einer höheren Tendenz zu sozialen Onlinevergleichen, aber nicht mit SNS-Sucht. Obwohl der soziale Onlinevergleich nicht die am meisten bevorzugte Belohnung war, werfen diese Ergebnisse ein neues Licht auf das Potenzial von sozialen Onlinevergleichen als eine angenehme Belohnung. Zukünftige Forschung sollte soziale Onlinevergleiche genauer untersuchen und herausfinden, was die Menschen an SNS süchtig macht.

Schlüsselwörter: Mögen/Wollen, Belohnungen, sozialer Aufwärtsvergleich, sozialer Abwärtsvergleich, Essen, Sex, Alkohol, soziale Netzwerkseiten, sozialer Vergleich, Social-Media-Sucht