

**How Social Comparison on Social Media affects
Body Image: a qualitative study by means of the
Love or Break-up Letter Method**

Master's Thesis

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Abstract

Background. Nowadays usage of social media is embedded in daily life and hence the opportunity to engage in social comparison is increased. Most research concerning this topic is correlational and hence the role of social comparison on social media needs to be investigated in terms of its contributions to body image and related well-being, wherefore qualitative research can account. The goal of the current study is to gain insights in attitudes and experiences towards the social comparison processes on social media and to investigate the effects it has on body image and other variables, such as self-esteem or affect. **Methods.** The innovative, narrative “love and break-up letter method” was utilized among a sample of 27 participants ($M_{\text{age}} = 24.26$, $SD_{\text{age}} = 2.9$), who wrote a love or break-up letter to their social media platform of choice regarding their body image. The letters were coded de- and inductively and subsequently examined by means of thematic analysis. **Results.** Upward comparison, particularly with influencers, was the most reported direction of social comparison. Effects of upward social comparison on the self, namely body dissatisfaction and negative emotions emerged. Participants emphasised that upward social comparison on social media poses a risk for body image and emotional well-being of other parties, particularly adolescents. To counteract detrimental effects of upward social comparison, diversification of the feed and awareness of negative consequences on body image and self-esteem were named. **Discussion.** Findings relating to the projection of risk vulnerability to others are discussed against the background of Cognitive Dissonance Theory (Festinger, 1962). The level of self-esteem of the comparer occurs to influence upward comparison on body image substantially, wherefor a prior assessment of self-esteem is recommended for future replication of the study.

Introduction

Social Media

Currently, social media plays an important role in our daily routine, as users worldwide spend an average of 144 minutes á day on social media (Clement, 2020). Therefore, the possibilities and detriments social media imposes are numerous, such as the possibility to work from home, access to knowledge, information overload, or phenomena like nomophobia, etc. (Drahosova & Balco, 2017; Anshari, et al., 2016). Numerous risks for mental health can be associated with social media use, such as the occurrence of anxiety, depression and low self-esteem (Srivastava et al., 2019). Especially young persons are at risk for the detrimental effects of SNS use (Naslund, et al., 2020). Best, et al. (2014) conducted a meta-analysis regarding the effects of social media use, findings conclude that mere possession of a social media account can affect mental wellbeing adversely.

According to Moreno & Kota (2013), social media can be defined as a platform, either a website or app, which allows users to create and post online content available to be viewed and commented on by other users. Social networking services (SNSs) facilitate users to share individually customized photos, videos, audios, or texts with a self-determined audience varying from friends to followers to the general public (Kaplan & Haenlein, 2010). Several characteristics distinguish contemporary media, mostly SNS, from traditional mass media, e.g., Perloff (2014) describes five key features: interactivity, activity, self-centred content, multimedia cues enhancing attitude change, and formation of communities. Apart from messenger services, the plurality of SNS users currently prefers photo-focused SNS, such as Instagram, Snapchat, TikTok, or Facebook (Clement, 2020; Greenwood, Perrin, & Duggan, 2016).

Social Comparison Theory

Since the rise of Social Media Networking Sites (SNS), the interconnectedness of humans increased, and therefore also the possibility to compare one's standards and life with those of others. Festinger (1954) established the social comparison theory which states that individuals tend to engage in thought processes contextualizing and comparing other-related information with self-related information. Specifically, this means that the individual comparing the information recognizes or seeks to find similarities and differences across various dimensions with the subject of comparison (Gerber, Suls, & Wheeler, 2018). Hence, changes in self-

evaluation, affect or behaviour are expected from the side of the comparer (Gerber, Suls, & Wheeler, 2018). Within the framework of the social comparison theory, Wills (1981) introduced the downward comparison theory specifying that either a downward or upward comparison occurs based on the self-esteem of the comparer. A comparer with generally low self-esteem or threatened self-esteem tends to select comparison subjects or standards in a downward direction aiming at the rehabilitation of one's self-esteem (Hakmiller, 1966; Wills, 1981). However, it is assumed that the standard comparison process occurs in an upward direction (Wills, 1981; Collins, 1996, 2000), if high self-esteem and shared distinctiveness with the target is present (Brewer & Weber, 1994; Collins, 1996). According to Collins (1996), upward comparison aims at emphasizing similarity with an individual in an advantageous position, prompting the comparer to reach the same level of self-esteem observed in the target (Gerber, Suls, & Wheeler, 2018). Further, assimilation is considered relevant for the manifestation of social comparison according to the selective accessibility model (Mussweiler, 2003; Mussweiler & Strack, 2000).

In case of a potential social comparison, “a tentative and rapid judgment of similarity or dissimilarity to the comparison target” (Gerber, Suls, & Wheeler, 2018) is made, dependent on available information regarding the comparison target. Based on the similarity or dissimilarity hypothesis, information that confirms the hypothesis is accessed. Generally, this evaluation strategy rather accounts for the discovery and activation of information confirming the underlying hypothesis, than for disproving it. The social comparison relies on selectively activated information, as it is readily accessible. This tends to result in acknowledgement of the initial hypothesis, so either in assimilation or contrast effects. Hence, if the comparer sought information proving one's similarity to the standard, assimilation of one's self-evaluation and the standard happens. If the comparer had a dissimilarity assumption, the self-evaluation contrasts with the target.

Social comparisons on Social Media

Due to the increasing popularity of social media, social comparisons also gain in frequency (Lee, et al. 2020) e.g., high Facebook use is associated with frequent social comparison (Lee, 2014). For instance, Cramer, Song, and Drent (2016) reported that 70% of their sample of college students engages in social comparisons on Facebook. As the mere presence of social comparison can negatively affect mood and body image (Tiggemann & McGill, 2004), De Vries & Kühne (2015) investigated the susceptibility to negative social comparison via

Facebook and could identify an association of SNS use and negative self-perception mediated by an upward social comparison. Another negative side effect, which corresponds with SNS use and social comparison theory, is the emergence of envy (Chae, 2018).

According to Festinger (1954) envy is produced by upward social comparison, so when the comparer recognizes the beneficial status of the standard towards oneself (Smith & Kim, 2007). Through the augmented SNS usage, also the probability of developing envy increases (Chae, 2018), in particular, because individuals tend to experience envy more intensively when the comparison standard is similar to them, disregarding the aspired characteristic, e.g. fitness (Smith, 2004). Based on Chae (2018), SNS influencers reflect peoples' life more accurately than celebrities in traditional media do, therefore, the similarity of users and SNS influencers aligns to a greater extent, which leads to negative self-evaluation and envy, than in social comparison with celebrities, so dissimilar and personally unknown others. Also, Fardouly et al. (2015) hypothesize that the peer-to-peer evaluation, contrary to the comparison to celebrities, leads to more intense social comparison, due to shared lifestyles and resources. Nevertheless, there are contradicting data, for instance, Myers & Crowther (2009) investigated in a meta-analysis that there are no significant differences in the effects of being exposed to peer comparisons and celebrity comparisons.

Other negative side effects, than the occurrence of envy, that appear with social comparison on SNS are reported, such as spending time on Facebook elicits thinking that others live a better and fulfilled life than oneself (Chou & Edge, 2012). The association is even stronger when users have Facebook friends, with whom they have no connection in real life. Marginal Facebook use can result in a negative mood, in comparison to internet use in general or being "offline" (Sagioglou & Greitemeyer, 2014). A cross-sectional survey conducted by Lee (2014) indicates a negative correlation of self-esteem and social comparison frequency, which is in line with Wills' (1981) theory about the relation of low self-esteem and downward comparison.

Often, social comparison on SNS is appearance-related because platforms, like Instagram, are image-based and hence affect body dissatisfaction (Fardouly, et al., 2015). In a study by Haferkamp and Krämer (2011), it is reported that participants who were presented with profile pictures of physically attractive users felt less positive emotions and were less satisfied with their bodies, compared to those being presented with profile photos of unattractive users. Hence, it is indicated that profile pictures on SNS serve as a foundation for upward social comparison (Haferkamp & Krämer, 2011; Kim & Chock, 2015).

Effects of Social Media on Body Image

Grounded on social comparison theory (Festinger, 1954), social media negatively affects satisfaction with one's body and appearance due to edited images, eliciting upward comparison (Fardouly et al., 2017a), although female users expect downward or lateral comparisons (Eckler, et al., 2017). Social comparison, especially upward comparison (Krcmar, Giles, and Helme, 2008), is considered a mediating variable for body dissatisfaction and for achieving thinness and can indirectly lead to eating disorders (Goodman, 2005). Research conducted by Fardouly et al. (2015), where the effects of Facebook use on women's mood, body satisfaction, and appearance-related discrepancies were investigated, indicates that women develop an aspiration of altering their physical appearance (hair, face, and skin) if browsing on Facebook. Similar results were found by Kim and Chock (2015), where Facebook social grooming behaviours were positively associated with body image concerns, and hence give an impulse to appearance comparison and achieving thinness.

Contradicting results were published by Rutledge et al. (2013), who found no association between Facebook use and negative body image. Also, users with a high number of Facebook friends showed a more positive body image (Rutledge, et al., 2013). However, among various SNS similar detrimental effects of SNS on body image can be observed.

For instance, Instagram use is correlated with body dissatisfaction and scrutiny across various studies (e.g. see Cohen et al., 2017; Feltman & Szymanski, 2018; Fardouly et al., 2017b), since Instagram serves as a platform, which rewards its users for posting aesthetically-pleasing images and therefore prompts visual social comparison (Bue, 2020). Instagram users actively shape the platform by editing the uploaded content, e.g. up to 18% of all Instagram posts were edited with a filter, whereas almost 25% of all posted selfies were edited (Pettersson, 2017). To understand the impact of Instagram on body image Casale, et al. (2019) exposed a group of non-Instagram users to visually appealing Instagram profiles and one group to a control condition. The experimental group experienced, as opposed to the control group, higher body dissatisfaction and strengthened importance of appearance when evaluating self-worth (Casale, et al., 2019).

In an eye-tracking study investigating how visual attention to high anxiety body regions differs based on Instagram use frequency, Bue (2020) found out that spending time on Instagram increases the attention to high-anxiety body regions and thus leads to body dissatisfaction. It is suggested that Instagram users are more likely to adopt the position of an observer, judging especially those body regions which would be perceived as unattractive by

others and thus engage more in upward comparisons (Bue, 2020). Research conducted by Hendrickse et al. (2017) indicated that phenotypical comparison exhibits a mediating role between Instagram use and body dissatisfaction, whereupon increased Instagram use conditions cumulative phenotypical comparison and enhanced phenotypical comparison conditions body dissatisfaction.

Further, Pinterest, which can be considered a feminized SNS, provides users with the opportunity to collect and organize online content (Lewallen & Behm-Morawitz, 2016). The pinboards, where users save the content, are often related to body appearance and gain in popularity. However, Pinterest usage may jeopardize a healthy body image as well as it prompts the engagement in social comparison and can influence users to undertake self-enhancing strategies, like dieting or exorbitant exercising (Lewallen & Behm-Morawitz, 2016).

Relevance

The current study aims at investigating the attitudes and opinions towards social media concerning body image as well as social comparison. Until now, most of the research is conducted quantitatively and therefore utilizes already existing questionnaires, like the Objectified Body Consciousness (OBC-Y) scale or the Physical Appearance Comparison Scale (PACS). However, by applying a qualitative approach, opinions and individual experiences can be integrated into the scientific findings and illuminate various aspects connected to social media and its influence on body image. Rounsefell et al. (2019) stressed the importance of qualitative methods in this domain, “the qualitative research shed further light on the influence of SNS on young adults in relation to feelings of comparison, competition and their pursuit of external validation.” Further, the authors state that specific groups are of interest, in particular, at-risk groups, so persons affected by eating disorders or teenagers, who are vulnerable to influences opposed by SNS due to their lack of experience in life, need to be protected and heard (Rounsefell, et al., 2019). Also, due to the ever-evolving nature of SNS, new research methods need to be applied to the field to gain a thorough understanding of the reasons and risks social media poses on body image. Novel methodologies may add to the current status of knowledge, gaining insight into individual experiences and exploring the individual depiction of reality and its respective context (Gallo, et al., 2014). Therefore, the love and break-up letter method is used.

The love and break-up letter methodology is novel to research, other than user experience. Within the field of user experience, the method is commonly used to identify

attitudes towards products, such as websites (Hannington & Martin, 2012). Laughey, et al. (2021), were the first authors to publish literature about the utilisation of the method in medical education research. The love and break-up letter methodology is primarily used to capture individual experiences in terms of emotions and feelings. These are hypothesised to influence the decision-making process, so, whether the user is inclined to continue the use of the device, website, or brand (Kenny, 2017). Further, the method gives insight into the feelings and cognitions of the participants, advantageous to traditional interviews, as participants can “personify the concept under study” (Laughey, et al., 2021). Also, the love and break-up letter method has the advantage that it resembles a reflective writing exercise, proven to be beneficial in understanding individual beliefs and value systems (Sandars, 2009).

For the purpose of the current study, the love and break-up letter methodology seems to be superior to a traditional qualitative interview study, as the subject under study is personal and involves too many layers to be investigated with pre-defined questions. Individual attitudes towards and experiences with SNS related body image are sensitive topics involved with various emotions and cognitions, wherefore the love and break-up letter methodology can account since the method is suitable for investigation of emotions while giving participants the chance to self-reflect on the subject under study.

In a mixed-method systematic review, Rounsefell et al. (2019) focused on the relation of social media and body image among young adults and could identify Facebook and Instagram as the most commonly used SNS across the reviewed literature. Thus, research including a broader range of SNSs is needed, contrasting the limited inclusion of the most used SNS in research, to add further evidence to this broad field of research. A wholesome approach to research social media platforms and the influence on body image needs to be taken, utilizing the love and break-up letter approach.

Another focal point of the current study is the wide-ranging approach to social media activities since research into body image and social media is mainly concentrated on particular aspects of SNS use, e.g. Meier and Gray (2014) paid attention to the photo-related activity, whereas Hummel and Smith (2015) directed at comments and status updates on Facebook. Therefore, the current study takes various activities on SNS into account and does not underestimate the possible shared influence of various activities.

Based on the previously mentioned limitations and gaps in scientific literature, the following research question arises:

How do individuals with positive or negative attitudes regarding social media perceive the relation between SNS use and body image, and what role does social comparison play in this?

Methods

Design

In the current study, a qualitative research design was employed as personal experiences and attitudes about body image in relation to SNS were assessed. Participants were admonished to compose either a love letter or a break-up letter targeting individual experiences with the SNS of their choice with regard to its influences on body image and the role social comparison plays in this context.

Participants

A voluntary sample of N=27 participated in the current study. Participants were recruited by convenience sampling whereupon they received a link online study, which was published via Qualtrics. Participants were included in the study, if (1) informed consent was given, (2) the legal age of 18 was attained, (3) they were in possession of a smartphone, and (4) used SNS. Before obtaining access to the questionnaire, participants had to give informed consent online. The BMS ethics committee of the University of Twente approved the study. No participants were excluded from the study, as the sample accorded with the inclusion criteria. Participants were between 18 and 29 years of age (see Table 1), whereas the majority of the sample consisted of female participants. All participants were German. Every participant confirmed daily usage and possession of an SNS account. The most frequently used SNS platform was YouTube, followed by Instagram, and Facebook. Also, other SNS platforms were mentioned, for a detailed description see Table 1.

Table 1

Overview of demographic information of the N=27 participants.

	N	Percentage (%)
Age (mean), years (SD)	24.26 (2.9)	
Gender		
Male	11	40.7
Female	16	59.3
Style of letter		
Love letter	14	51.9
Break-up letter	13	48.1

Frequency SNS use		
Daily	27	100
4-6 times a week	0	0
2-3 times a week	0	0
Once a week	0	0
Never	0	0
SNS^platforms used by participants		
Youtube	25	92.6
Instagram	22	81.5
Facebook	20	74.1
Messenger Services	17	63
Pinterest	8	29.6
Snapchat	7	25.9
Twitter	5	18.5
LinkedIn	4	14.8

Materials

Participants were asked to write, either a love letter or a break-up letter to their preferred SNS platform with regard to their body image. The instructions consisted of a short definition of the term “body image” and an explanation of the method (see Appendix A for the complete instructions). Too extensive task description was avoided, as Laughey et al. (2021) suggest when applying the method. It was explicitly mentioned that the participant has the choice to write a love *or* a break-up letter. Since the exploratory nature of the study, as few as possible instructions were given to ensure unbiased and intuitional responses. No word limit or maximum was included to minimize bias. It was indicated that participants do not exceed the recommended time of 10 minutes to write the letter to elicit genuine responses. In the beginning, participants were presented with demographic questions.

Procedure

To produce an intelligible definition of the task, a pilot study was conducted. Five participants agreed to participate in the pilot study and gave feedback on instructions and the method. After adjustments to the instructions were made and technical issues were corrected, the proper data collection was initiated. Participants received a link to the online study that forwarded them to the platform Qualtrics, where the study was published. The study was generated to be conducted by the participants at any time and location, so no physical presence was anticipated. Therefore, the participants were first presented with informed consent, which gave information about the

duration and nature of the study. Further, an introduction about SNS and body image was included to prepare the participants adequately. It was mentioned that no known associated risks are accompanying the study. Also, the handling of personal data and anonymization were elaborated. Participants could not proceed with the study if they declined to accept the above-stated conditions. Subsequently, demographic questions were presented to the participants, regarding smartphone and SNS use, as well as age, gender and occupation. Following, participants were asked, after a short task instruction, to write a love or a break-up letter to their preferred SNS. When completing the writing, participants were invited to ask further questions regarding the study to the researchers. Eventually, they were thanked for participation and received the contact information of the researchers.

Data analysis

After a determined period, the data collection was terminated. The data was imported into ATLAS.ti version 8.4, a software designed for qualitative thematic data analysis. The initial coding scheme was developed deductively, based on a meta-analysis by Rounsefell, et al. (2019) pertaining to the relation of SNS and body image. Overall, based on Rounsefell, et al. (2019) seven categories were included, namely *social comparison*, *body awareness*, *modification*, *impact awareness*, *validation*, *development*, and *SNS activities*, whereas *development* and *SNS activities* were derived from pilot test data. However, after the initial coding process, subcategories could be identified to enable in-depth coding of the letters, for instance, the category *social comparison* was sectioned into three subcategories that reflected the routes of social comparison as described by Festinger (1954) and Wills (1981), i.e., *downward comparison*, *upward comparison*, and *lateral comparison*. If the participant compared oneself with an individual that is perceived as superior to themselves, e.g., a social media influencer, an *upward comparison* process was considered apparent. If the target of comparison was inferior to the participant, it was coded as *downward comparison*. If the superiority or inferiority of the comparison subject to the participant could not be identified or a subject with a similar status was chosen, it was determined as *lateral comparison*.

Further, literature provided presumptions to include other subcategories to the category of *social comparison*, e.g., *subject of comparison* (Chae, 2018; Fardouly, et al., 2015), and *effect of comparison* (Wills, 1981; Hakmiller, 1966). If the participant compared oneself to either an individual or to a group of individuals the code *subject of comparison* was considered apparent. The subject of comparison however does not necessarily determine the direction of comparison; therefore, this code was established subsequently. Another relevant aspect of comparison

became apparent in the letters as well as in the literature, namely the *effect of comparison*. It describes the consequences of the comparison process on an individual. Variations within that code were specified to elaborate on the discriminative areas in which an effect of comparison can occur. The comparison process can influence an individual's self-esteem, emotions, and body perception.

As an independent category *Body awareness* was introduced, although, it can result from the comparison process, it does not necessarily so. Therefore, it is defined as Comparison and SNS usage heighten feelings about the body in any direction. Three subcodes were established, namely *body dissatisfaction*, *body satisfaction*, and *enhanced body awareness*. The letters were coded with *body dissatisfaction* if a participant emphasised a dissatisfaction or an uneasiness with their body or their outer appearance. If the participant felt rather satisfied with their outer appearance or body, the code *body satisfaction* was used. Besides, being satisfied or dissatisfied with one's body, the participants mentioned heightened awareness for the appearance when using SNS, resulting in the code *enhanced body awareness*.

After a second abrasive coding procedure with the deductive scheme, several codes were inductively refined to allow a thorough analysis of the data. During the revision, the majority of categories was provided with subcategories (see Appendix B for the finalised coding scheme). For instance, *risk perception* appeared to be too vague for an accurate representation and analysis of data, so the subcategories of *risk imposed on self* and *risk imposed on others* were added since the participants distinctly differentiated between the perceived impact of SNS use for themselves and other parties. In general, the code *risk perception* can be understood as the awareness of the impact SNS can have on body image, food choices, and self-esteem of oneself or others. The code *risks imposed on others* describes the potential or perceived impact SNS has on known, or unknown others related to body image. Not only does social media has a perceived impact on others, but also on oneself, so the code *risk imposed on self* was introduced. Further, it was divided into two variations of the code, *awareness of risks on self* and *non-awareness of risks on self*. *Non-awareness* describes quotes, in which the participant is aware of SNS impact but does explicitly mention that it does not affect themselves.

Based on Rounsefell et al. (2019), the category of *modification* was included in the coding scheme. *Modification* is the category which entails the codes of *real-life modification of body* and *online modification of pictures*. *Real-life modification of the body* means that a user of SNS modifies one's appearance by changing one's diet, participating in abnormal exercise or fitness, or by doing plastic surgery to conform to the beauty standards promoted on SNS. *Online modification of pictures* refers to SNS users who edit the content posted on SNS through

technical means, so e.g., facial filters, or Photoshop.

Rounsefell et al. (2019) also identified validation to be an important factor in the research of body image and SNS. Hence, *validation* was inserted in the coding scheme. The category of *validation* can be understood as seeking validation in an online environment, which means that an individual wants affirmation of specific attributes they own by getting feedback from other SNS users. It is divided into the codes of *pursue of validation* and *experience with validation*. The code *pursuing validation* means that participants seek validation by others through posting, commenting, or scrolling on SNS. There are multiple experiences connected to the validation process, thus *experience with validation* was considered a necessary variation of the code.

After the consultation with a second coder, the coding scheme was adjusted for the third time resulting in the subduction of redundant codes. Subsequently, the interrater reliability was assessed with the aid of the second coder. Krippendorff's alpha coefficient was set at .81, which exceeds the threshold of $\alpha \geq .80$ suggested by Krippendorff (2004; 2013). For extended results, the letters were analysed on an individual level, using thematic analysis. Relationships and patterns of apparent codes were identified across letters. Hence, associations of codes within participants and between participants were examined. Eventually, the frequencies of codes and categories were calculated, as well as the appearances in N letters were determined.

Results

During the inductive iterative coding process, five relevant categories with several main and sub-codes were identified. The categories, as well as the respective codes, are defined and described in the following section. Further, they are substantiated by verbatim quotes derived from the qualitative data gathered in the love- and break-up letters written by the participants of the current study. Table 1 provides an overview of the categories, codes, and variations within codes in addition to explicit definitions and example quotes. Further, the frequency of codes and numerical data are compiled as well in Table 1. The analysis starts with the most relevant aspect and narrows down to the least striking findings.

Table 1

Experienced body image derived from love or break-up letters to preferred SNS with its respective codes and definitions alongside verbatim example quotes.

N_{Category}	Category	Appearance in N letters	Code	N_{Code}	Variations within Code	$N_{\text{Variations}}$	Verbatim Example of variations within codes
71	Social Comparison	18	Direction of comparison	69	Upward comparison	34	P ₁₈ : "I start to compare myself to them and feel like most people are prettier, more sportive, healthier than me and have more friends."
					Downward comparison	2	P ₁₁ : "I often laugh about how these kids fool themselves, play a role, and share their cool lives."
					Lateral comparison	11	P ₆ : "People, who have similar stories to mine [...], when they share similar problems to mine it makes me feel understood."
					Subject of comparison	23	P ₅ : "When scrolling through your pictures I sometimes see good looking muscular men."
			Effect of comparison	70			
			Effect on self-esteem	15	P ₇ : "I thought I'm not normal, I wanted to look like this perfectly looking girls and my self-confidence was becoming smaller and smaller."		
			Effect on emotions	40	P ₁₈ : "[...] the only thing they can do is produce frustration and anxiety to not be good enough and never be."		
30	Body Awareness	15	Body satisfaction	12			P ₂₄ : "You even help me to make me feel better about myself and my body very often."
			Body dissatisfaction	14			P ₆ : "At the beginning of our relationship, I have used you mainly to focus on the parts of my body I don't like."
			Enhanced awareness	5			P ₂₄ : "Oh my god, do I really look that way? What am I doing with my face? Why does my hair look like that? Why hasn't anybody told me about that?"

N _{Category}	Category	Appearance in N letters	Code	N _{Code}	Variations within Code	N _{Variations}	Verbatim Example of variations within codes
29	Modification	14	Online modification of pictures	19			P ₃ : “[...] you show so much fake. There are so many options to edit pictures.”
			Real life modification of body	12			P ₁₀ : “I hear a lot about girls who hunger themselves [...] until they are just skin and bones because of the pictures you show to them.”
47	Risk Perception	21	Risks imposed on self	28	Awareness of risks on self	12	P ₂₃ : “It's like an addiction sometimes [...].”
					Non-awareness of risks on self	8	P ₉ : “So many people with ‘perfect’ bodies are celebrated on your site and it definitely had an impact for many others who wished to be perfect.”
			Risks imposed on others	24			P ₁₂ : “In their everyday life, [...] children often already have to struggle with ‘real’ influences from school and their private environment, questioning themselves and their bodies anyway, you as a platform often contribute a lot of negative influences.”
27	Validation	15	Pursue of validation	18			P ₂₄ : “The many clicks on the status as well as the nice comments and compliments I receive, for example, as a reaction to any of my photos that is showing my body or face, help me to accept myself more and to doubt less the negative aspects of my body.”
			Effect of validation	15			P ₁₇ : “Gaining new followers and more likes always made me a bit happier.”

Social Comparison

Overall, the category *social comparison* was found 71 times throughout N=24 cases in form of its respective codes, namely *direction of comparison*, *effect of comparison*, and *subject of comparison*. The category reflects the process of social comparison in an online environment.

Direction of comparison. In total, *upward comparison* was found 34 times in N=24 different cases. Participant 18 compares herself to individuals that she considers superior in various aspects: “*I start to compare myself to [influencers] and feel like most people are prettier, more sportive, healthier than me and have more friends.*” However, an *upward comparison* was also considered as suitable code, if the participant regards the comparison subject superior in one particular aspect, as Participant 12: “[...] *someone else may have more likes. Is he or she now prettier than me?*” or Participant 7: “*I wanted to look like this perfectly looking girls [...].*”

The code *downward comparison* was used twice in N=2 different letters. Participant 21 wrote in his letter: “[...] *that one chubby English guy in Japan is funny, he is often bullied by skinny Japanese friends and that's hilarious.*”

Lateral comparison could be identified 11 times within N=6 different letters. Participant 6, for example, set emphasis on similarity to her comparison subjects: “*When they share similar problems to mine it makes me feel understood and I know I am not the only person that has to deal with setbacks or rejection from society and other people.*”

Upward comparison was the predominant direction of comparison present in the letters and among a large majority of all participants. In contrast, downward comparison was almost absent and lateral comparison appeared to a minor amount, though to a larger quantity than downward comparison. The direction of comparison did not influence the choice whether the participants composed a love letter or a break-up letter.

Subject of comparison. N=15 participants explicitly mentioned a subject of comparison, in total the code was mentioned 23 times. Especially, influencers were referenced as subject of comparison with a frequency of 14. For instance, Participant 14 wrote: “*You make many people feel ashamed in their bodies through self-proclaimed ‘influencers’ and their [...] ideal lives.*” Also, other subjects of comparison are referred to in the letters, e.g., peers, as in the letter of Participant 23: “*Sometimes it makes me feel jealous because all the influencer[s] and some old friends of mine living [...] the life of a traveller with no problems and no responsibility.*” Participant 23 reports feeling jealous when looking at pictures of their subject of comparison. Hence, participant 23 experiences jealousy as the effect of social comparison

when the subject of comparison displays a desirable life on SNS. In contrast, Participant 14 associates the feeling of shame when being confronted with influencers as the subject of comparison, although the person does not refer to themselves but generalises their ascription. Specifically, the shame the participant experiences through social comparison is directed at the body.

Influencers and accounts who convey an idealised lifestyle on SNS tend to elicit shame and jealousy among the participants. The participants seem to engage in upward social comparison, although, there is no verbatim mention of upward comparison, as they chose comparison subjects that display “ideal lives” with “no problems and no responsibility”. It became apparent, that participants who compared themselves with peers tend to write more positively, attaching positive meaning to the opportunity to connect with friends. However, comparing oneself with influencers was often connected with the mention of negative consequences, so experiencing jealousy or other negatively connoted phrases, such as “being fake”, so promoting an unrealistic picture of humanity.

Effect of comparison. The comparison process can influence an individual’s self-esteem, emotions, and body perception. Throughout the letters, the code was mentioned 70 times in N=18 letters.

Self-esteem. The sub-code self-esteem could be found 15 times in N=10 different letters. Some participants considered the comparison process as a threat to their self-esteem: “*When I was young, I believed in you and your pictures and it [...] lowered my self-confidence to see other girls in skinny (I mean really skinny) jeans.*” (Participant 22). Also, Participant 7 recognised a decline in her self-esteem when she compared herself in an upward direction: “*I wanted to look like this perfectly looking girls and my self-confidence was becoming smaller and smaller.*” Nevertheless, three participants felt that their self-esteem rose when comparing themselves to others, such as Participant 25: “*I followed more self-love accounts from women*, men* and began to look different at my body and other bodies. I began to love myself more than I did before.*” However, it cannot be identified if the participant regarded the mentioned self-love accounts as superior, inferior, or similar to themselves. Therefore, no assumptions on the direction of comparison can be made.

Affect. Participants also recognised a change of emotions during or after the comparison process. Hence, the comparison with other individuals triggered an *effect on the emotions* of approximately N=17 participants, although, the sub-code could be found in the letters 40 times. Almost all participants who referred to compare themselves on SNS (N=18), also reported a

difference in their affect (N=17). For instance, Participant 4 reported that comparing oneself on SNS elicits negative emotions: *“I have the impression that all these influencers convey a completely consumed ideal, which does not correspond to reality at all. This surely makes [...] people feel worse and less attractive than they actually are.”* A negative emotion that is referenced in connection with the comparison process is jealousy (N=4): *“I sometimes get jealous because of you, jealous of people’s lives and appearance, sometimes of people I don’t even know in person.”*

Negative affect was mentioned in N=13 letters, whereas N=11 participants experienced a positive affect during or after the comparison process: *“I am affected by the people opening up, showing themselves, normalizing their bodies. [...] I love seeing them, they influence me positively.”* (Participant 19). Also, Participant 6 uses the comparison process on SNS for influencing her mood positively: *“I use you to appreciate the people I see when scrolling through my feed. I use them for style inspirations or simply for feeling more ok with me on a bad day.”* The distribution for positive and negative changes in affect was approximately equal, in N=13 letters participants reported negative changes in affect whereas N=11 letters included information about a positive change in affect. However, N=7 of the aforementioned letters included positive emotions as well as negative emotions simultaneously, such as Participant 7:

“I would never, and have never been tempted to, follow [name of famous influencer] or any other fake celebrity that present their body in a way that makes most girls jealous and self-conscious. I do, however, follow sporty girls. When I look at them, I see dedication and love for what they are doing. That inspires me. When looking at their female bodies, I am divided between ‘wow, look at those muscles and what this body can do’ and ‘this is too much, I don’t want to look this way’.”

In addition, Participant 26 developed another approach to deal with SNS. At first, she felt pressured by comparing herself with others, which elicited negative emotions: *“I felt a kind of pressure to look like those people. I stressed myself for not looking ‘perfect’. This had a huge impact on the way I looked on myself. I hated myself when I looked in the mirror.”* The participant refers to the topic of personal growth and becoming media-wise, which can also be observed in the letters of other participants (depicted in the following section). She reflects on SNS from a longitudinal perspective, as she changed her online behaviour and SNS use she experienced positive emotions and self-love through comparing herself on SNS: *“I learned to find other people, who inspired me to get better, to accept myself, to finally love myself.”* As

she mentions, the subjects of comparison seem to play an important role when learning how to use SNS as a beneficial tool to connect with similar others and gain a sense of understanding for the elicited internal processes.

Effect of Upward comparison

Especially striking is the interrelation of upward social comparison and reported consequences, due to upward comparison being present in N=24 letters, which is persistently connected to an effect throughout the data.

Effect of UC on others. N= 8 participants noted that upward comparison might have a negative effect on others. For example, Participant 11 stresses that other people might be negatively affected emotionally when comparing themselves in an upward direction on SNS: “Especially younger people who are more dependent on you are keen to become depressive.” However, the participants considered upward comparison also to have an impact on self-esteem and body-image of others, e.g., Participant 4 has the impression, that upward comparison does elicit many people to “...feel worse and less attractive than they actually are.” A similar perspective is shared by Participant 14: “you make many people feel ashamed in their bodies [...]”. Comparable statements were made by Participants 9, 10,12,17, and 19, who report that comparing in an upward direction on SNS leads to negative effects on others body image, self-esteem, or emotion. Nonetheless, it is noteworthy that three of these participants (11,12,17) do not consider upward comparison on SNS to have a negative impact on themselves but solely on others. The three participants describe in their letters that younger people are more vulnerable to experience intricacies when comparing themselves to others on social media, though, they do not observe this effect in themselves. When writing about their personal experiences related to upward comparison on SNS, they emphasise the advantages of comparing oneself with others on SNS, such as feeling inspired and motivated. As a reason for the different effects elicited by upward social comparison, they are in accordance that it “requires self-confidence and enough self-reflection.” (Participant 12). Participant 17 hypothesises what issues SNS use, and the accompanying upward social comparison might have deployed in the past when the participant was younger: “*But I guess I was lucky that I only met you when I was already older than 20 years. How different my self-love and self-image would have been if I had to choose my role models during my teenage years. I guess I wouldn't have been able to distinguish between good and bad influence. And I guess this makes you a really dangerous platform for younger girls and boys.*”

The three above mentioned participants (11,12,17) composed different types of letters. Participants 11 and 17 wrote a break-up letter to Instagram, whereas Participant 12 composed a love letter also directed to Instagram. It appears that Participant 12, who composed a love letter differentiates between the effects upward social comparison has on themselves versus it has on younger people. Solely positive effects of SNS use are associated with the participant, and solely negative consequences of SNS use are associated with others. On the contrary, the break-up letters by Participants 11 and 17 rather display a comparison of effects in others and self to a more subtle extent. They emphasise that they are aware of positive and negative characteristics of SNS, but do not experience themselves because of their ability to self-reflect. So, the choice of the style of the letter is partially coherent with the degree of consciousness about the possibility that the participant themselves could be at risk for detrimental effects of upward social comparison, like Participants 11 and 17.

N= 8 participants mention upward comparison in an SNS environment to possibly elicit detrimental effects in self-esteem, body image and emotions of other individuals. However, N= 3 of the eight participants explicitly mention the motivational and inspirational value of upward social comparison on SNS for themselves versus other persons, such as teenagers. As accounting factors, the ability for self-reflection and self-esteem were mentioned.

Effect of UC on self. N=4 participants declare to have experienced change over time regarding the effect of social comparison on SNS. The cases do not mention the effect of upward social comparison on others but refer exclusively to themselves. Participants 3,6,22, and 26 report to have compared themselves in an upward direction to other users of SNS in the past. In hindsight, they identify consequences they experienced affecting their body image, self-esteem and self-acceptance when they engaged in upward social comparison. For example, Participant 26 noticed certain direct effects of the comparison process: “I felt a kind of pressure to look like those people. I stressed myself for not looking ‘perfect’. This had a huge impact on the way I looked on myself. I hated myself when I looked in the mirror.” Also, Participant 22 describes their response to prior upward social comparison as disadvantageous: “When I was young, I believed in you and your pictures, and it lowered my self-confidence to see other girls in skinny (I mean really skinny) jeans.” Participants 3 and 6 perceived comparable effects, however, they describe it as feeling “[...] not good enough” and “[...]fake” (Participant 3). “Why were these pictures making me feel *uncomfortable*? Why was society making me feel that I was *not right*?”, were questions written by Participant 6. The above-mentioned cases, however, explained that their relationship to SNS developed over time: “So our relationship

isn't the same anymore. It's better.” (Participant 22). In the present, the four participants reportedly rather engage in lateral comparison, i.e., participant 6: “I began to follow more different people. People, who have similar stories to mine and have experienced similar things [...]”, or no social comparison at all i.e., Participant 3: “I don't have to compare my body to these people and the pictures that you show me.” than in upward social comparison. As reasons for altering their social comparison habits on SNS, Participants 6,22, and 26 named several behavioural developments, such as diversifying their feed, which means following different persons than before to get a more suitable algorithm (Participants 6 and 26) and ignoring “my life is the best posts” (Participant 22). All four participants composed a love letter to their preferred SNS.

Body awareness

The category body awareness was found 30 times and in N=15 separate letters.

Body dissatisfaction. Overall, N=7 participants were dissatisfied with their bodies or appearance, the code itself was used 14 times. Participant 18, for example, was dissatisfied with her appearance: *“I feel like my skin should look better and I should stand straighter, my nose should be smaller, and I should have more muscles, also I am not tanned like everyone else.”* A similar perception can be seen in the letter of Participant 25: *“[...] I didn't like my arms because I thought that they are fat and flabby.”* The composition of love and break-up letters of the N=7 participants who expressed body dissatisfaction were almost equally distributed, as three participants decided for a love letter and four participants wrote a break-up letter. In addition, it became apparent that N=6 participants decided to direct their letters to Instagram, N=1 participant choose Facebook as the recipient. Across the N=7 letters in which body dissatisfaction was named, the participant attributed the experienced body dissatisfaction directly to the use of SNS. No body dissatisfaction due to external reasons could be identified.

Body satisfaction. The code was apparent 12 times. For instance, Participant 24 made positive experiences with social media and respectively with the perception of her body: *“You even help me to make me feel better about myself and my body very often.”* Besides, Participant 10 values SNS for the positive impact it has on his body image: *“I'm happy with my body although it's not perfect. I shape it and I care for it.”* However, Participant 25 developed a body satisfaction, after being discontent with her appearance: *“I noticed, that I tried to wear more tight clothes, I began to look in the mirror and [...] thought ‘so what, this is my body, [...] fuck off, I'm satisfied’.”*

Enhanced body awareness. N=5 participants noticed paying greater attention to their bodies, without necessarily attaching value to this experience. Participant 5 pays attention to his body and is aware of the consequences SNS can have on body image, but he described a sense of awareness, rather than being especially satisfied or dissatisfied with his appearance: *“When scrolling through your pictures I sometimes see good looking muscular men. Even though I sometimes think that it would be nice to look like this, I really do not feel pressured by it.”* Further, Participant 19 recognises an effect of SNS on body image, but she does not attach value to this: *“I diversified the feed myself and it has had effect on my body image.”*

Social comparison and body satisfaction. No clear trend could be observed in the relationship between social comparison and body satisfaction. N=8 participants reported being satisfied with their bodies. However, the type of social comparison they consciously engaged in was diverse, as N= 4 letters were found to include upward social comparison, in N = 3 letters lateral social comparison was apparent, and N=2 letters were coded with downward social comparison.

Yet, body dissatisfaction was solely apparent if the participants named to consciously engage in upward social comparison (N=7). No indication of body dissatisfaction was associated with other types of social comparison, besides upward social comparison. The N=7 participants reported either engaging in upward comparison in the present (N= 4) or the past (N=3). Body dissatisfaction in the past was found in the letters of Participants 6, 22, and 26, who described development of their SNS behaviour and who were identified to formerly compare themselves in an upward direction. Now, these participants tend to compare themselves in a lateral or downward direction or not at all, which results in either body satisfaction (N = 1) or no enhanced body awareness (N=2).

Further, the N=3 participants who described to be dissatisfied with their bodies in the past due to upward social comparison, composed a love letter, whereas the participants who experience body dissatisfaction due to upward social comparison, composed a break-up letter.

Enhanced body awareness was distributed across all types of comparison.

Risk Perception

The category was used 47 times in the analysis within N=21 separate letters, which represents the majority, as there are 26 letters in total.

Risks imposed on others. N=14 participants considered SNS to have an impact on other people. It appears 28 times in the data, whereas N=14 participants wrote about a negative impact on

others and N=3 participants mentioned the possibility of a positive impact of SNS on others. So, among the three participants, there were no risks associated with the use of SNS, rather they see a beneficial impact of SNS. Participant 9 describes the benefit of SNS on the body image of others: *“You provided, even if it is a small group, the chance to change the perception that not everyone has to be perfect in order to be proud or satisfied with themselves.”*

However, the majority of the sample saw detrimental effects of SNS on various life aspects and among different groups. Children and teenagers are considered to be jeopardised by SNS, as participant 12 stresses: *“In their everyday life [children and teenagers] often already have to struggle with ‘real’ influences from school and their private environment, questioning themselves and their bodies anyway, you as a platform often contribute a lot of negative influences.”* Further, an impact on the mental health of minors is notified by participant 11: *“[...] younger people who are more dependent on you are keen to become depressive.”* Globally, the participants scrutinise a negative impact of SNS on others: *“So many people with “perfect” bodies are celebrated on your site and it definitely had an impact for many others who wished to be perfect.”* (Participant 9). Participant 10 emphasises the health risk related to beauty standards promoted on SNS:

“I hear a lot about girls who hunger themselves till their just skin and bones because of the pictures you show to them. Or dudes who get complexes because they're not that huge like that bodybuilder on steroids and then they take them too.”

Risks imposed on self. Not only does social media has perceived impact on others, but also on oneself, based on the letters of participants (N=17). N=12 participants noticed a negative impact of SNS on themselves. Participant 2 states that she narrowly escaped the negative effects of SNS: *“Although I never had any problems with how I look, as you know, I was still seeing a lot of advertisement about fitness, models, healthy food and I was really disappointed to know that it could have turned out different for me.”* Further, SNS is considered to engender danger, not only to the participants themselves but also to the society in general, as was formulated by participant 18: *“You really are toxic and not just for me but for many people.”* Participant 20 wrote about SNS being a threat to society: *“You are damaging our society every day little but more when showing us surreal ideals we cannot reach.”* Some participants seem to be not susceptible to the impact of SNS, therefore the sub-code of *non-awareness of risks on self* was established. It describes quotes, in which the participant is aware of SNS impact but does explicitly mention that it does not affect himself/herself. A total of N=8 participants were considered to neglect the impact of SNS on themselves. For instance, Participant 23: *“I'm giving*

a fuck about my appearance on social media, all my pictures are without my face because [...] it is a public space.” Similar to that passage, Participant 15 describes his thoughts: *“I don't care about how skinny some people are, what they eat and which at nice destinations in this world they already have been. But please do yourself and those, who don't know, a favour and show them the reality.”*

Modification.

Real life modification of the body. Offline modification is apparent 12 times in the data, but solely N=7 participants mention it in their letters, such as Participant 10: *“I hear a lot about girls who hunger themselves till their just skin and bones because of the pictures you show to them. Or dudes who get complexes because they're not that huge like that bodybuilder on steroids and then they take them too.”* Participant 6 even modifies her appearance: *“I tried to get inspired by what they do, whether it be food or sports, to also change something in my appearance.”*

Online Modification of pictures. The code was found in N=12 letters and was coded 19 times. Participant 3 mentions the many possibilities to modify oneself online: *“It took me some time to understand that you show so much fake. There are so many options to edit pictures.”* However, there is an additional path to modify one's appearance online, as Participant 19 states: *“#bodypositivity got co-opted by your favs, the skinny white Girls distorting their bodies so there's one little roll of fat.”* She referred to the body positivity community, in which every body type, especially large body types, is appreciated and accepted. By stating that ‘skinny’ girls modify their appearance to be part of the body positivity community, she refers to online modification through counterfeiting a higher body-fat percentage to belong to a specific group.

Validation

N=15 participants seek online validation or had experience with it. However, the category could be found 27 times throughout the letters.

Pursue of Validation. N=12 participants report pursuing validation when being in an online environment. For instance, Participant 14 posted a picture of himself and got positive feedback, so the validation process was successful: *“While I initially assumed that [...] the main reaction to these pictures was hatred, the opposite happened. I received positive feedback.”* Online validation can take other forms, like the acquisition of new followers or

likes: *“Gaining new followers and more likes always made me a bit happier.”* (Participant 17). Yet, clicks on pictures or stories are considered to be validating:

“It makes me feel better when I'm using the "Status"-option and see how many friends are actually interested in me and my life and dare taking a look at my photos or videos. You even help me to make me feel better about myself and my body very often. The many clicks on the status as well as the nice comments and compliments I receive, for example, as a reaction to any of my photos that is showing my body or face, help me to accept myself more.” (Participant 24)

Another form, validation on SNS can take, is the mere presence of others who experienced the same issues, as Participant 6 states: *“When [people] share similar problems to mine it makes me feel understood and I know I am not the only person that has to deal with setbacks or rejection from society and other people.”*

Experience with validation. There are multiple experiences with the validation process. The participants described effects on their emotions and self-esteem throughout the letters. The code was mentioned 15 times, whereas N=5 participants reported negative emotions following the validation process and N=7 participants felt a positive change in their affect. Participant 20 initially experienced an unsuccessful validation on SNS and consequently felt negative emotions: *“For a period of time it made me sad because I thought I was the only one not living this life, now I realise most of us don't.”* A similar experience was reported by participant 7: *“There were so many pictures of beautiful, thin, perfectly tanned girls on your platform. They were everywhere, showing their flawless skin. It made me feel bad. I thought I'm not normal.”*

The following participants received the validation, they sought online, and hence, their emotions were more positive. For instance, Participant 14 received positive feedback and shows gratitude for Instagram: *“I was often told that people celebrate it, that I just do my thing and don't pay attention to typical beauty ideals. Thanks, Instagram, for making this clear to me.”* Participant 24 shows a clear emotion after being validated: *“It makes me feel better when I'm using the 'Status'-option and see how many friends are actually interested in me.”*

Discussion

As the purpose of the current study was to explore how individuals perceive the relation between SNS use and body image with regards to social comparison, the study encompassed a

qualitative approach, allowing the participants to write a love or a break-up letter to their preferred SNS to express their personal experiences with it in relation to body image. The participants reflected on their relationship to social media in connection with the influence social media has on their body image.

The composed love and break-up letters were analysed by means of five codes related to various aspects of body perception and social comparison, namely *comparison*, *body awareness*, *modification of pictures (online) or modification of body (offline)*, *risk estimation* and *sought validation* through other SNS users. The codes were deducted from relevant literature as well as inductively from the composed love- or break-up letters. Further, the codes were substantiated by sub-codes to classify the category codes into more specific components fitting the written letters to sustain detailed insights into the participants' individual experiences with SNS.

Social comparison played a central role in the current study, as the aim was to investigate how individuals perceive the relation between SNS use and body image and what role social comparison takes. In the analysis, three directions of comparison became prominent, which is in line with the social comparison theory of Festinger and Wills (1981). So, either the participants compared themselves to an individual that was considered superior, inferior or similar, which resulted in the labels of upward comparison, downward comparison or lateral comparison. Connected to social comparison, was the subject with whom the participant compares exactly and the effect the social comparison elicits in the participants, be it the effect on emotions or self-esteem. As body image was the central focus of the current study, the love or break-up letters were checked for body image-related aspects, such as body satisfaction. A quarter of the sample reported being dissatisfied with their bodies as a consequence of conscious upward social comparison on SNS. However, half of those participants did experience body dissatisfaction due to upward social comparison on SNS in the past and therefore composed a love letter, as the detrimental effects on body image are not encountered currently. The other participants experience body dissatisfaction due to upward social comparison on SNS momentarily, thus, break-up letters were composed.

When reviewing the letters, it becomes prominent that a majority of the sample (N= 24) consciously engages in social comparison when using SNS. This corroborates the findings by Cramer, Song, and Drent (2016), who investigated social comparison on Facebook and found out that most of their sample of college students tend to engage in social comparison on SNS. Also, Lee (2020) stresses that social comparison increases with SNS use. A similar trend can be observed in the current sample, as around 65% of the participants reported comparing

themselves with others on SNS. However, no conclusions can be drawn regarding the type of the composed letter, since the choice of love or break-up letter was distributed equally among those participants. Among the N=18 participants who reported comparing themselves with others on SNS, N= 15 participants engaged in upward social comparison.

The prevalent occurrence of upward comparison throughout the letters supports the findings of DeVries & Kühne (2015) regarding the emergence of upward social comparison in a social media environment. They state that the use of Facebook results in procuring a negative self-image among younger adults, which is mediated by an upward social comparison. When considering the effects of upward social comparison, similar effects can be observed in the current sample, since self-esteem and emotions were reportedly negatively influenced by social comparison and therefore the by use of SNS, as can be seen in Table 2. The participants mentioned feeling ashamed, jealous, and less attractive when comparing themselves with other individuals that are perceived as superior to them. Based on previous research, the emotions elicited by upward social comparison rather result in negative feelings, such as envy (Chae, 2018), which can be confirmed to some extent. However, some participants experience the opposite when comparing themselves to individuals who portray an ideal life. Comparing oneself to another individual may also result in feeling inspired and can elicit positive emotions, as almost half of the participants reported. Hence, the findings by DeVries and Kühne (2015) can be partially acknowledged since the current study shows an almost equal distribution of positive and negative affect resulting from social comparison on SNS.

Overall, the current study indicates that participation in social comparison has an emotional effect on individuals among the current sample. However, there is no clear trend on a group level regarding that social comparison rather elicits positive or negative affect, since most letters include references to both, positive and negative emotions, experienced when using SNS. So, social comparison affects individuals, however, it cannot be identified if individuals feel more happy or sad after it because based on the current study, comparison leads to change in emotions in any direction, e.g., Tiggemann & McGill, 2004 stated that social comparison affects moods negatively in contrast to Rutledge, et al., 2013 who identified positive emotions to be associated with social comparison on SNS. The finding is in line with the social comparison theory (Festinger, 1954), as different directions of social comparison elicit a change of emotions depending on anticipated assimilation or contrast effects and if the expected effect occurs.

An association of social comparison and body satisfaction could not be identified, neither on an individual nor a group level, whereas body dissatisfaction could be associated

with upward social comparison. The latter aligns with the findings of previous research (e.g., Fardouly et al., 2017a; (Krcmar, Giles, and Helme, 2008; Kim and Chock, 2015). A shift over time in comparison behaviour, as well as SNS use in general, became apparent. Alteration of content preferences through diversification of the feed by following more diverse content creators and engaging in lateral or downward social comparison improved the effects of SNS on body image and self-esteem. A sense of understanding for SNS could be acquired and therefore a behavioural change in the online environment was developed over time. So, when the participants engaged in upward social comparison, they experienced detrimental effects, which corroborates the findings of Haferkamp and Krämer (2011) who indicate that confrontation with pictures of aesthetically pleasing SNS users elicits negative emotion and body dissatisfaction. In the context of the current study, however, the negative consequences of upward social comparison can be reduced by alteration of either the direction of comparison which was achieved by diversifying the content consumed or by personal growth that occurs with ageing, e.g., the advanced ability to self-reflect.

Another important finding is the projection of possible risks imposed through SNS use. About a third of the participants of the current study considers upward comparison on SNS to have possible detrimental effects on other users. Self-esteem, emotions, and body image of SNS users were named to be influenced negatively when participating in upward social comparison on SNS. Considerably prone to be affected negatively are especially adolescents. As a possible reason for teenagers being an especially vulnerable group, incomplete development of self-reflection abilities and self-esteem were suggested. Similar vulnerability factors were identified by Perloff (2014), as among other things low self-esteem and depression in adolescent girls can influence body image perceptions negatively.

A few participants proposed that SNS can influence different areas of the life of others negatively, but not their own. A contrasting juxtaposition was made by N=3 participants, wherein the positive effects of upward social comparison on oneself were compared with the detrimental effects upward comparison on SNS can have on other individuals, such as adolescents. The Cognitive Dissonance Theory (Festinger, 1962) might account for this phenomenon, which explains a discrepancy in two or more elements leading to an inner tension that urges to be resolved. Among the sample, the risks of upward comparison on SNS are acknowledged but are not in line with the behaviour of the persons concerned. To overcome the cognitive dissonance that emerges from the discrepancies of beliefs and executed behaviour in a social media context, strategies might be the devaluation of the dissonant cognition, e.g., individuals perceive the risks of upward comparison on SNS but participate in it, which leads

to dissonance. To reduce the cognitive dissonance of beliefs and behaviour, the attitude towards upward social comparison then can be adjusted to match the actual behaviour of SNS use and upward social comparison. A possible strategy to do so is the projection of risks imposed by upward social comparison, so oneself not being affected as they are not adolescent anymore. Therefore, cognitive dissonance can be considered as a possible reason for recognising risks for other parties but not for oneself, since justifications for engaging in upward social comparison are sought in form of attributing the associated risks to a specific outgroup.

Other possible explanations for the projection of the risks and vulnerability factors onto other specific groups, might be the method itself since the method might have prompted the participants to compose the letters from a third-person perspective as means of rhetoric. Further, the participants might have reported personal observations gathered from their peers, for example noticing a change of eating habits in their friend group due to social media access.

In line with the direction of comparison, the participants often reported to whom they compare on SNS. The most prominent subjects of comparison were influencers, followed by friends and acquaintances. A subject of comparison can take many forms and elicit various reactions within the comparer. In addition, social comparison on SNS can influence the self-esteem of the comparer. Participants that engaged in upward comparison reported experiencing either reduced or enhanced self-esteem, whereas participants that engaged in lateral comparison, so comparison with a similar individual, declared enhanced self-esteem after comparison. This partially supports the findings by DeVries and Kühne (2015) that self-image is negatively influenced by upward social comparison on SNS.

Limitations and Recommendations

The method holds some limitations. Participants were expected to compose a love letter or a break-up letter regarding their conception of SNS's impact on their body image, however, the letters presented results that were more dissipated. It occurs that participants rather evaluated the necessity and rationale of SNS in general than focusing on their individual experiences about the influence of SNS on their body image. Hence, the central topic of the letters deviates from the expected outcomes insofar that participants understood the method as a means to reflect on benefits and detriments of SNS in general instead of limiting the letter content on perceived influences on their body image. This can be attributed to the wording of the instruction. In future research, close attention needs to be paid to the phrasing of the description of the task to ensure results relevant to the research at hand. To counteract the replication of similar results, it is beneficial to formulate the instructions more precisely and in extenso.

However, Laughley et al. (2021) state that the methodology can enhance the disclosure of internal cognitions and emotions, which is among other things a result of personification and externalisation of the concept under study. The same might be applicable for the previously discussed issue, as allowing to take a distance from oneself, e.g., by writing in third-person perspective can facilitate the level of disclosure. Nevertheless, making the instructions more precise can increase the validity of the results.

Another limitation of the study is the homogeneity of the sample. The sample consisted of participants with resembling characteristics. Marginal differences in age were apparent, as the sample consisted of individuals between the age of 18 and 30. Moreover, Germany was the shared country of origin. Although the study was of qualitative nature and served exploratory purposes, for future research, a more heterogeneous sample is advised, especially regarding age and country of origin, to illuminate differences across nationalities and age groups. Especially, focusing on different age groups could lead to interesting results, since the degree of exposure to SNS varies among generations, such as underage minors, since they are rather prone to influences of SNS (Meier & Gray, 2014). The current study included, due to ethical considerations, only individuals above the age of 18. Concluding, future research should take the heterogeneity of the sample into account by diversifying the target population, and paying greater attention to at-risk groups, like minors, is recommended. Also, the nationality of participants can be of importance, as cultural values can be reflected in the content of SNS, e.g., there may be language-specific content that does not apply to a German population.

Previous research hypothesises that the level of self-esteem of the comparer plays a crucial role (Brewer & Weber, 1994; Collins, 1996), which was not investigated in the present paper. Therefore, research replicating the existing one is recommended to assess the level of self-esteem before the composition of the letters.

Conclusion

The mere usage of SNS, connecting with old friends or celebrities, looking at pictures, videos, etc., seems to enhance the occurrence of social comparison within this context. The users are confronted with the content of other people when using SNS, which is not necessarily voluntary. It appears that social comparison on SNS happens regularly. Some individuals use SNS to make themselves feel better, to enhance their self-esteem and accept their bodies. Nevertheless, it

seems important to surround oneself with content that is targeted to one's own needs, otherwise, SNS can have disadvantages on self-esteem, affect and body image.

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Appendix A – Instructions for participation

In the following, we ask you to write a love letter or a break-up letter to your social media of preference. However, think about the influence of the social media platform on your body image.

“Body image is the perception that a person has of their physical self and the thoughts and feelings that result from that perception. These feelings can be positive, negative or both, and are influenced by individual and environmental factors.” (psychalive.org, 2019)

Try to address the social media platform of your preference directly and reflect about your personal relationship with it, be it positive, negative or moderate. You can write about your ups and downs, what you value or what bothers you, how you both met, how your relationship progressed or what you enjoyed, etc.

Think of your social media of preference as a person, so keep in mind to address the social media platform *personally and directly* by using ‘you’.

Further, remember that the letter is not only about your relationship to social media but specifically about social media and its influence on your body image. We advise that you take about *10 minutes* to write your love or break-up letter. When you take too much time, this can lead to overthinking and your initial thoughts and attitudes may get lost. Each letter should not exceed the maximum length of 400 words.

Appendix B – Coding scheme with definitions

Category	Definition	Code	Definition
Social Comparison	Individuals compare themselves with others on SNS.	Direction of comparison	Direction of the comparison process, so comparing oneself with others that are perceived (a) superior, (b) inferior, or (c) similar.
		Subject of comparison	The individual or group with whom the participant compares oneself.
		Effect of comparison	Consequences of the comparison process.
Body Awareness	Comparison and SNS usage heighten feelings	Body satisfaction	The participant is feeling (more) satisfied with her/his outer appearance.

about the body in any direction.

		Body dissatisfaction	The participant perceives body or outer appearance dissatisfaction.
		Enhanced awareness	The participant is more aware of her/his body or outer appearance but without attaching value to that state.
Modification	SNS users modify their appearance to portray a perceived ideal image.	Online modification of pictures	SNS users edit the content posted on SNS through technical means.
		Real life modification of body	SNS users modify their appearance by changing their behaviour or diet.
Risk perception	Participants are aware of the impact SNS has on body image, food choices, and self-esteem.	Risk imposed on self	Participants perceive an impact of SNS on themselves.
		Risk imposed on others	Participants perceive the impact of SNS on others.
Validation	External validation via SNS is pursued.	Pursue of validation	Participants seek validation by others through posting, commenting, or scrolling on SNS.
		Experience with validation	The impact of the validation process, the participant engages in.