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UNRAVELING SOCIAL MEDIA EFFECTS

How the intertwinement of online content and user behaviors guides mental health and body image



Nadia Bij de Vaate



Unraveling Social Media Effects:

How the intertwinement of online content
and user behaviors guides mental health
and body image

Nadia Bij de Vaate

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VRIJE UNIVERSITEIT

Unraveling Social Media Effects:

How the intertwinement of online content and user behaviors
guides mental health and body image

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Author contributions

Chapter 1

Bij de Vaate. This chapter has not been submitted for publication elsewhere.

Bij de Vaate wrote the first version of this chapter. Veldhuis and Konijn both acted as supervisor by providing valuable feedback on earlier versions of this chapter. Bij de Vaate incorporated this feedback and rewrote and revised the chapter into its final form.

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Chapter 6

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CHAPTER 1

General introduction

General Introduction

Social media have entered and subsequently also altered our lives as they are deeply embedded in our day-to-day activities. As of April 2022, there is an active social media population of more than 4.6 billion people worldwide (Statista, 2022b), and recent tracing data show that on average individuals spend more than 11 hours per week on various social media platforms (Verbeij et al., 2021). The rapid growth of social media platforms in the past two decades has fueled concerns about the possible negative effects of social media use (SMU) on young people among parents, policy makers, clinicians, and scholars alike (cf. Cingel et al., 2022). As a result, scholarly endeavors to empirically study the possible impact of SMU on mental health and body image drastically increased (cf. Kross et al., 2021; Vandenbosch et al., 2022). However, findings of empirical studies showed mixed results ranging from negative, positive, to no effects of SMU on mental health and body image (e.g., Appel et al., 2020; Huang et al., 2021; Valkenburg, 2022; Vandenbosch et al., 2022). This debate on the impact of social media on mental health and body image is also further illustrated by headlines from public news outlets that either question the possible negative impact: *“Is social media as bad for teens as we thought it was”*, or confirm destructive consequences: *“New studies show just how bad social media is for mental health”* (Nash, 2022; Walton, 2018). Therefore, currently one of the most contested questions in the field of media psychology is *when, if and how* social media use coincides with mental health and body image (see section 1.1 for a more elaborate discussion on this scholarly debate).

Recently, the social media effects debate again received much attention in public media following the revelations of Facebook whistleblower Frances Haugen (NOS nieuws, 2021; Wells et al., 2021). The whistleblower claimed that Instagram contributes to the development of eating disorders and affects the mental health of its users. The whistleblower’s claims, however, are strongly denied by Marc Zuckerberg who even claims that their research shows that many young people feel better when using Instagram. Subsequently, this Facebook leak particularly fed concerns over the seemingly endless possibilities for individuals to make their own optimized and idealized posts on social media, while at the same time are also being at risk of being continuously exposed to perfect lives and ideal bodies of others (cf. Evans, 2022; Hajimiri & Avedissian, 2021). That is, whereas easy-to-adopt transformations in appearances in the offline world has been relatively limited to, for example, changing haircuts, applying make-up, and dressing up, the online environment has empowered individuals to easily transform, optimize, and customize self-presentations. The ability to transform appearances and take on many different self-presentations has been named as having protean powers by Yee and Bailenson (2007). Protean powers find its origin in Greek mythology, where the adjective ‘protean’ stands for being versatile, flexible, and adaptable. Particularly the affordances of social media that provide individuals the autonomy to selectively present oneself online, refers to the ‘protean power’ for individuals to

create a variety of self-presentation types that can be, for example, highly idealized. Such selective self-presentations also provide the content for others who passively consume content of others having seemingly perfect lives and ideal bodies. In all, to advance the social media debate, we particularly need to know more about how young people use social media and ask them about the types of content they create and consume to examine the possible link with mental health and body image (also see 1.6 for methodological approaches).

The main aim of this dissertation is to unravel how the intertwining of online content and user behaviors guides mental health and body image, particularly among adolescents. In the following sections of this chapter, I provide a more detailed elaboration on the lively discussion about social media effects on mental health and body image. Herein, the current debate is scrutinized with an overview of the mixed results in the domain of social media effect studies, followed by introducing the theoretical framework. Then, this chapter explains the complexity of conceptualizing and operationalizing social media behaviors, and subsequently closely describes mental health and body image indicators. Furthermore, I will elaborate on how social media effects depend on individual differences. Lastly, an outline of the chapters and methodological approaches is presented.

Unraveling Social Media Effects

The rapid increase in SMU together with the widespread concerns on the possible outcomes of SMU on mental health and body image has led to an accumulation of research in this area (e.g., Kross et al., 2021; Vandenbosch et al., 2022). Hence, a vivid scholarly community aims to unravel to which extent SMU has a positive or negative effect on adolescents' mental health and body image. The empirical results of studies on the impact of SMU on mental health and body image have been synthesized in several systematic reviews and meta-analyses, be it with mixed results (e.g., Appel et al., 2020; Huang et al., 2021; Valkenburg, 2022). Thus, scholars have not yet provided a clear-cut answer to the question when, if and how social media behaviors actually coincide with mental health and body image. Therefore, aiming to further unravel the possible impact of social media is still highly important.

Many studies have exemplified a link between time spent on using digital media - in particular social media - with mental health issues, such as depression and negative affect (Faelens et al., 2021; Lin et al., 2016; Primack et al., 2021), as well as body image-related problems, such as disordered eating and body dissatisfaction (Franchina & Coco, 2018; Holland & Tiggemann, 2016). Well-known research in the area of social media effects on mental health has been done by Jean Twenge and colleagues (Twenge, 2020; Twenge et al., 2022; Twenge, et al., 2018). They identify SMU as a possible main reason for the increase in depression and suicides among American adolescents (Twenge, et al., 2018), and recently show that especially

among girls social media use is linked to poor mental health (Twenge et al., 2022). In addition, intervention studies showed that quitting social media or spending less time on social media contributes to an individuals' mental health. That is, both quitting social media or reducing time spent on social media led to higher levels of well-being such as life satisfaction as well as reduced levels of loneliness or depression (e.g., Brown & Kuss, 2020; Hunt et al., 2018; Tromholt, 2016). In the area of social media effects on body image, many studies hinted upon the negative links between SMU and body image disturbance (Fardouly et al., 2017; Tiggemann & Slater, 2017). A recent meta-analysis also indicated a small, positive, and significant relationship between SMU and body image disturbance (Saiphoo & Vahedi, 2019).

According to the studies listed in the previous section, there appears to be a clear meaningful (negative) relationship between SMU and mental health and body image. However, currently multiple studies counter that claim since evidence of SMU on mental health mainly shows weak effects or non-existent effects (cf. Appel et al., 2020; Meier & Reinecke, 2021; Orben & Przybylski, 2019; Schemer et al., 2021). For example, drawing from the same annual nationally representative survey among American adolescents as used in previous studies by Twenge (2020) and Twenge et al. (2018), other scholars found that daily SMU cannot be identified as a consistent risk factor for depressive symptoms among adolescents (Kreski et al., 2021). Additionally, the relationship between SMU and body image disturbance was found to be dependent upon the type of social media one engages with (Saiphoo & Vahedi, 2019). That is, larger effect sizes were found for studies examining body image paired with appearance-focused SMU, in comparison to general SMU. However, also positive and non-significant relationships have been found in studies that specifically focus on appearances-focused SMU as, for example, reflected by selfies (e.g., Cohen et al., 2018, 2019). Especially body positive content was found to have a positive effect on body image (Vandenbosch et al., 2022). Thus, to date it remains a meaningful task for scholars to further our understandings about the extent to which either positive or negative influences from using social media can be expected.

Debates on whether use of technological advancements has been beneficial or detrimental for an individuals' self-concept did not only emerge since the rise of social media studies. Especially for youngsters, a long history of research discusses potential benefits as opposed to great concern for harmful effects (Orben, 2020; Wartella & Jennings, 2000; Wartella & Reeves, 1985). An exemplification of the discussion is the work by Robert Kraut and colleagues who started with a longitudinal study on the impact of internet usage among households during their first years online. Results showed that the more people used the internet, the more their well-being decreased (Kraut et al., 1998). Contrary, a follow-up study found that participants actually experienced increases in well-being from using the internet (Kraut et al., 2002). However, whereas we don't often read about the possible effects of, for example, radio in public media anymore, certainly with the

rise of new platforms and technologies, concerns on possible effects will be voiced. Hence, it is important to work towards an integrative framework on how to study such technological advancements.

The studies in this dissertation aim to further unravel the social media effects debate. Building upon new perspectives in studying social media effects (e.g., Kross et al., 2021), this dissertation questions *how* social media has an influence on mental health and body image, instead of questioning whether they *do* influence mental health and body image. More specifically, I aim to unravel how differences in online content and user behaviors guide mental health and body image.

Influential (Digital) Media Effects Theories

Digital and social media effect studies rely on many fragmented theoretical assumptions. These underlying theoretical assumptions consequently also guide differential expectations on either positive or negative links between SMU and mental health and body image. Early research into digital technology use, such as internet studies, predicted a decrease in mental health as spending time online displaces spending time offline with friends. This is referred to as the displacement hypothesis, and the expectations have been confirmed by early work among new internet users (Kraut et al., 1998). Opposedly, the stimulation hypothesis argues that online communication technologies can encourage communication with existing friends, which in that case does not displace time spent on social contacts. Follow-up research on online communication did find support for the stimulation hypothesis, but not for the displacement hypothesis (Valkenburg & Peter, 2007). An alternative theory presumes that it is about balancing the aforementioned underlying assumptions of the stimulation and displacement hypotheses, and predicts that moderate levels of technology use are not intrinsically harmful. To be more specific, this so-called Goldilocks hypothesis (Przybylski & Weinstein, 2017), indicates that an overuse of digital technology may indeed replace other (social) activities, whereas too little technology use actually does not facilitate enough communication with friends, and can thus relate to being deprived from social information. In addition to earlier support for the displacement and stimulation hypotheses, empirical evidence also supports the Goldilocks hypothesis (Przybylski & Weinstein, 2017).

Another influential approach to explain digital and social media effects is the Hyperpersonal Model of computer-mediated communication, which takes into account the affordances of online communication (Walther, 1996). Online communication, and in this case particularly the social media environment, offers several affordances in which online communication can exceed offline communication. Platform characteristics, such as asynchrony and editability, enable users to selectively self-present themselves. Individuals can exploit the affordances of social media for greater control over their self-presentations to

'perform' the desired impression to manage others' impressions (Goffman, 1959; Walther, 1996). Hence, being in control and having more autonomy on what aspects to present and what to withhold can make individuals feel empowered, and often result in presentations that present a more idealized version of the self (Kleemans et al., 2018; Tiidenberg & Gómez Cruz, 2015). According to the identity shift theory, these selective self-presentations can evoke a self-transformation that is consistent with the selectively presented characteristics of oneself (Gonzales & Hancock, 2008). In that way, positive self-presentations can also evoke a positive self-transformation towards feelings about oneself. Such changes in the self-concept due to virtual transformation has already been established in avatar research (Yee & Bailenson, 2007) and also supporting evidence of identity shift principles was found when using social media where updating and viewing one's profile resulted in greater self-esteem (Gonzales & Hancock, 2011).

Despite the assumed positive impact of selective self-presentation online, some theoretical perspectives are less optimistic. The options for selective self-presentation, and thus more idealized and positive impressions that can be shared, can also have implications for becoming more self-aware about the discrepancies between the online self, the offline self, and the perceived norms on how one should be (cf. self-discrepancy theory; Higgins, 1987). The awareness of such a discrepancy can incite a state of objective self-awareness, which indicates that the individual becomes the object of one's own awareness (Duval & Wicklund, 1972). Being in such a state, one compares the dimension of the self that is the most salient at that moment, such as body- or appearance-ideals in visual self-presentations, against the standard or norms that one has developed on that dimension. Awareness of the discrepancy between oneself and the developed standards towards a specific dimension, is found to generate negative affect such as low self-esteem (Fejfar & Hoyle, 2000). For example, due to a large focus on positive and favorable presentations on social media, individual standards can be developed accordingly, and subsequently individuals might come to the realization that others are happier or are having better lives (cf. Chou & Edge, 2012)

The options to selectively present oneself may also have consequences for those who consume that content. Especially in the realm of media effect studies on body image, the appearance-based social comparisons and internalization mechanisms are identified as influential processes. These theoretical guidelines have also been used to explain the possible outcomes of exposure to mainly idealized imagery in mass media communication, such as television or magazine exposures (López-Guimerà et al., 2010). Nevertheless, the underlying mechanisms of these theoretical principles still apply to the social media context, be it that the reference targets can also include peers (Holland & Tiggemann, 2016). In line with the expectations implied in internalization processes, the use of appearance-related activities as posting selfies and viewing friends' photos particularly indicated a stronger relationship with internalization of the thin-ideal (Mingoa et al., 2017).

According to the Social Comparison Theory (Festinger, 1954), the way individuals think and feel about themselves is argued to be determined by the comparisons one makes with others. Generally, individuals compare themselves with others to maintain a stable and accurate self-evaluation. However, comparisons may also be driven by needs for self-enhancement and improvement (Veldhuis et al., 2017). Self-improvement motives often go hand in hand with upward comparisons, whereas self-enhancement motives lead to downward comparisons. Broadly speaking, the directionality of the comparison indicates positive or negative outcomes for the person engaging in the comparison: Where downward comparisons are argued to stimulate positive outcomes, upward comparisons are argued to stimulate negative outcomes. However, downward comparisons could also lead to positive outcomes, and similarly, upward comparisons could potentially also result in negative outcomes. This can be explained by the perceived similarity of the comparison target (Tsay-Vogel & Krakowiak, 2019). Making upward assimilative and downward contrastive comparisons can both relate to positive outcomes. Making a comparison with a superior target that can be similar to oneself can lead to being optimistic about self-improvement. In a similar vein, making a comparison with an inferior target that is perceived as dissimilar to oneself can lead to feelings of pride and satisfaction with one's own attributes. Contrary, undesirable outcomes may result from upward contrastive and downward assimilative processes. Comparing oneself with a superior target that is dissimilar to oneself, induces feelings of resentment and envy. Then, comparing oneself with an inferior target that is similar to oneself, can lead to relevant responses such as pity and fear for one's own situation. Such differential outcomes, as predicted by the assumptions of the social comparison processes driven by the direction and comparability of the target reference, have been confirmed in previous studies (cf., Meier & Johnson, 2022; Park & Baek, 2018). For instance, upward comparisons have been found to facilitate inspiration via an assimilative emotional response that subsequently results in higher levels of well-being (Meier et al., 2020).

Taken together, the theoretical assumptions lead to heterogeneous expectations on how SMU impacts mental health and body image. Such divergent expectations, however, can be explained by the different prerequisites of online communication. For example, the Social Comparison Theory (Festinger, 1954) particularly targets passive consumption of social media content, whereas the Stimulation Hypothesis (Valkenburg & Peter, 2007) reflects direct exchanges with others, and the Hyperpersonal Model (Walther, 1996) highlights the exploitation of the platforms' affordances. Therefore, the current dissertation aims to work towards a refinement of how to study social media effects, with a more targeted focus on the *type* of SMU individuals engage in, and *how* they do so. Through a further exploration of contextual differences, I aim to provide a more thorough understanding about the extent to which either positive, negative, or also insignificant links with mental health and body image can be expected.

Conceptualizing and Operationalizing Social Media Behaviors

To be able to answer the question how social media guides mental health and body image, I must clarify how SMU should be conceptualized and operationalized. SMU is a complex phenomenon that is subject to evolving definitions and understandings, as well as measurement challenges. To date, Ellison and Boyd (2013) offer a widely adopted definition of social media: A social network site is a networked communication platform in which participants 1) have uniquely identifiable profiles that consist of user-supplied content, content provided by other users, and/or system-level data; 2) can publicly articulate connections that can be viewed and traversed by others; and 3) can consume, produce, and/or interact with streams of user-generated content provided by their connections on the site. SMU is thus highly multi-functional, including different types of usage and behaviors. Consequently, social media usage and behaviors have also been operationalized and conceptualized in many different ways (Petropoulos Petalas et al., 2021).

Since the rise of social media effect studies, most research operationalized SMU in terms of time spent on the platform (cf. Appel et al., 2020; Huang, 2017; Saiphoo & Vahedi, 2019). These studies typically apply a channel-centered approach, which operationalizes SMU by examining the platform as a whole but does not disentangle the different behaviors and communication types within the platform (Meier & Reinecke, 2021). Applying a channel-centered approach means that social media activities, that may differ from, for example, browsing and looking at nature pictures to posting holiday photos from oneself, are lumped together into a monolithic measure of SMU. However, the time spent on social media is not created equally for everybody, which indicates that there is also no uniform way of SMU (Twenge & Farley, 2021). Similarly, not all activities and behaviors on social media have a uniform impact on mental health and body image (Twomey & O'Reilly, 2017; Vandenbosch et al., 2022; Verduyn et al., 2017). As such, time spent on social media, a typical channel-centered approach to study social media effects, is too simplistic to examine meaningful associations with mental health and body image and may explain the mixed findings thus far. Hence, we should move towards a more communication-centered approach that specifies the types of interaction and activities taking place on social media.

As specified in the definition of SMU, a distinction in activities can be made between producing and consuming user-generated content. Therefore, previous research generally suggest that social media activities can be dichotomized into active and passive SMU (Ellison et al., 2020; Verduyn et al., 2017). Active SMU is characterized by facilitating direct exchanges with others, such as posting status updates. Contrary, passive SMU refers to consuming and monitoring the online life of others, without actively creating content or exchanging with others (e.g., scrolling through the Instagram feed). Extant literature generally supports the notion that active SMU

would lead to more positive feelings about oneself, whereas passive SMU would lead to more negative feelings about oneself (e.g., Dienlin & Johannes, 2020; Liu et al., 2019; Verduyn et al., 2017). Thus, the so-called self-effects, the effects of actively creating messages, are expected to have positive outcomes for the maker. Contrary, recipient-effects, the effects of viewing others' messages, are expected to have negative outcomes for the recipient.

The assumed hypotheses of the active-passive dichotomy, however, have recently been criticized by various scholars. First, there is a lack of consensus in current literature on how to measure active and passive SMU (Trifiro & Gerson, 2019). For example, looking at retrospective self-reported measures of active SMU, studies have measured public, private, social, and non-social active SMU (Beyens et al., 2020; Escobar-Viera et al., 2018; Gerson et al., 2017). Second, it has been argued that active and passive SMU is hard to disentangle both empirically and conceptually (Valkenburg et al., 2022). For instance, likes and comments have been found to load somewhat equally on both active and passive SMU factors (Escobar-Viera et al., 2018). Conceptually, active and passive SMU is rather hard to disentangle as the context of SMU and how individuals engage in SMU can include both behaviors. That is, the hypothesized positive effect of active SMU can be reinforced by comments and likes by peers, fostering a positive impact. However, especially comments technically reflect message reception and thus passive SMU. Moreover, the general idea of passive SMU challenges communication theories depicting reception of media messages, in such a way that individuals especially on social media have more control and autonomy over the way they select, process, and interpret those message (cf. Knobloch-Westerwick, 2015; Valkenburg et al., 2016).

Lastly, the passive-active dichotomy is argued to be a very crude dichotomy that needs further specification (Kross et al., 2021). In some cases, types of active SMU can lead to negative outcomes for the creator, and similarly passive SMU can also coincide with positive outcomes for the recipient. Zooming into content heterogeneity on social media, contrasting the active SMU hypothesis, inauthentic self-presentations have been found to systematically relate to lower levels of self-esteem (Twomey & O'Reilly, 2017). Similarly, opposite to expectations of the passive SMU hypothesis, passive SMU can also be inspiring and contribute to well-being (Meier et al., 2020). Results of a recent meta-analysis also found little support for the generally assumed passive-active hypotheses (Valkenburg et al., 2022). As such, even though the active-passive dichotomy taps into a more communication-centered approach identifying the directionality of the interaction, still, the dichotomy is a granular measure that provides no information about the content one creates and sees.

This dissertation ties in with the current challenges represented by the conceptualizations and operationalizations of SMU. In contrast to most previous social media research, the studies included in this dissertation do not only move

away from the channel-centered approach, but also move away from the passive-active dichotomy. More specifically, I call for a more communication-centered approach that focuses on specifying content heterogeneity. A more content-centered approach aligns with early media effects studies as well as more recent research arguing that differential usage patterns and content are key in unpacking ambiguous effects (e.g., Brown & Bobkowski, 2011; den Hamer et al., 2017; Valkenburg et al., 2022; Vandenbosch et al., 2022).

Defining Mental Health and Body Image

Like SMU, mental health and body image are complex constructs that have been conceptualized and operationalized in numerous ways. A person's degree of experiencing mental health and body image can be assessed in terms of more stable (i.e., trait level) or fleeting (i.e., state level) components (Huta & Waterman, 2014). Trait level measurements reflect the average degree of mental health and body image, and is presumed to be relatively stable over time, though not immutable as it can evolve over time indicating more structural changes. Contrary, the state level component addresses characterizations of an individual's mental health and body image at a given time, within a specific time period (e.g., in a given week), or within specific circumstances (i.e., when working or spending time with friends). Next to the either more stable or fleeting components of mental health and body image, to further our understandings of how social media usage may impact mental health and body image indicators of mental health and body image have to be clearly defined. First, this section scrutinizes the various indicators of mental health. Second, I will elaborate on different dimensions of body image.

Digital technology use has provided individuals a lot of control over with whom to connect and which content to select. Especially, mobile technologies allow us to be online and connected almost all of the time (Vorderer & Kro, 2016). However, such autonomy also brings along new challenges in a sense that individuals have control over when to connect and disconnect. Digital well-being refers to a balance between being connected and disconnected (Vanden Abeele, 2021), where use of digital technology can relate to ill-being as well as well-being. Together, ill-being, also referred to as psychopathology or negative mental health, and psychological well-being, which can be referred to as positive mental health, constitutes an individual's mental health (Dienlin & Johannes, 2020; Meier & Reinecke, 2021). This two-dimensional approach to mental health is known as the two continua model of mental health (Greenspoon & Saklofske, 2001).

The use of digital communication technologies, such as SMU, can coincide with functional impairment in one's life, such as personal distress or disturbance in one's life (Lahey et al., 2017). Indicators of ill-being may include anxiety and depression, reflecting the more inward-directed behaviors, whereas outward-directed behaviors could include indicators such as aggression. Ill-being is in that sense

often examined in terms of absence or presence of such indicators. Nevertheless, the absence of such functional impairment is not necessarily reason to conclude that there is an increase in well-being, but can at best indicate that the use of digital communication technology is not problematic.

SMU can, however, also bring positive experiences for individuals. Positive experiences can be reflected by hedonic and eudaimonic experiences. Hedonic experiences can occur when individuals experience pleasure and joy from SMU. Typical affective indicators of the hedonic approach are positive affect and negative affect, whereas cognitive indicators generally measure life satisfaction (Ryan & Deci, 2001). Positive outcomes can also be experienced in a way that it adds value to the meaning of life, as for example experiencing personal growth and self-acceptance (Huta, 2017). This eudaimonic approach generally reflects whether an individual is fully functioning and is “doing well” (Martela & Sheldon, 2019; Ryan & Deci, 2001). The combination of an optimal balance between the possible positive and negative experiences resulting from SMU reflects digital well-being (cf. Vanden Abeele, 2021).

Like mental health, body image is a prominent element in media effect studies, particularly in appearance-related social media content. Body image can be defined as the thoughts, feelings, and perceptions an individual has towards one’s own body (Veldhuis, 2020). The history of body image research is largely dominated by a focus on body image disturbance, or negative body image. Studies on (social) media effects on body image, for example, examined negative body image indicators such as body dissatisfaction, disordered eating symptoms, and drive for thinness (Grabe et al., 2008; Holland & Tiggemann, 2016). One of the reasons why there has been a focus on negative body image relies on the assumption that experiencing a negative or positive body image are opposite poles on the same continuum (Tylka, 2018). However, body image can include a variety of perceptions and evaluations towards one’s own body and appearance, including positive body image. The absence of a negative body image is not necessarily reflected by a positive body image. Hence, like mental health dimensions, positive and negative body image are not on the same continuum. Focusing solely on negative body image indicators does not fully reflect the differential aspects that collectively comprise the concept of body image.

Research on positive body image has become more prominent in the last decade, and is currently a flourishing area within body image research (Tylka & Wood-Barcalow, 2015). At this stage, it is widely accepted that positive body image is more nuanced than simply having low levels of body image disturbance. To assess a positive body image, several measurements have been developed and have also been refined such as the Body Appreciation Scale-2 (Tylka, 2015). The distinction between positive and negative body image becomes even more clear when they are connected to ill-being and well-being concepts. That is, positive body image

concepts positively relate to psychological well-being indicators, and inversely relate to ill-being (Alleva, 2017; Tylka, 2015). Conversely, negative body image concepts positively relate to ill-being indicators and inversely to well-being indicators (Kostanski & Gullone, 1998). Taken together, to examine the possible impact of SMU on body image, the multidimensionality of body image is something to reflect on.

In this realm, this dissertation disentangles the different dimensions of mental health as well as body image. Both well-being and body image as an overarching single concept are oversimplifying the complex structure of the different dimensions that may be impacted by SMU. Additionally, both positive and negative experiences from social media can co-occur. This co-occurrence of positive and negative outcomes from social media usage could explain why in some cases interventions such as abstinence of digital and SMU are ineffective (Hall et al., 2021; Radtke et al., 2021; Vally & D'Souza, 2019). That is, abstinence of SMU does not only limit negative outcomes, but there is also a risk of sacrificing the positive outcomes of social media use. Therefore, the current dissertation explores both sides of the coin of both mental health and body image.

Differential Susceptibility to Social Media Effects

Conceptualizing SMU and its possible outcomes are in itself quite complex (cf. Meier & Reinecke, 2021). Though, selection and creation of social media content, as well as the possible responsiveness to such media content, also depends on an individuals' broader offline environment (Valkenburg & Peter, 2013). Ample research in social media effects has shown that person-specific factors, relating to for example personality traits, predispose selection and creation of social media content (e.g., Fox & Rooney, 2015; Lee & Sung, 2016). Moreover, social media effects cannot be uniformly attributed to all individuals (e.g., Kleemans et al., 2018; Twenge & Farley, 2021). The role of individual differences in social media effects can be broadly placed into three categories, namely dispositional, developmental, or social/environmental factors (Masur et al., 2022; Valkenburg & Peter, 2013). Collectively, these categories represent differential susceptibility variables that indicate differences in how individuals *select* and *create* media, and how the possible *effects* differ among individuals (Valkenburg & Peter, 2013). Dispositional factors include more stable and trait-like person characteristics, such as gender, attitudes, and personality traits. Developmental susceptibility relates to the cognitive, emotional, and social development of individuals, targeting for example different stages across the life span (i.e., adolescents to emerging adulthood). Social or environmental factors include the relatively stable setting in which an individual finds oneself, such as culture and the socio-technological environment, as well as more contextual and situational factors, such as differential norms and values from work, family, and friends.

Recently, there is also an additional call for an idiosyncratic approach ($N = 1$ method) to provide new insights onto person-specific effects of SMU, that is for how many

users effects are negative, positive, or null (Beyens et al., 2020; Valkenburg et al., 2021). Nevertheless, most research applied a more nomothetic approach, such as examining commonly shared personality traits as predictor or moderator at a group-level, to explain differential selection and creation of social media as well as to whom effects apply (e.g., Blackwell et al., 2017; Huang, 2017). Both approaches, however, advocate that there is no uniform way in how we use social media and no uniform effect of SMU. Even though several studies have examined the differential impact of (social) media effects, there are still many relatively unexplored factors. This dissertation aims to exemplify two of those relatively unexplored factors in social media effects studies thus far, namely the role of national culture and ethno-racial identity that are argued to play a role in the creation of SMU and its effects of SMU, as further described below.

The role of national culture, as an environmental factor, received very little attention in the field of media psychology (Hofstede, 2001; Odač & Hanke, 2019). In fact, the majority of social media effect research is largely dominated by Western countries, predominantly US and Western European studies (Holland & Tiggemann, 2016; Huang, 2017). Though, the way individuals communicate and how perceptions of the self are constructed is dependent upon the environment one finds itself in (Gudykunst, 1997; Markus & Kitayama, 1991). For example, typically Western cultures construct a more independent self, where the self is seen as independent from others. Contrary, non-Western cultures tend to construct a more interdependent self, where an individual is seen as connected to the social context. That is, the norms and values that exist within a country were found to have a direct influence on self-presentation decisions (cf. Huang & Park, 2013; Liu et al., 2019). For example, in line with collectivistic and interdependent norms, East Asian participants presented more context and deemphasized their faces in profile pictures compared to American participants (Huang & Park, 2013).

Next to the predisposition of national culture on media use, national culture could also serve as a potential moderator of media effects. For example, countries differ in national levels of individualism-collectivism, which is characterized by differences in their connectedness to others. Individualistic countries typically see individuals as being more autonomous, self-focused and independent from others, whereas collectivistic countries emphasize their interconnectedness with others and highly value in-group norms and values (cf. Hofstede, 2001; Triandis, 2001). Social media effects studies often rely on single country results, hence very limited attention is drawn to differences at the country level. Nevertheless, a few recent studies indicate that possible social media effects are not similar across countries (e.g., Boer et al., 2020; Karsay et al., 2021). For example, a recent study on intense SMU indicated that intense users reported more psychological complaints than non-intense users, but this finding was not consistent across countries (Boer et al., 2020). Hence, the way individuals select and create social media content as well as the impact of social media is arguably dependent upon the national culture one finds oneself in.

In social media effect research, studies mainly investigated dispositional or individual differences in differential susceptibility to social media effects. Particularly gender has been explored as a profound differential susceptibility factor in social media studies, where girls are generally found to be more affected by media effects than boys (e.g., Butkowski et al., 2020; Twenge & Farley, 2021). Within dispositional factors, however, still a number of factors are unexplored. For example, due to the large focus on visuals on social media, outer appearances become much more prominent compared to text-based self-presentations. Hence, like gender, other personality characteristics such as ethno-racial identity is also becoming much more prominent in today's visual social media content. The role of ethno-racial identity in relation to creating and selecting media use, however, received very little attention. To date, only a few studies examined the role of race or ethno-racial identity in relation to media selection and creation (cf. Hall et al., 2012; Kapidzic & Herring, 2015). Though, results indicated that the creation of self-presentations differed across individuals varying in ethno-racial identity, and therefore ethno-racial identity is argued to predispose media selection and creation. Moreover, the possible effects of media use have also been found to differ across ethno-racial identities. For instance, internalization of the thin-body ideal was found to be stronger for White women than for Black women (Fujioka et al., 2009).

Following the above, in this dissertation I examined the two roles of differential media effects, relating to either the differential *creation* of self-presentations on social media, or the differential *effects* of SMU. First, to unravel the complexity of how person-specific factors can guide the construction of online self-presentations, I examine how ethno-racial identity guides differences and similarities in online self-presentation. Additionally, national-culture is examined as a group-level moderator of social media effects. Thus far, the role of individual and contextual differences is often examined looking at channel-centered social media effects, whereas individual differences in communication-centered SMU is less explored. Hence, the current factors are included as exemplifications to further unravel how individuals can engage differently in SMU and to whom effects apply.

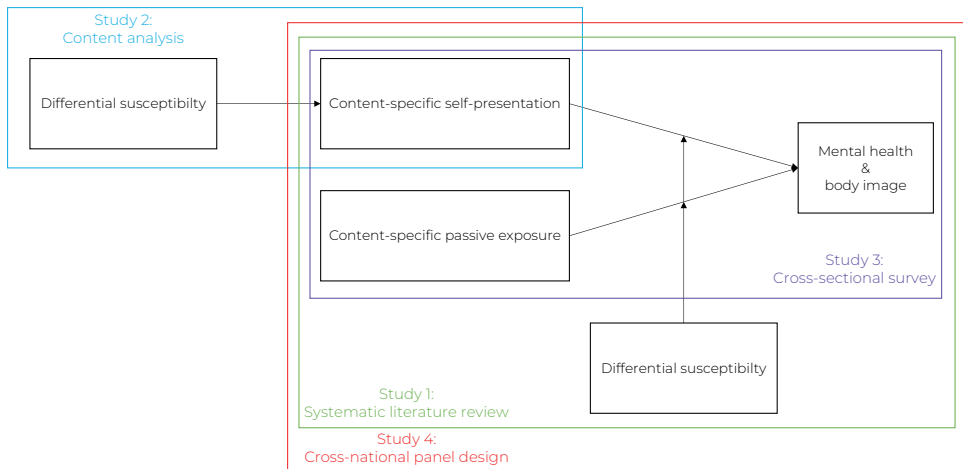
Dissertation Outline and Methodological Approaches

This dissertation includes a multi-method approach to address the question to which extent content-specific social media behaviors affect mental health and body image. To gain knowledge about different aspects of social media usage and its possible outcomes I applied multiple methodological approaches, namely a systematic literature review based on previous social media studies, a content analysis among selfie-takers, a cross-sectional survey among adolescents, and a cross-national panel study among adolescents (see Figure 1. for a conceptual overview per study). Each methodological approach has its own strengths, builds upon each other, and altogether provide a more comprehensive picture of social media effects theorizing and conceptualization (cf. Mingers, 2001). The

methodological cycle in this dissertation first maps our current understandings of social media content, behaviors, and possible outcomes for mental health and body image (i.e., systematic literature review). Thereafter, this dissertation provides an overview on online identity construction via online self-presentations and how this differs among individuals (content analysis). This dissertation then examines the prevalence of social media content and behaviors and how this subsequently coincides with mental health and body image (cross-sectional survey). Lastly, the long-term impact of content-specific SMU on mental health and body image is investigated as an initial inference of causality (cross-national panel study). Altogether these studies, in the end, provide new understandings how content- and behavior-specific SMU relates to mental health and body image (see Figure 2 for the methodological cycle of this dissertation). The next section provides an overview of the chapters in this dissertation and elaborates on the methodological approaches and considerations.

Figure 1

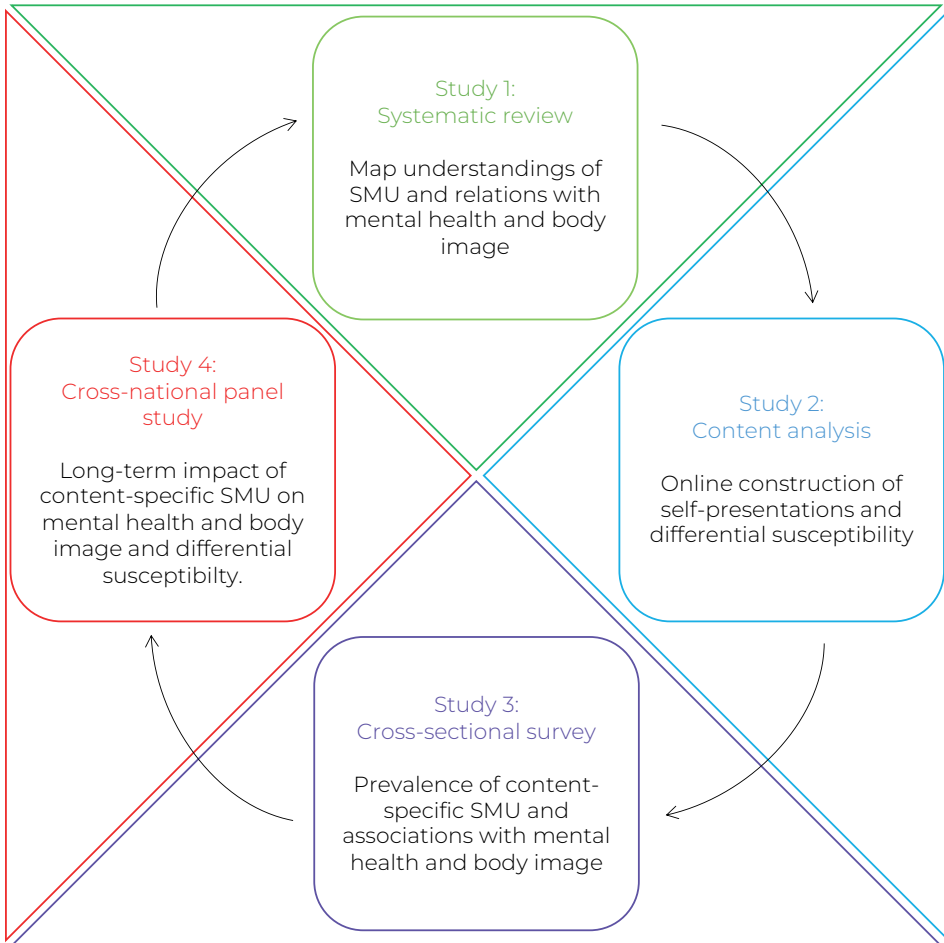
Conceptual Overview of Different Approaches to Unravel Social Media Effects



Chapter 2 provides a systematic literature review to map under which circumstances types of active self-presentation, as opposed to types of passive exposure, are related to mental health and body image. The goal here was to present an overview of how types of active self-presentation and passive exposure thereto relate to mental health and body image, beyond focusing on frequency of SMU measures (i.e., the typically applied channel-centered approach). A total of 55 relevant studies were included in this systematic review. First, this study examined how the differential types of self-presentations and types of passive exposure, as examined in previous studies, were related to mental health and body image. Second, we examined whether the country in which the study was performed, as an indicator of national cultural variability, could play a vital role in explaining

differential susceptibility to media effects. Lastly, additional individual and contextual factors that may play a role in the conditional relationship between social media behaviors and mental health and body image were investigated.

Figure 2
Methodological Cycle to Further Understandings of SMU and Mental Health and Body Image



Chapter 3 reports on a large-scale Instagram content-analysis among selfie-takers ($N = 3381$). This study targeted how ethno-racial identity may predispose online self-presentation. Hereby, this study aimed to improve our understandings of how individual's form their identity online, and how those self-presentations may differ among individuals. Here, we introduced a relatively novel approach to examine dispositional factors that predispose content-creation online. That is, we examined real-time content of individuals in a natural setting Additionally, facial recognition

software has been used to classify externally imposed ethno-racial identity. In this study, we examined the extent to which individuals varying in ethno-racial identity present themselves similar or different via publicly shared online self-presentations. The results of this study provide new understandings of how ethno-racial identity, as an example of a dispositional factor, may predispose differential construction of self-presentation on social media.

Chapter 4 presents a cross-sectional study among adolescents ($N = 408$) that further specifies how differences in online behaviors and content are associated with mental health and body image. Based on self-presentation and self-disclosure theorizing combined with the current technological possibilities, this study particularly rendered self-presentations to be authentic, edited, intimate, and positive in nature. Specifically, a retrospective survey was designed to acquire more information about the prevalence of actively creating and seeing these differential photo-types. Cross-sectional studies are additionally indicative of existing associations within a population and are therefore highly useful in generating hypotheses for future research. Hence, based on the prevalence of seeing and posting different photo-types, we examined how this content-specific SMU coincided with mental health and body image.

Chapter 5 reports on the results of a cross-national panel design among Dutch and Japanese adolescents. This study particularly aimed to examine whether a change in social media behaviors precedes a change in mental health and body image, and subsequently examined cross-national similarities and differences. Whether an individuals' change in social media behaviors precedes or follows an individuals' change in mental health and body image is a necessary indication of causality. Panel studies can unravel such (lagged) within-person changes, and results of between-person differences additionally can be examined. An important step in analyzing long-term effects is to determine the time interval. For example, in cases of a large time interval the effects of SMU on mental health and body image might have already vanished prior to the next wave. Studies applying different time intervals have also resulted in mixed evidence regarding the effect of SMU on mental health (cf. Schemer et al., 2021). We assume that constructs of SMU, mental health and body image are to some extent trait-like (i.e., relatively stable over time; also see relatively strong correlations of SMU from t_1 - t_2 (r ranging from .52 - .67; Reinecke & Trepte, 2014; Wang et al., 2018). Hence, we could set observations apart for quite a period of time, however, as we do not want to run into the possibility of more structural changes we also do not want to set observations too far apart in time (Hamaker et al., 2015). Moreover, as we employ retrospective self-reported data, it is difficult to recall behaviors from a longer period. We therefore applied a period of 1-month intervals. In total, 977 adolescents from Japan ($N = 433$) and the Netherlands ($N = 553$) participated in the three-wave panel study.

Finally, **Chapter 6** provides an overview of the main findings per study and elaborates on the theoretical implications of unraveling social media effects and social media effects theorizing. Additionally, recommendations and ideas for future research are highlighted as well as methodological strengths and limitations. Moreover, the societal implications and recommendations are discussed. Lastly, this chapter ends with the concluding remarks of this dissertation.

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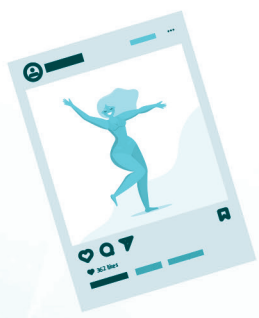
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CHAPTER 2

How online self-presentation affects well-being
and body image: A systematic review

Abstract

Sophistication of media technologies offers increasing possibilities for selective self-presentation online. However, how self-presentation affects well-being and body image is unclear. This systematic review aimed to map to what extent and under which circumstances types of self-presentation, versus lurking, support or hamper individuals' well-being and body image. Seven scientific databases were searched, comprising 55 relevant studies in 52 publications out of 975 publications. Results were mixed: Both self-presentation and lurking can enhance or diminish well-being and body image. Self-presentation, lurking, and well-being were categorized to systematically clarify results, and vital mechanisms were determined to explain differences within and between self-presentation and lurking. For example, lurking at others generally decreased well-being, whereas authentic self-presentation increased well-being. Moreover, the studies' examined outcomes differed among studies' culture-of-origin. Finally, results showed the importance of peers in examining effects of self-presentation. Future research should delineate self-presentation types, report on cultural variability, and include peer influence.

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Introduction

The technological possibilities to selectively present oneself online increase rapidly. Recent phenomena like 'selfies' particularly benefit from such advanced technology, for example, by instant beautify apps, particularly suited for creating optimized self-presentations. Technological sophistication does not only impact those who actively self-present, but also the more passive users, who primarily expose themselves to others' self-presentations, so-called 'lurking'. Both the human drive to express oneself and the drive to compare oneself can explain the enormous popularity of Social Networking Sites (SNSs). Consequently, the abundant use of SNSs in combination with increasing possibilities to present idealized selves, while also being exposed to idealized presentations, raises questions on how active self-presentation and lurking may influence well-being and body image. This article presents a systematic review to indicate to what extent and under which circumstances self-presentation and lurking on SNSs can enhance or undermine an individual's well-being and body image, and to indicate directions for future research.

More specifically, the aim of this systematic literature review is threefold: (1) to identify the beneficial or detrimental impact of various types of self-presentation, in comparison to types of lurking, on well-being and body image; (2) to specify the role of national culture as a possible mechanism in the influence of self-presentation on well-being and body image; (3) to identify possible mediators and moderators that are vital for determining the outcomes. Both positive and negative impact of self-presentation on SNSs can be theoretically explained. Positive effects are mainly guided by the assumptions of the hyperpersonal model (Walther, 1996), which argues that positive self-presentations can be easily accomplished and can be reinforced by others, fostering body image and well-being (Walther et al., 2011). Contrary, negative influences can be explained by the Objective Self-Awareness theory, claiming that focusing exclusively on the self, and subsequent awareness of discrepancies between oneself and societal standards, negatively impacts body image and well-being (Duval and Wicklund, 1972; Fejfar and Hoyle, 2000).

Results from previous reviews in the domain of self-presentation and SNS use were mixed and indicated that not only various underlying mechanisms are vital in determining positive or negative outcomes on well-being, but also the type of behavior, passive or active use of SNS (Allen et al., 2014; Baker and Algorta, 2016; Best et al., 2014; Desjarlais et al., 2015; Twomey and O'Reilly, 2017; Verduyn et al., 2017). Different patterns of SNS use, being more active or more passive, and the type of self-presentation are assumed to be crucial for explaining the heterogenous outcomes (Twomey and O'Reilly, 2017; Verduyn et al., 2017). For example, authentic self-presentation was consistently related to higher self-esteem, whereas inauthentic presentations were related to lower self-esteem (Twomey and O'Reilly, 2017). Although self-presentation and lurking are very distinct behaviors (e.g., Chae, 2019; Tosun, 2012), these behaviors are not mutually exclusive (Tromholt,

2016). However, both types of behavior are omnipresent on SNSs and may have a different impact on well-being and body image. Therefore, the current review specifically identifies specific types of both self-presentation and lurking.

National culture may interfere with the ways of how individuals present themselves, or perceive others, online. Representing the core of national cultures, cultural values impact individuals' communication behaviors (Gudykunst, 1997). As such, the impact of active self-presentation, as well as the impact of being exposed to self-presentations of others may depend on the national culture one finds oneself in. Therefore, national culture might be an important underlying mechanism to explain differences in the impact of self-presentation and lurking on well-being and body image. The concept of culture is ambiguous and has many definitions (Kroeber and Kluckhohn, 1952; Tams, 2013). For the scope of this review, we adhere to Hofstede's definition of culture: "the collective programming of the mind which distinguishes the members of one human group from another" (2001, p. 21), and the accompanying dimensions of 'individualism-collectivism' and 'uncertainty avoidance'. 'Individualism-collectivism' and 'uncertainty avoidance' have both been applied to explain national cultural differences in SNS behaviors (e.g., Lee et al., 2013; Liu and Wang, 2018; Liu et al., 2019; Rui and Stefanone, 2013; Rosen et al., 2010; Wang and Liu, 2019). Individualistic- and collectivistic-oriented national cultures vary with respect to importance assigned to relationships with others (Gudykunst, 1997; Hofstede, 1980, 2001; Triandis, 1995). Generally, individualistic-oriented cultures mainly focus on the self, independently from the social context. Contrary, in collectivistic-oriented cultures people rely more on the relationships with others and are connected to their social context. The dimension 'uncertainty avoidance' refers to the extent to which individuals have (in)tolerance for uncertain and ambiguous situations, with national cultures high in uncertainty avoidance having more intolerance than national cultures low in uncertainty avoidance (Hofstede, 1980, 2001).

Although the notion of having a national culture is criticized (Baskerville, 2003; McSweeney, 2002), the objection that cultural diversity may vary within countries attained little empirical support. On the contrary, within-country regions aligned with the values of the national culture and allow for a comparison among national cultures (Minkov and Hofstede, 2011). Especially with newer forms of online communication, such as SNSs, the intertwinement of cultural dimensions and communication behaviors seems relevant. For example, national cultures are found to be of influence on decisions for self-presentation (Huang and Park, 2013; Kim and Papacharissi, 2003; Liu et al., 2019; Wang and Liu, 2019). However, the influence of cultural variability in this domain has not yet been systematically studied. Therefore, this systematic review aims to identify the underlying role of national culture in determining positive and negative relationships between self-presentations versus lurking and well-being and body image.

While most reviews mainly investigated the direct relationships between self-presentation or SNS use and well-being (Allen et al., 2014; Best et al., 2014; Desjarlais et al., 2015; Twomey and O'Reilly, 2017; Verduyn et al., 2017), it has been stressed that examining complex relationships may overcome inconsistent outcomes (Baker and Algorta, 2016). Within the social media environment, that is inseparable from peers and allows for continuous interaction, the social aspects seem to be a factor that could serve as a potential mechanism in determining the outcomes. Therefore, the current systematic review aims to further unravel possible moderators and mediators that may underlie the heterogeneous relationships.

In sum, our Research Questions are:

RQ1: To what extent are various types of self-presentation versus lurking related to (a) well-being and (b) body image?

RQ2: What is the role of cultural variability (i.e., individualism-collectivism and uncertainty avoidance) in the relationships between self-presentation versus lurking, and (a) well-being and (b) body image?

RQ3: What are important moderators and mediators in the relationships between self-presentation versus lurking, and (a) well-being and (b) body image?

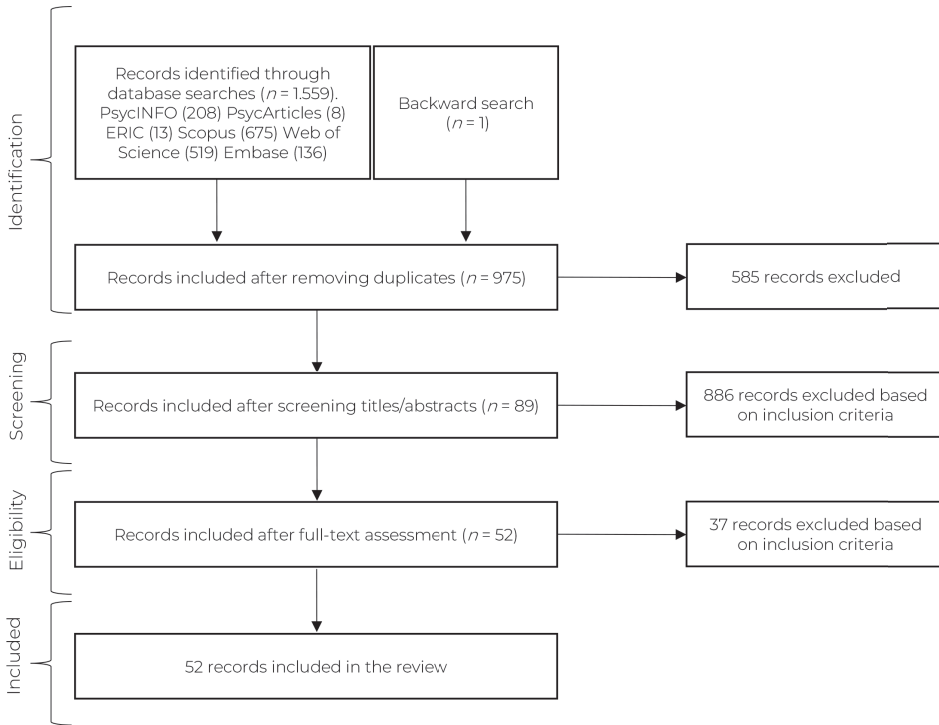
Method

This section elaborates on the procedures for the selection of studies to be included in this systematic review, that is, the identification, screening, and eligibility procedures. This inclusion procedure is visualized in the flow chart in Figure 1. In reporting this review, we largely followed the 27-item checklist of the PRISMA-statement (Preferred Reporting Items for Systematic reviews and Meta-Analyses; Moher et al., 2009).

Identification Procedure

The identification procedure started with identifying the number of articles that were potentially relevant for this review. The following databases were systematically searched: PsycINFO, PsychArticles, ERIC, Scopus, Web of Science, Pubmed, and Embase. The search included Boolean operators with three components: 1. self-presentation or lurking, 2. well-being and body image, and 3. SNS (Appendix A entails the full details of the search string; all appendices can be found on OSF: https://osf.io/54gq7/?view_only=fe5fa0bc0db94645800bd6724b2ee9c6). The last search was completed on 9th of January 2018. After identifying the number of records retrieved via these database searches ($n = 1.559$), all duplicates from the records retrieved were removed, resulting in a total of 974 unique records. Through a backward search (i.e., carefully checking references cited in eligible records) one study was included, resulting in 975 unique records.

Figure 1
Flow Chart of the Systematic Literature Review Inclusion Procedure



Screening Procedure

The resulting 975 abstracts were screened to check whether the article matched the inclusion criteria (Appendix B - available on OSF - contains the detailed coding scheme of the screening procedure). When in doubt, the full-text publications were analyzed. Main inclusion criteria were: 1) being a quantitative study, and 2) reporting on the relation between self-presentation(s) or lurking (as independent variables) on the one hand, and concepts related to body image and well-being (as dependent variables) on the other hand. In total, this assessment resulted in 89 unique publications being eligible for further analysis¹. For those articles, full-text analyses were conducted.

¹ To check whether the coding scheme in this screening procedure was sufficient to indicate which abstracts should be included in the eligibility procedure, a second independent coder rated a random sample of 92 abstracts. This number was based on a formula for generating sample sizes that hold valid reliability estimates (Lacy & Riffe, 1996). The intercoder reliability yielded an agreement score of 93.5% and a sufficient *K*alpha of 0.71 (i.e., > 0.67; cf. Krippendorff, 2004).

Eligibility Procedure

A more detailed coding scheme was used to further assess whether the eligible publications ($n = 89$) should be included in the review. The detailed coding scheme is included in Appendix C, available on OSF. In this step, publications were only included if, according to the original authors, self-presentation or lurking was hypothesized to be an indicator of well-being or body image. To give an overview, the coding scheme first reported on general publication characteristics, such as author names and year of publication. Then, specifics of the full article were coded, such as target group and study's country-of-origin. Based on Hofstede's cultural dimensions prevailing in specific countries, the countries in which studies were performed were identified as either individualistic- or collectivistic-oriented, and low or high in uncertainty avoidance (Hofstede, 1980, 2001; Hofstede Insights, 2018). Subsequently, self-presentation or lurking were coded if they were the study's independent variable(s) (IVs). Similarly, measures of well-being or body image were coded if they were the study's dependent variable(s) (DVs). Moreover, the designated article should report on at least one relationship between IVs and DVs of interest, and the reported self-presentation or lurking must take place on SNSs. Not meeting these criteria meant that the article had to be omitted. After meeting the above criteria, the study was further coded in terms of the number of IVs, the number of DVs, and the original variable names. All IVs were further coded as comprising self-presentations or lurking. Similarly, the DVs of the study were coded as comprising either well-being or body image. Then, the outcomes of the study were reported for each relationship between an IV and a DV, including indications of the significance and direction (i.e., positive or negative) of the relation. If available, the effect size of the relationship and the control variables were also described. Then, it was described whether moderating or mediating factors were present. If this was the case, the outcomes, available effect sizes and/or control variables were also reported.

Results

In the following, the descriptive characteristics of the included publications ($n = 52$) are reported. Thereafter, categorization of self-presentation, lurking, and well-being is reported. Finally, results are systematically described per research question. Findings for the three research questions are synthesized separately for well-being and body image. Appendix D contains a numbered reference list of all publications included in this systematic review. Appendix E and F include complete overviews of the reported relationships from all included studies. Appendix D, E, and F are available on OSF.

Study Characteristics

In total, 52 peer-reviewed publications were identified for inclusion in this systematic review, comprising 55 relevant studies, sample sizes ranged from 42 to 2000 participants. Participants' age ranged from 12 to 75 years old. Twelve different countries were identified as country-of-origin, including Canada, China, and

the USA. Countries were classified into Hofstede's dimensions of individualism-collectivism as well as uncertainty avoidance (Hofstede Insights, 2018), with 18 studies identified as being conducted in collectivistic environments, and 35 studies operated in individualistic environments. Additionally, 31 studies were identified as low in uncertainty avoidance and 22 high in uncertainty avoidance. Two studies were excluded for examination of RQ2, because the study's country-of-origin was not reported. Regarding the study design, 33 studies were cross-sectional, 11 studies had experimental designs, 9 studies included longitudinal components, and 2 studies conducted quantitative content analyses (see Appendix E and F on OSF for design per study).

Categorization of Self-Presentation and Lurking Variables

Self-presentation and lurking have been studied in numerous ways, have been operationalized in different ways, and were named differently. To align these variations, we categorized self-presentation forms based on previous research, which suggests that self-disclosure varies on at least five dimensions: breadth, intimacy, positive-negative, consciously intended disclosure, and honest disclosures (Wheeless, 1976; Wheeless and Grotz, 1976). Based on these dimensions, while also taking into account original conceptualizations and operationalizations of the publications included in this review, this review found five rudimentary categories to classify self-presentation: (1) breadth of self-presentation, (2) depth of self-presentation, (3) authentic self-presentation, (4) idealized self-presentation, and (5) negative self-presentation. Likewise, for lurking: (1) breadth of lurking at oneself, (2) breadth of lurking at others, (3) depth of lurking, (4) upward lurking at others, and (5) downward lurking at others. These categories are further defined below.

From the studies included in this review, those focusing on amount of self-presentation rather than specific content, were classified into the category breadth of self-presentation (e.g., number of selfies posted per week). When operationalizations put more emphasis on the content being shared, such as sharing emotions, these were categorized as depth of self-presentation. Authentic self-presentations represent presentations that align with offline features of an individual, also referred to as presenting their true-selves or honest selves. Then, idealized self-presentations refer to presentations that are digitally enhanced or idealized, whereas negative self-presentations refer to sharing negative events or presentations that downsize the individual.

Breadth of lurking at oneself and breadth of lurking at others refer to the amount of time that individuals spent on looking at either presentations of oneself or presentations of others. Depth of lurking refers to the content of the exposure, such as being exposed to emotional expressions online. Finally, upward and downward lurking at others represent whether the exposures are to people that are better off, or worse off than the individual, respectively.

Categorization of Well-Being Variables

Well-being is generally described as a rather abstract term, that is difficult to operationalize due to the ongoing conceptualizations of its meaning (Best et al., 2014). Consequently, an abundance of well-being-related variables were used to operationalize different forms of well-being in the studies examined. Based on previous literature and this systematic review, well-being variables can be categorized into four (global) categories: (1) social well-being, (2) personal well-being, (3) subjective well-being, and (4) psychological well-being. Each will be described below.

Ad. 1. Social well-being is operationalized by concepts that refer to relationships with others, for example, the quality of (newly) established relationships and social support. Although social well-being overlaps with a dimension that is defined within psychological well-being (i.e., positive relations; Ryff, 1989), the current review categorized this dimension as a distinct category of well-being given the specific social nature of SNSs, where peers and relationships with others take center stage (cf. Desjarlais et al., 2015).

Ad. 2. Personal well-being relates to the overall evaluation that individuals have of oneself (e.g., self-esteem; cf. Rosenberg, 1965). Thus, how one sees oneself as a person.

Ad. 3. In addition to the overall evaluation of oneself, subjective well-being refers to specific cognitive and affective evaluations of individuals' lives (Diener, 2000). This category refers to the 'hedonic' view, reflecting affective 'pleasure and pain' states (Diener, 1984; Schreier, 2013).

Ad. 4. A distinct category is created for psychological well-being, which refers to positive psychological functioning (Ryff, 1989). While this category somewhat relates to subjective well-being, it is created to tap into the deeper meanings of life, such as meaningful existence and control. Psychological well-being relates to the 'eudaimonic' view, focusing on having a meaningful life (Diener, 1984; Schreier, 2013).

Relations Between Self-Presentation, Lurking, and Well-Being

RQ1a pertained to the relationships between various types of self-presentation, lurking, and well-being. Although numbers indicate that the majority of individuals use SNSs to lurk (Brandtzæg and Heim, 2011), lurking has been relatively understudied compared to the amount of studies examining (active) online self-presentation. Studies that do examine lurking, thus far, seem to primarily focus on the breadth of lurking and not so much on the specific content-types that one is exposed to. Detailed results of the relationships between self-presentation, lurking categories and well-being are reported below per well-being category. For studies that included types of self-presentation unable to fit into the specific categories aforementioned, results are described separately.

Social well-being. Overall, the studies in this review found that the various types of self-presentation were related to elevations in social well-being. More specifically, the breadth of self-presentation, depth of self-presentation, authentic self-presentation, and, to some extent, idealized self-presentation were found to enhance social well-being^{3,7,12,15,20,26,27,28,33,41,44,45,46,50,52}. In contrast, negative self-presentation did not (negatively) affect social well-being³⁷. Furthermore, this review revealed that all types of lurking generally increased social well-being^{1,12,27}. Hence, it seems that (actively) presenting oneself or (passively) lurking online increases social well-being. Also, studies including mixtures of the various types of self-presentation indicated positive relationships with self-presentation and social well-being^{16,24}.

Personal well-being. Generally, breadth of self-presentation is not related to personal well-being^{36,41,47,51}. Depth of self-presentation decreased personal well-being⁵¹. For authentic self-presentation, both positive and insignificant results were reported^{30,51}. Idealized self-presentations increased personal well-being^{6,13,14,51}. No studies investigated negative self-presentations and personal well-being. Individuals lurking at self-presentations of oneself systematically showed increased personal well-being^{14,42}, whereas lurking at others showed decreases in personal well-being^{14,42,47}. One exception to the latter is that looking at group photos of others (versus single-person pictures) related positively to personal well-being⁴⁷.

Subjective well-being. The majority of studies included in this systematic review, generally found mixed results – being either positive, negative or insignificant – for the breadth, depth, or idealized self-presentation on subjective well-being^{2,5,8,12,18,20,22,25,26,32,33,40,43,47,48,49,52}. For authentic self-presentation increases in subjective well-being were found as well as insignificant results^{15,18,38,45}. No decreases in subjective well-being were found for authentic self-presentation, whereas for negative self-presentation only decreases in subjective well-being were found^{2,8}. Additionally, for self-presentation types that were not classified into one of the categories, we found that portraying either masculine and a combination of masculine and feminine characteristics increased subjective well-being^{34,35}. As for lurking, the amount of lurking at others generally seemed to diminish subjective well-being^{6,12,43}, or left it unaffected^{33,43,46}. No other lurking types were studied in relation to subjective well-being. Thus, results reveal that both negative self-presentation and lurking at others can decrease subjective well-being.

Psychological well-being. The breadth and depth of self-presentation were the only types of self-presentation that have been examined in relation to psychological well-being in this review's studies. Both positive and insignificant results were found for the breadth of self-presentation⁴¹. Depth of self-presentation was found to increase psychological well-being⁷. None of the lurking-types were included as predictors of psychological well-being.

Cultural Variability in Relation to Self-Presentation, Lurking, and Well-Being

The second aim of this review was to point out the role of cultural variability, in terms of individualism-collectivism and uncertainty avoidance, in determining the relationships between active self-presentation and lurking on SNSs, and well-being (RQ2a). Notably, studies performed in collectivistic-oriented countries mainly concentrated on social well-being, whereas individualistic-oriented countries also represented more individual levels of well-being (e.g., psychological well-being). Furthermore, the variation in self-presentation and lurking categories, that were included as study variables, is higher for individualistic than collectivistic-oriented countries. This variation is also higher in countries low in uncertainty avoidance than countries high in uncertainty avoidance. Therefore, it was not always possible to make valid comparisons within and between the dimensions. In those cases, the next sections report that no conclusions could be drawn on the role of culture in the relation between types of self-presentation or lurking, and types of well-being.

Social well-being. Studies in both individualistic- and collectivistic-oriented countries, as well as in countries high and low in uncertainty avoidance, generally showed similar (generally positive) relationships between breadth, depth, authentic, and idealized self-presentation and social well-being. For negative self-presentation, the included studies were only performed in individualistic countries that were low in uncertainty avoidance. Therefore, no comparisons could be made here between the cultural dimensions. Regarding lurking, only the breadth of lurking at others was included in studies performed in both individualistic- and collectivistic-oriented countries, yielding positive relationships with social well-being. No comparison could be made for the dimension of uncertainty avoidance regarding lurking.

Personal well-being. Studies in individualistic-oriented countries as well as countries low in uncertainty avoidance indicated that personal well-being was unaffected by breadth of self-presentation^{41,47,51}. Results for studies from countries that qualify as either collectivistic-oriented countries or high in uncertainty avoidance were mixed, showing both increased and insignificant results of breadth of self-presentation on personal well-being^{36,40}. For two studies qualifying as individualistic (leaving no comparison on the individualism-collectivism dimension), one study from a country high in uncertainty avoidance showed a positive relationship between authentic self-presentation and personal well-being³⁰, whereas an insignificant relationship was found for the other country being low in uncertainty avoidance⁵¹. Similarly, one study high in uncertainty avoidance showed decreases in personal well-being³¹, whereas increases in personal well-being were found for studies low in uncertainty avoidance^{13,14,51}. Additionally, no comparisons between high and low uncertainty avoidance and individualism-collectivism could be made regarding depth, idealized, and negative self-presentation. Furthermore, most studies examining lurking were performed in an individualistic country that is also low in

uncertainty avoidance. Only for breadth of lurking of others a comparison could be made, here results of a study performed in an individualistic country and in a collectivistic-oriented country both yielded increases in personal well-being.

Subjective well-being. Distinctions could be made on the cultural dimensions for the breadth of self-presentation on subjective well-being. Although relationships between breadth of self-presentation were insignificant in individualistic-oriented countries^{43,47}, breadth of self-presentation primarily yielded increases in subjective well-being in collectivistic-oriented countries^{39,25,49}. Similarly, for countries low in uncertainty avoidance, primarily insignificant results were found for breath of self-presentation and subjective wellbeing^{43,47,52}, whereas studies performed in countries high in uncertainty avoidance increased subjective well-being^{12,20,25,40}. Thus, classification into individualism-collectivism and uncertainty avoidance can induce similar results. Idealized self-presentations only resulted in insignificant relationships with subjective well-being in collectivistic-oriented countries^{22,52}, whereas studies in individualistic-oriented countries mainly increased subjective well-being^{8,18,20,35}. For the dimension of uncertainty avoidance no such distinctions were detected. Results for depth and authentic self-presentation were mixed for both cultural dimensions (i.e., individualism-collectivism, and uncertainty avoidance), reporting increases or decreases in subjective well-being, or insignificant results, throughout the dimensions. For breadth of lurking at others studies performed in high uncertainty avoidance retrieve similar results as studies performed in a collectivistic-oriented country, both found decreases in subjective well-being^{7,12}. No comparisons were possible for the other types of lurking and the dimensions of culture.

Psychological well-being. Studies conducted in an individualistic setting, were also low in uncertainty avoidance, leaving a cultural comparison impossible at this stage.

Moderators

Nine studies included potential moderators of the effects of self-presentation, or lurking, on well-being. First, one study showed gender differences in that only for adolescent girls, breadth of self-presentation decreased subjective well-being¹². However, gender did not influence the relation between breadth of self-presentation and social well-being²⁸. In addition, scholars assessed the moderating role of gender and various individual differences, but found no support for their moderating role in the effect of lurking at others on subjective well-being⁴³. Furthermore, effortful control was found to moderate the influence of breadth of lurking at others on personal well-being, such that those with low levels of effortful control experienced less personal well-being⁶. Additionally, individuals high in self-esteem had a weaker relationship for idealized self-presentation and subjective well-being, while this relationship was stronger for individuals with high levels of social trust²². Moreover, the association between various types of self-presentation and personal well-being was moderated by mindfulness; increased subjective

well-being resulting from both depth and authentic self-presentation was higher for mindful individuals compared to less mindful individuals⁵¹. Then, those with higher scores on stressful life events had lower rates of subjective well-being when presenting themselves more online, as well as for presenting authentic or idealized selves⁵². Finally, personal well-being and subjective well-being increased for individuals high in need for popularity by viewing selfies frequently⁴⁷.

Mediators

Fifteen studies reported on possible mediators, comprising 18 indirect relationships. Several of these studies reported perceived social support to mediate the relationship between active self-presentation and well-being outcomes^{12,16,20,26,46}. These significant relationships were found for various well-being outcomes (such as subjective well-being well-being), and for various types of self-presentation (such as breadth of self-presentation, idealized self-presentation). Similar mediation effects were found for variables like perceived social closeness, social connectedness, positive feedback, bridging and bonding social capital, and depth of face-to-face disclosures, which underscores the important role of reinforcement by others^{7,10,15,28,31,33}. Here, the general line suggests that peers have an important role in determining outcomes. In addition, some other important mediators were found: Stress mediated the effect of authentic self-presentation on social well-being¹⁵. Furthermore, rumination was shown to fully mediate the connection between authentic online self-presentation and subjective well-being⁴⁶. Regarding lurking, envy was found to mediate the relationship between lurking at Facebook and subjective well-being⁴³. Finally, the relation between lurking at others or lurking at individual or group selfies was mediated by self-esteem^{6,47}. In sum, the identified mediators primarily apply to social aspects that mediate the relationships between self-presentation and well-being dimensions.

Relations Between Self-presentation, Lurking, and Body Image

Following the findings for well-being in RQ1a, for RQ1b, this systematic review distinguished relationships between active self-presentations lurking, and body image. Not many studies have investigated how self-presentation or lurking are related to perceptions of body image. After screening and coding the publications for our review, only seven studies on body image were identified. There were no studies conducted at the time of data-collection for this review that examined the relationship of authentic self-presentation and negative self-presentation on body image, and for lurking, no studies to date have examined the breadth of lurking at oneself or others, or depth of lurking. Hence, not all categories of self-presentation or lurking were covered in studying their relation with body image. Detailed results of the studies including body image are reported below.

Some studies found that higher amounts of online self-presentation increased body image concerns, in terms of more body dissatisfaction^{9,29}. Furthermore, breadth of

self-presentation online is found to increase emphasis on one's appearance³⁹. More self-presentation is not related to disordered eating symptomatology⁹. Likewise, depth of self-presentation was not directly related to eating symptomatology. However, increased weight and shape concerns were found through higher in-depth self-presentation¹⁷.

Regarding online lurking at others, results seem to be mixed. Although studies have primarily found that upward lurking decreased appearance and body satisfaction^{21,23}, an insignificant relationship with body image was also found¹¹. In contrast, downward lurking at others increased appearance satisfaction²¹.

Related to RQ1b, our review showed a recent trend towards investigating visual content: Six of eight studies examined visual forms of self-presentation or lurking, like selfie-sharing^{9,11,21,23,29,39}. Moreover, the first study in this review focusing on body image originates from 2015, which might indicate that SNS only recently became more oriented on physical appearances. Additionally, no longitudinal studies were found in our selection for this review that examined the influence of self-presentation, or lurking, on body image over time.

Cultural Variability in Relations Between Self-Presentation, Lurking, and Body Image

For body image (RQ2b), this systematic review collected differences between individualistic- vs. collectivistic-oriented countries and uncertainty avoidance in their relationships between self-presentation, vs. lurking, and body image. Only one study was performed in a collectivistic-oriented country³⁹, whereas the remaining six studies were conducted in individualistic-oriented countries. With different outcome measures for these studies, no valid comparison in terms of individualism-collectivism was possible. However, the study performed in a collectivistic-oriented country indicated that more engagement in online self-presentation is related to more positive feelings towards one's appearance³⁹, whereas for engagement in online self-presentation performed in individualistic-oriented countries, negative feelings towards one's body were found^{9,29}. Regarding the dimension of uncertainty avoidance, a distinction was found for upward lurking at self-presentations of others: A study performed in a country low in uncertainty avoidance showed no relationship between lurking and body image¹¹, whereas a study performed in a country high in uncertainty avoidance indicated that lurking decreased body image²³. No other valid comparisons could be made for countries low or high in uncertainty avoidance.

Moderators and Mediators for Self-Presentation, Lurking, and Body Image

RQ3b refers to identifying important mediators or moderators in the associations between active self-presentation or lurking, and body image outcomes. No indirect relations were systematically pointed out in the studies for this review. Yet, six

significant moderation variables were reported. First, individuals with high levels (vs. low) of pre-dispositional body satisfaction increased body image when exposed to upward lurking at others¹¹. Second, the positive association between depth of self-presentation and concerns regarding shape, weight and eating held more strongly for individuals receiving extreme (vs. less) negatively tinged comments¹⁷. Third, the generally negative effect of upward lurking to others on body image accounted more for those engaging in social comparison²³. Moreover, variations in appearance comparison orientation, experiencing appearance schemas, and self-esteem were each found to moderate the relation between both upward and downward lurking at others and body image, such that those more sensitive in terms of comparing oneself more, experiencing less appearance schemas and lower self-esteem, reported higher appearance satisfaction for upward lurking at others²¹. Again, the important role of others (peers) is highlighted in these studies, in particular in determining the impact of self-presentation or lurking on body image, comparing oneself with others seems to influence the result.

Discussion

This section summarizes the main findings of this systematic review and discusses them in perspective of the extant theorizing. Thereafter, the strengths and limitations of the review are pointed out. Finally, future research and implications are discussed.

Summary of Main Findings

This paper systematically reviewed 55 studies (from 52 journal publications) to present an overview of the extent to which active self-presentation, versus passive lurking, enhances or diminishes individuals' well-being and body image. First, the key concepts used in the studies appeared to be conceptualized and operationalized in numerous ways. Hence, we categorized types of self-presentation, lurking and well-being in order to be able to provide a systematic overview. Five types of active self-presentation were derived: 1) breadth of self-presentation, 2) depth of self-presentation, 3) authentic self-presentation, 4) idealized self-presentation, and 5) negative self-presentation). Also, five types of lurking: 1) breadth of lurking at oneself, 2) breadth of lurking at others, 3) depth of lurking, 4) upward lurking, and 5) downward lurking. Additionally, four types of well-being were categorized: 1) social well-being, 2) personal well-being, 3) subjective well-being and 4) psychological well-being. Overall, this review found that for well-being, a vast body of research has examined the various categories of self-presentations, whereas lurking was relatively understudied. Second, findings of this systematic review indicated that the relationships between categories of self-presentation, versus lurking, and well-being categories were mixed. Both online self-presentation and lurking can either be beneficial or harmful for well-being. Even though results are mixed, in general, active self-presentation online seems to benefit (rather than diminish) all types of

well-being, or leaves it unaffected. In contrast, lurking generally seems to decrease personal well-being. Hence, our findings for active self-presentation align more with the positive expectations from the hyperpersonal model of online communication (Walther, 1996), whereas the negative outcomes for lurking at others are more in line with the Objective Self-Awareness theory (Duval and Wicklund, 1972; Fejfar and Hoyle, 2000; Gonzales and Hancock, 2011). However, some crucial differences were also detected within and between self-presentation and lurking categories, which appear highly useful in identifying enhancing or diminishing relations with well-being, given the mixed results.

Within the various categories of self-presentation and lurking, it has been found that negative self-presentation decreased subjective well-being, whereas authentic self-presentation rather seemed to increase subjective well-being. Results also revealed that a specific self-presentation type can positively influence a specific well-being category, but can also induce negative influences on another well-being category. Regarding lurking, lurking at self-presentation of oneself increased well-being, whereas lurking at others decreased well-being. These findings align with conclusions of Twomey and O'Reilly (2017) in that determining specific types of self-presentation is crucial for explaining its potential impact. However, we did not find such clear pathways as described by Twomey and O'Reilly (2017) because we believe that such pathways become more ambiguous when including a broader range of well-being outcomes and self-presentation measures, like we did in this review. Between self-presentation and lurking, clear differences in their relation to well-being were found. For example, while passively lurking at others generally decreased subjective well-being, active self-presentation mainly increased this type of well-being or left it unaffected. Hence, this systematic review indicated differences between active and passive behaviors online, aligning with results from Verduyn et al. (2017). However, similarities between self-presentation and lurking in their relation to well-being also occurred, depending on the specific types. For example, disclosing negative information as well as breadth of lurking at others on SNSs decreased subjective well-being. Thus, categorization of specific self-presentation and lurking behaviors, as well as specifying outcome-categories, appears vital in determining the valence of possible outcomes.

For body image, findings largely indicated negative outcomes. Such findings of negative body image resulting from online self-presentation and lurking could be expected from the Objective Self-Awareness theory (Duval and Wicklund, 1972). This theory emphasizes that focusing exclusively on the self automatically triggers comparisons with (ideal-body) standards prevailing in (a mediated) society (cf. Fredrickson and Roberts, 1997). Possibly, such automatic comparisons with society's body ideals are activated upon posting or seeing body-related self-presentations that focus on outward appearances. Consequently, if one feels not meeting the standards of beauty ideals, this likely results in experiencing negative body perceptions. Following Walther's (1996) hyperpersonal model, indicating that the

affordances of SNSs allow for selective self-presentation, active self-presentation allows highlighting one's positive aspects (Gonzales and Hancock, 2008). However, no positive findings for body image resulting from self-presentation or lurking were found in the studies for this review. Furthermore, results suggest that especially visual forms of self-presentations should be considered when examining the relationship between active self-presentation and passive lurking to self-presentations and body image.

Cultural Variability

Inspecting the role of cultural variability in the studies for the current review, some differences and similarities were found for the cultural dimensions of individualism-collectivism and uncertainty avoidance. First, to a certain extent the direction of outcomes overlaps for dimensions of individualism-collectivism and uncertainty avoidance. Classification into collectivism can lead to similar results as classification into high uncertainty avoidance. However, such overlap was not always clear stressing the importance to include various dimensions of culture. Second, research into self-presentation or lurking and well-being seems to occur more often in individualistic-oriented countries and included a wider variety of variables than in collectivistic-oriented countries. Third, from our findings, the type of well-being variables studied seems institutionalized within the cultural dimension from the study's country-of-origin: Studies performed in collectivistic-oriented countries typically focused on well-being outcomes related to how individuals interact with their peers (i.e., social well-being). In contrast, studies originating from individualistic-oriented countries examined a broader range of possible well-being outcome variables, including a stronger focus on individual levels of wellbeing (e.g., personal well-being). This aligns with the basic ideas of cultural variability in indicating that in collectivistic-oriented countries individuals perceive themselves as being interdependent of others, while in individualistic-oriented countries individuals perceive themselves as independent and distinct from others (Gudykunst, 1997; Hofstede, 1980, 2001; Triandis, 1995). Some indications exist that the specific type of self-presentation may affect well-being differently (in opposite directions) depending on the cultural dimension of the study's country-of-origin (i.e., for both individualism-collectivism and uncertainty avoidance). However, more research is needed to make adequate comparisons: Because many categories for self-presentation, lurking and well-being were missing for individualistic- and collectivistic-oriented countries and countries low and high in uncertainty avoidance in the studies in this review.

Regarding body image, whereas no conclusions can be drawn for the role of individualism-collectivism regarding the influence of self-presentation or lurking on body image, uncertainty avoidance appeared a mechanism in explaining different results for the relationship between lurking at others and body image. Again, as for well-being, the body image-related outcomes that were subject to studies in individualistic- or collectivistic-oriented countries, are seemingly

different. Individualistic countries seemed to primarily focus on negative body image outcomes, whereas collectivistic countries predominantly included positively-framed outcomes. These findings from our systematic review underpin the need for more research to understand how cultural variability relates to self-presentation and to individuals' cognitive and affective perceptions about oneself and one's life. Previous research identified the importance of cultural variability in the way individuals present themselves (e.g., Huang and Park, 2013; Wang and Liu, 2019). However, how differences in self-presentation impact individuals' well-being and body image, and more specifically, how cultural variability impacts the scope of the research could not yet be fully systematically studied.

Mediators and Moderators

Several relevant mediators and moderators were found to influence the how and when individuals' self-presentation or lurking may impact well-being or body image. A variety of significant mediating effects emphasize the social context, such as social support and social connectedness. This finding corresponds with the hyperpersonal model, highlighting that the influence of self-presentations can be established through reinforcement of peers (Walther et al., 2011). Our systematic review supports such importance of peers in various studies that indicated their influence on well-being and body image. In sum, the identified moderators and mediators primarily apply to social aspects. Yet, some individual differences in, for example, self-esteem and pre-dispositional body satisfaction were also found to influence the relationship between various forms of self-presentation and well-being and body image.

Strengths and Limitations

Our study positions itself in the relatively new field of research on online self-presentations and visual depictions of the self. The oldest article generated for this systematic review was published in 2011, illustrating the novelty of this topic. The possible impact of self-presentation and lurking on both well-being and body image measures was not systematically mapped thus far. This review has important theoretical implications. Our overview highlights that self-presentation consists of many facets, and that examining self-presentation or lurking in general does not justify the complexity, nor can it further explain, the impact on well-being and body image. From the divergent patterns found in this review, our findings imply that integrating several theories (see 2.4.3), is needed to fully understand the complexity of the relationships between self-presentation, lurking, well-being, and body image. Furthermore, this review highlighted the importance of specifying mechanisms underlying the aforementioned relationships. Doing so may also add to adequately address moral panics in society.

Another important asset of this review in presenting a full overview of the current state of the art, is specifying the various types of self-presentation and online lurking

that have been studied thus far. However, the wide variety of self-presentation types (ranging from authentic to idealized self-presentations) in combination with the wide array of outcome variables, made it difficult to compare the studies' findings. Though, from this review it becomes apparent that clear conceptualization and operationalization of self-presentation and lurking is necessary, to understand the direction of possible outcomes.

Generalizability of findings is limited, despite large pooled sample sizes in several studies in the current review; the majority of participants were female college students. Thus, the current findings especially pertain to young adults in emerging adulthood (cf. Arnett, 2000; Nelson et al., 2008), in particular females. Interestingly, this developmental stage is characterized by identity exploration (Arnett, 2000), and online self-presentation lends itself well for doing so. Furthermore, most studies were limited to Facebook use (compared to other SNS). Another limitation concerns the operationalization of variables. Cultural variability was operationalized as national culture according to Hofstede's framework (1980; 2001). National culture was assessed based on the country-of-origin where the study took place. However, whether participants within the study actually live by the values attributed to the national culture remains unknown.

Finally, this study addressed self-presentation and lurking in their role as predictor variables, with well-being and body image as outcome variables, whereas results are reported as relationships (i.e., inherently bidirectional, not causal). Therefore, reported relationships can in principle be reversible. More specifically, feelings about one's own body or well-being in general could also motivate individuals to engage in self-presentation or lurking (cf. Veldhuis et al., 2018). In that case, feelings about oneself may as well serve as input variables and guide online behaviors.

Future Research and Implications

The results of our systematic literature review clearly show that the complexity of relationships in determining the impact on well-being and body image cannot be covered when self-presentation and lurking is studied in terms of general behavior, as was also suggested by Twomey and O'Reilly (2017). Therefore, specific types of active and passive self-presentational behavior should be clearly distinguished. Moreover, since the types of self-presentation and lurking on SNSs were found to differentially influence cognitive and affective states, each type of self-presentation should be examined separately, instead of combining several types resulting in second-order effects.

Theoretically, this review has shown great variation in types of self-presentation vs. lurking and outcome variables. From the divergent patterns found in this review, our findings imply that integrating various theories is needed to fully understand the complexity of the relationships between self-presentation, lurking, well-being and body image. In addition to integrating the hyperpersonal model

(Walther, 1996) and Objective Self-Awareness theory (Duval and Wicklund, 1972), also integrating others such as the Technoself (Luppicini, 2013), Social Comparison theory (Festinger, 1954), Social Exchange theory (Emerson, 1976), the Proteus Effect (Yee and Bailenson, 2007), and Communication Privacy Management theory (CPM; Petronio, 2002), would allow a more coherent picture of both positive and negative outcomes and its possible important mechanisms.

Further research is also needed into the moderating and mediating mechanisms that underlie the relationship between self-presentation versus lurking and well-being and body image, as shown in this review: the role of culture, individual differences, and peer influence. Moreover, additional variables such as perceived realism (e.g., Vogels, 2019) and wishful identification (e.g., cf. Konijn et al., 2007; Von Feilitzen and Linné, 1975) might also be fruitful for examining the relationship between self-presentation, lurking, well-being and body image. Thus far, it is unclear whether the aforementioned mechanisms act simultaneously, or operate separately in influencing the proposed relationships between (various types of) online self-presentation and lurking on well-being and body image. Future research could, for example, explore the amount of variance explained by cultural variability and peer feedback to unravel their impact. Importantly, as touched upon in the above, studying more SNS-platforms than just Facebook as well as widening the target groups (i.e., not just college students) in future studies is warranted. Moreover, the study of visual online self-presentations clearly increased from 2015 onwards and sophistication of graphical options for self-presentation steadily increased ever since. This calls for an updated review specifically targeting visual online self-presentation.

The studies in our systematic literature review mainly applied cross-sectional designs, which provide valuable information about the associations between self-presentation versus lurking and well-being and body image. However, this domain obviously also calls for applying longitudinal and experimental designs. More specifically, longitudinal studies are required to identify possible reciprocal relationships, long-term dynamic change in these relationships, and lasting consequences. Experimental research is needed to further identify causal relationships.

Our findings further provide useful insights for clinicians and pediatricians. In particular, those who primarily lurk at others online may experience undesirable consequences such as decreased well-being, likely further at risk when self-esteem is low, as indicated by our results. In contrast, other types of lurking and in particular authentic self-presentations can increase well-being. Perhaps, interventions could be designed to target individuals experiencing undesirable outcomes in changing their online behaviors and seeking the positive strengths of active presentation of one's positive sides. However, both active contributors and passive observers should be considered when it comes to (un)desired effects. Especially with the rise of appearance-focused SNS like Instagram and technological affordances so

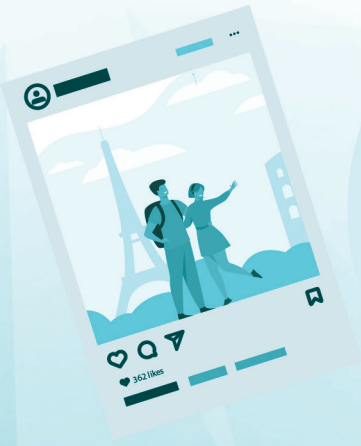
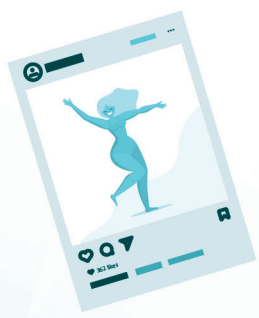
easily at hand, any user is subject to (idealized) presentations. Raising awareness of both sides of the same coin and specifying where possible risks and benefits reside, is an important task for future research. To conclude, this review tapped into the complexity of how self-presentation, in comparison to lurking, may affect well-being and body image. Specific types of self-presentation (e.g., idealized self-presentation) vs. specific types of lurking (e.g., breadth of lurking at others) appeared important differentiating factors in determining the outcomes. Moreover, additional mechanisms may interfere in the relationship between types of self-presentation versus lurking and possible outcomes. For example, our review highlighted the role of culture and social context as important moderators. Thus, the apparent ease of presenting oneself online and watching others, comes with evident complexity to grasp its impact.

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3

CHAPTER 3

Ethno-racial identity and digitalization in self-presentation: A large-scale Instagram content analysis

Abstract

This study addresses the question to which extent individual online self-presentations become more similar globally, due globalization and digitalization, or whether ethno-racial identity predisposes individuals' online self-presentation. That is, we examined the degree to which individuals varying in ethno-racial identity converge or diverge in online self-presentation. A large-scale content analysis was conducted by collecting selfies on Instagram (i.e., #selfietime; N=3881). Using facial recognition software, selfies were allotted into a specific ethno-racial identity based on race/ethnicity-related appearance features (e.g., Asian, Black, Hispanic, and White identity) as a proxy for externally imposed ethno-racial identity. Results provided some evidence for convergence in online self-construction among selfie-takers, but generally revealed that self-presentations diverge as a function of ethno-racial identity. That is, results showed more convergence between ethno-racial identity for portraying selfies with objectified elements, whereas divergence in online self-presentations occurred for portraying contextualized selves and filter usage. This study examined the complexity of online self-presentation. Here, we extend earlier cross-cultural research, by exploring the convergence divergence paradigm for the role of externally imposed ethno-racial identity in online self-presentation. Findings imply that ethno-racial identity characteristics remain important in manifestations of online self-presentations.

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Introduction

Photo-sharing Social Networking Sites (SNSs), such as Instagram, have become increasingly popular over the past few years. With a total of approximately one billion active users, Instagram is currently one of the most popular SNSs (Statista, 2022). Instagram is particularly based on (appearance-focused) visuals, and therefore highly popular for sharing photos of oneself (Lee & Sung, 2016). A widely used approach to construct the self on SNSs nowadays, is posting selfies, being pictures of oneself, taken by oneself (Qiu et al., 2015). Via such visual self-presentations, clearly visible identity characteristics, as gender and race, become much more prominent than in textual self-presentations (Kapidzic & Herring, 2011, 2015; Utter et al., 2020). Such identity characteristics guide online self-presentations, resulting in differences in self-presentations among individuals (Kapidzic & Herring, 2011, 2015; Utter et al., 2020). For example, regarding gender, females post more group selfies than males and they tend to replicate feminine ideals as portrayed in mass media in their selfies (Butkowski et al., 2020; Sorokowska et al., 2016).

Exploring factors that predispose online self-presentation, so-called (social) media creation, helps to further our understandings of differential susceptibility in media engagement (cf. Valkenburg & Peter, 2013). Currently, there are many relatively unexplored factors to unravel individual differences in the construction of online self-presentations. That is, whereas gender as identity characteristic has been examined quite extensively in self-presentation and social media research (e.g., Butkowski et al., 2020; Sorokowska et al., 2016; Twenge & Farley, 2021), research examining ethno-racial identity in relation to visual self-presentation research is scarce. Nevertheless, there is supporting evidence that ethno-racial identity plays a role in constructing online self-presentations. For example, individuals identified as White display more seductive behaviors online than individuals identified as Black, where particularly White boys exposed more seductive behaviors than Black boys (Kapidzic & Herring, 2015). Another example comes from selfies that can be used to highlight culture-specific characteristics. For example, several studies revealed that individuals identifying as Black or African-American report motivations for posting selfies such as to identify with others like them, or see selfies as a positive way to present unique characteristics of their race to others as manifested by, for example, hair, clothes, and tattoos (Barker & Rodriguez, 2019; Williams & Marquez, 2015).

Due to digitalization, an emerging question is whether today's social media saturated environments incite globalization of the online construction of self-presentation. That is, the extent to which ethno-racial identity contributes to individuals' online self-presentation, relative to the extent to which online self-presentations become more similar to one another despite differences in ethno-racial identities. *Differences* in self-presentation are expected from adherence to body image norms or cultural-historical group norms that are consistent with one's own ethno-racial identity (i.e., divergence; cf. Grasmuck et al., 2009). Previous research showed that individuals

adhere to body image norms and cultural-historical norms that are consistent with their own ethno-racial identity (Barker, 2019; Kapidzic & Herring, 2015). In contrast, *similarities* in self-presentation are expected from the dominance of Western White ideals (i.e., globalization) and changing norms for individuals that grew up with media (i.e., convergence; cf. Hynes, 2021; Liu et al., 2018; Twenge, 2014). For example, a more recent study found that individuals stemming from different parts of the world converged in their perceptions of self-disclosure (Liu et al., 2018). Therefore, the current study examined how individuals varying in externally imposed ethno-racial identity present themselves similarly or differently online. Following Kapidzic and Herring (2015), we particularly focus on externally imposed ethno-racial identity based on physical features in terms of Asian, Black, Hispanic, and White racial and ethnic identities.

Convergence and Divergence in Online Self-Presentation

Via visual self-presentations online, such as posting selfies, individuals can manifest various identity characteristics, such as gender identity and ethno-racial identity (Barker & Rodriguez, 2019). Research into ethno-racial identity and self-presentation is sparse, which might be due to the sensitivity and controversy of the topic, as classification into ethno-racial categories can form a basis for discrimination (Feliciano, 2016). We therefore want to emphasize that this study is by no means intended to classify individuals into categories as input for discrimination, rather, we aim to group individuals to examine patterns that seem important in unraveling the complexity of online identity expression. In the current study, we examined the convergence-divergence paradigm by focusing on differences and similarities in online self-presentations among varying externally software imposed ethno-racial identities. On the one hand, previous research indicated that convergence in self-presentations is expected from changing norms due globalization and digitalization (Jenkins, 2006; Liu et al., 2018). On the other hand, it is argued that offline values pertaining to sociocultural norms and ethno-racial identity are transferred to online self-presentation, leading to divergence in self-presentation (e.g., Grasmuck et al., 2009; Huang & Park, 2013; Kapidzic & Herring, 2011, 2015; Zheng et al., 2016).

The current study builds upon cross-cultural research which examined national identities showing that both divergence and convergence occurred. Supporting divergence, multiple studies found that national identity resulted in differences in self-presentation (Huang & Park, 2013; Kim & Papacharissi, 2003; Lee-Won et al., 2014; Rui & Stefanone, 2013; Wang & Liu, 2019). For example, East Asian individuals were more likely to deemphasize their faces on Facebook photos compared to Americans (Huang & Park, 2013). Hence, results marked cultural differences in their preference for context-inclusive self-presentation compared to more self-focused self-presentation, and thus led to divergence in online self-presentations. Similar to national identity, there is supporting evidence that ethno-racial identity characteristics also resulted in differences in self-presentation. Results of various studies showed that individuals

varying in ethno-racial identity have different self-presentation preferences, be it in terms of a) the number of selfies posted (Williams & Marquez, 2015); b) posting objectified selves (Hall et al., 2012); or gaze, posture, dress, and distance from the camera (Kapidzic & Herring, 2015). Previous research argues that these differences are due to (socio)cultural dominant ideologies of race or ethnicity in terms of body and beauty ideals (Kapidzic & Herring, 2015; Veldhuis, 2020).

Next to the global dominance of Western White appearance ideals, the rise of user-generated platforms also led to a diversification of audiences (Odač & Hanke, 2019). From a sociocultural examination, racial and ethnic groups seem to be particularly conflicted between either adhering to the globalized Western ideal or conform to their in-group unique characteristics of body and beauty ideals (cf. Watson et al., 2019). Adherence to Western ideals, for example, internalizing White culture body ideals such as fit- and thin-ideal, light skin, and long blond hair, may stem from a mode of coping or avoiding further oppression as developed historically over time (cf. Awad et al., 2015; Glasser et al., 2009; Mingoia et al., 2017). However, ethno-racial groups also have their unique beauty ideals. For example, a curvier body-type is perceived as ideal in Black cultures as well as appreciation of other specific ethno-racial features such as lip size, hair grade, and nose shape (e.g., Awad et al., 2015; Glasser et al., 2009; Winter et al., 2019). Hispanic ideologies of body and beauty ideals generally value curvy bodies, large breasts, and rounded derrieres (Schooler & Lowry, 2011). Contrary, a slim body and facial aesthetics, such as skin tone (i.e., white skin) and facial shape (i.e., oval and heart shapes), are prominent features of Asian beauty ideals (cf. Jung, 2018; Samizadeh & Wu, 2018). Nevertheless, it should also be noted that across cultures characteristics such as facial symmetry are features of perceived beauty (Prokopakis et al., 2013), and body and beauty ideals may gradually change over time (e.g., Jung, 2018; Yip et al., 2019). In all, a sociocultural approach of appearance-standards and body-ideals reveals two contrasting lines of argumentation: On the one hand, globalization and exposure to dominant Western ideals can lead to internalization and consequently result in a Western monoculture (cf. Hynes, 2021), on the other hand, unique culturally dominant ideologies of race and ethnicity can lead to adaption of differential standards in self-presentation (cf. Watson et al., 2019).

Differences in self-presentation among individuals varying in ethno-racial identity can be further explained via Social Identity Theory (SIT; Tajfel, 1978; Tajfel & Turner, 1979) According to SIT, behavior and cognitions can be explained via group processes. A social group is characterized by a number of people who indicate to be part of that group, as well as externally imposed placement in a group by others (Tajfel & Turner, 1979a; Trepte & Loy, 2017). Belongingness and feelings of being connected based on race is perceived to be a significant social category for individuals to classify themselves, also referred to as self-categorization (Gecas, 2000; Trepte & Loy, 2017). Via self-categorization, the norms and values expressed by a that in-group tend to be embraced and internalized (Turner, 2010). For instance, consistent with

their own culturally dominant ethno-racial identity, adherence to the thin ideal was stronger for White women than for Black women (Fujioka et al., 2009). More specifically, African Americans with a stronger adherence to their own ethnic group with its unique beauty ideals were less likely to internalize Western beauty ideals (cf. Rogers Wood & Petrie, 2010; Watson et al., 2019). SIT puts forward that individuals aim to achieve or maintain a positive social identity, and do so via social comparison to similar groups to establish a positive distinctiveness from their own in-group compared to other out-groups (Turner & Reynolds, 2010). In all, following reasoning of culturally-dominant ideologies and SIT, differences in self-presentation among individuals varying in ethno-racial identity were expected (i.e., divergence).

However, another more recent study examining national cultures did not find divergence, but rather convergence (Liu et al., 2018). They found that individuals from different cultures actually converged in their online self-disclosure intentions. This presumption of converging culture argues that the stream of media and media usage can shift cultural norms (Jenkins, 2006). Luppicini (2013) argues that digital technologies are highly embedded in daily life. Especially, individuals who grew up with new technologies, so-called 'digital natives', would be fluent in using new technologies and more self-expressive than other generations (Prensky, 2001; Taylor, Keeter, 2010). Due to digitalization, individuals are assumed to be a more homogenized group who put the individual first and follow more self-centered and individualized standards (Twenge, 2014). This shift in norms can be further underpinned via the Technoself studies (TSS; Luppicini, 2013). Research into the so-called technoself suggests that the way in which individuals' self-construct is developed, is dependent upon the technological affordances at hand. Even though Instagram offers various ways of how individuals can present themselves, the affordances of the platform and the accompanying editing features are similar for all users, possibly resulting in homogenization of media content. Particularly, the overall adherence to the White culture Western ideal is argued to be one of the reasons why more recent studies found less evidence for Black-White differences in body image concerns (Watson et al., 2019). Also among other ethnic and racial groups, such as Hispanic and Asian populations, pressure to acculturate to Western beauty ideals leads to internalization of those Western ideals (Chin Evans & McConnell, 2003; Menon & Harter, 2012).

These theoretical assumptions, however, are not bounded to the digital environment. Earlier studies have already stressed that, due to globalization and the creation of more homogenizing images presented in mass media around the world, similar evaluations of idealized body imagery cross-culturally occur (Chia, 2009; Grabe et al., 2008). In terms of new media, the large American and Western-based social media platforms, such as Instagram, are significant players in the global media landscape moving towards a norm largely based on Western ideals (Hynes, 2021). The global dominance of Instagram has the ability to create homogenization of images representing specific trends. For example, social media content is dominated by

positive user-generated content generally showing how happy they are and how good their lives are, known as the positivity bias (Michikyan, et al., 2015; Schreurs & Vandenbosch, 2022). Additionally, individuals largely follow trends online such as the selfie-craze (Lee & Sung, 2016), where individuals' behaviors converge in following trends such as pose preferences (i.e., presenting face-only) and primarily posting good-looking photos only (Batool & Saleem, 2018; Bij de Vaate et al., 2018; Siibak, 2009). In all, following reasoning of changing norms due to globalization and use of digital affordances, similarities in self-presentation among individuals varying in ethno-racial identity were expected (i.e., convergence).

The above discussed two opposing lines of divergence versus convergence drive the question to which extent online self-presentation strategies converge or diverge as a function of ethno-racial identity. The current research extends earlier cross-cultural research in national identities, by exploring the convergence-divergence paradigm for the role of ethno-racial identity in online self-presentation construction. Studies including national identity often apply Hofstede's cultural paradigm to study visual online self-presentations (Kim & Papacharissi, 2003; Liu et al., 2018; Rui & Stefanone, 2013; Wang & Liu, 2019). Hofstede is a well-known source for deriving cultural dimensions from national identity (Hofstede, 2001). Out of seven, the collectivism/individualism dimension is most studied (cf. Gudykunst, 1997).

In studying self-presentation, cross-cultural research thus far has mainly focused on the dimensions of individualism-collectivism and uncertainty avoidance (Bij de Vaate et al., 2020; Liu et al., 2018; Rui & Stefanone, 2013). The individualism-collectivism approach provides a theoretical basis for understanding the extent to which individuals pertain to more individualistic standards online. In explaining such individualization, digitalization studies argue that individuals become more individualized, self-focused and self-expressive. Also, from a sociocultural perspective, the large dominance of Western media culture could lead to a move towards a monoculture based on Western White ideals (Hynes, 2021). Here, Western White cultures are typically classified as having individualistic norms, whereas Asian, Hispanic, and Black cultures score higher on collectivistic values (Cox et al., 1991; Gudykunst, 2004; Hofstede, 2001). Individualism is characterized by individuals who see themselves as independent from others and are more autonomous and more self-focused (cf. Gudykunst, 1997; Hofstede, 2001; Markus & Kitayama, 1991; Triandis, 2001). As such, from these individualistic standards, individuals are motivated to strive for self-enhancement and prioritize personal goals over the goals of others. In contrast, collectivism is characterized by being interdependent of others, being closely linked to individuals who consider themselves as part of a collective, and placing more emphasis on the social context (cf. Gudykunst, 1997; Hofstede, 2001; Markus & Kitayama, 1991; Triandis, 2001). Collectivistic standards thus follow in-group norms and values, prioritize collective goals over individual goals, and emphasize their interconnectedness with others. Following the convergence hypothesis, digitalization might lead individuals to become a more homogeneous group that

are more self-focused and follow more individualized standards compared to following collectivistic in-group norms that would indicate divergence (cf. Twenge, 2014). In relating the above reasoning to online self-presentations specifically, we derived the following aspects to include in our study.

First, this study analyzed the degree of context inclusiveness. Individualistic and collectivistic norms differ in respect to prioritizing context inclusiveness in self-presentation (cf. Huang & Park, 2013; Markus & Kitayama, 1991; Masuda et al., 2008). For example, in examining perceptions of online images different cognitive processes may occur. In line with individualistic norms, individuals can primarily process images by primarily paying attention to the portrayed focal object. Such attention is used as information to categorize and understand the image. Contrary, following collectivistic norms, individuals jointly process the portrayed object as well as its context, which results in a more holistic information processing that also includes context (Nisbett et al., 2001; Nisbett & Masuda, 2003). Such context-inclusive style vs. object-focus style is shown in profile pictures where collectivistic and interdependent self-presentations deemphasize their faces with more room for background compared to individualistic and independent self-presentations (Huang & Park, 2013). Thus, interdependent self-presentations prioritize context inclusiveness, whereas independent self-presentations prioritize the focal figure. This study applies this paradigm by evaluating whether an individual presented more of oneself versus presenting more context (i.e., background) in the selfie (e.g., face-frame ratio). Additionally, fundamental to individualism-collectivism cultural norms is the relatedness of individuals to each other. It was argued that collectivism constrains individuals to solely present themselves (Guo, 2015; Hai-Jew, 2017). In the current study, we examine this interconnectedness with others via posting selfies with a more individual focus versus a more social inclusive focus through selfies with others. Hence, we focus on two types of contextualization: 1) context inclusiveness (i.e., prioritizing background of the photo vs. prioritizing the focal figure); 2) social inclusiveness (i.e., visibility of interdependence with others).

Second, it is argued that individualistic-oriented individuals are more active in strategic management of public impressions compared to their collectivistic-oriented counterparts (Rui & Stefanone, 2013). On Instagram, built-in tools for photo-manipulation can be used to adjust selfie-appearance once the photo is taken, such as the use of filters (McLean et al., 2015). Gonzales and Hancock (2011) argue that self-presentations can be optimized via strategic identity construction such as photo-manipulation, rendering photo-manipulation as a form of self-enhancement. Following individualistic standards, the online affordances of selective online self-presentation allow individuals to acculturate the White ideals, which may lead to convergence in using filters in online self-presentations. Contrary, following in-group norms and adherence to one's own racial identify and ethnic group, the diversification of online audiences and a wider variety of ideals could coincide with discrepant filter use.

Third, the current study includes 'elements of self-objectification'. Both traditional and new media often depict sexually objectified bodies which prevails in Western societies (cf. Baldissarri et al., 2019). Reducing individual characteristics to body features and sexual function could subsequently cause adaptation of an outsider's perspective of their body and engagement in self-objectification (Fredrickson & Roberts, 1997). Self-objectification can behaviorally be manifested in several ways, for example, by individuals showing increased body surveillance or manifestations of objectified elements in images (i.e., specific body parts being the main focus of the image; Tiggemann & Zaccardo, 2016). Behavioral manifestations of objectification elements vary depending on, amongst others, demographic factors such as culture and race (Fredrickson & Roberts, 1997; Watson et al., 2019). Previous research argued that Western beauty ideals include more sexualized images than East Asian beauty ideals (Frith et al., 2005), and results of a content analysis of MySpace photos revealed that Blacks and Hispanics portrayed more objectified selves compared to Whites (Hall et al., 2012). Moreover, findings from a more recent cross-sectional study also provide evidence that individuals from different racial and ethnic groups vary in their experienced levels of self-objectification, where Black women reported lower levels of self-surveillance compared to White women (Schaefer et al., 2018). As such, based on previous research, following collective norms in online self-presentations would then diverge. Hence, this study includes objectification principles to examine if individuals varying in ethno-racial identity display more or less objectified elements in their selfies, either resulting in convergence or divergence in self-presentations.

Lastly, in addition to aspects of the individualism-collectivism dimension, we included additional self-presentation characteristics to allow for further comparison between ethno-racial identities in how they profile their self-presentation strategies, based on previous research profiling selfie-takers (Batool & Saleem, 2018; Bij de Vaate et al., 2018; Meier & Gray, 2014). These self-presentation characteristics include use of typical facial expressions (e.g., duck face, fish gape, smile; as previously studied by (Batool & Saleem, 2018), the amount of body parts visible in the selfie (e.g., face only, face till hips), and use of tools to take the selfie (e.g., selfie-stick, mirror, as previously studied by Bij de Vaate et al. (2018) and Meier & Gray (2014). In further profiling those who post selfies online, we explore possible gender differences in selfie-posting among ethno-racial groups. Previous studies indicate that women typically post more selfies than men, regardless of their ethno-racial identity (Barker & Rodriguez, 2019; Bij de Vaate et al., 2018). Hence, we aim to explore such prevalence of gender differences in a real-life environment instead of being derived from self-report data. Lastly, to provide a detailed mapping of selfie-characteristics into a broader social media context, we also include descriptive statistics on peer feedback (i.e., likes and comments) and location tagging. By including these selfie-features, next to the individualistic and collectivistic aspects, we can examine how self-presentation characteristics may or may not vary between individuals from different ethno-racial identities.

Thus, the above reasoning led to two research questions:

RQ1: How do individuals varying in ethno-racial identity (i.e., Asian, Black, Hispanic, and White) present themselves online, in terms of various self-presentation features such as portraying selfies with contextualization, filter usage, objectification elements, and specific self-presentation characteristics (i.e., gender, peer feedback, location-tagging)?

RQ2: In comparing individuals varying in ethno-racial identity (i.e., Asian, Black, Hispanic, and White), to what extent do they converge (i.e., show similarities) or diverge (i.e., show differences) in terms of a) contextualization; b) filter usage; and c) objectification elements?

Method

This section first elaborates on the image selection of this study, then we discuss the coding procedure and coding reliabilities. Finally, details of the operationalization of the variables are described.

Image Selection

Upon ethical approval by the Institutional Ethical Review Board, data collection started. This study aimed to capture a large sample that included publicly available selfies posted on Instagram (i.e., self-presentations that were posted to a wider community). Hence, we started with the hashtag that included the most selfie posts, #selfie. This hashtag, however, resulted in an enormous amount of selfies, leaving us unable to accurately retrieve all selfies posted within a given day, which could subsequently lead to possible misrepresentations of the data. Therefore, we continued with the hashtag with the second largest stream of selfie posts, #selfietime. With this hashtag we were able to capture all posted photos that were posted within the period from April 4th to April 17th, 2018, allowing for representative data. The URL to the specific Instagram pages, including the photos, were saved for analyses. In total, 70,000 photos were collected.

Seven independent coders were trained to apply the same coding criteria (see 'coding reliability' below). Thereafter, seven random samples of 1000 photos were drawn from the total of collected photos, where each coder coded a subset of 1000 photos independently. Combined with the final round of coding reliability ($n = 200$) this resulted in an initial dataset consisting of 7200 photos. After removal of 1) duplicate photos; 2) photos that were coded as not a selfie; and 3) selfie-takers that were not clearly visible, the final dataset consisted of 5014 photos (materials are available on OSF: https://osf.io/3hbpm/?view_only=5fd60d9a29914887a735e73b1a7d2539). Facial recognition software² was used to classify ethno-racial identity in terms of

2 The facial recognition software used was: <https://www.kairos.com>. This software has open API, and is used by various companies.

facial images being classified into having Asian, Black, Hispanic, White, or other appearance features. This software could sometimes not detect a face in the sampled photos and therefore not each selfie could be allocated to a specific ethno-racial identity, leaving 3381 selfies for analyses. Of the faces portrayed in the selfies 65.5% ($n = 2543$) were identified as White, 17.4% ($n = 676$) as Asian, 12.5% ($n = 484$) as Hispanic, and 4.6% ($n = 178$) as Black. Of these, 3367 were single-person selfies, and 514 were group selfies.

Coding Procedure

A detailed coding scheme to rate the collected selfies was developed. First, the metadata of the photos were included in the scheme, pertaining to, for example, likes, comments, and location. Then, the coding scheme included whether the collected image could actually be coded as a selfie. Subsequently, the number of persons in the selfie was determined. Selfies featuring just one person were rated as single-person selfies, and subsequently processed following the coding scheme for single selfies, whereas selfies featuring multiple persons (i.e., including photos with more than one person portrayed), were processed following the coding scheme for group selfies.

For single-person selfies, coders determined the perceived gender of the person in the selfies. For group selfies, coders only reported on the gender of the person that was making the selfie (i.e., by applying strict criteria, such as there is an arm holding the camera or the selfie stick is visible). Then, for both single-person selfies as well as selfies with multiple persons, the coders uploaded the images to the facial recognition website to determine ethno-racial identity and age of the selfie-taker. The next questions all pertained to the selfie-taker of the individual selfie or group selfie. Following the coding scheme, coders classified whether the individuals showed typical facial expressions³, while also filter-use and use of special equipment to take the selfie were rated. Lastly, elements of objectification were measured as well as the ratio between the individual and context present in the picture.

Coding Reliability

The seven independent coders were trained by the researcher for three hours to familiarize them with the coding scheme and allow them to practice with some trial photos, a total of 9.4% of the final set of images used in the study. After the initial training, they rated a first small sample of 60 images to further check for any deficiencies in the coding scheme. In this first trial, several variables did not reach sufficient intercoder reliability estimates, indicating that further adjustment was needed (Krippendorff's $\alpha > .667$; S-Lotus $> .67$ Fretwurst, 2015; Krippendorff, 2004).

³ After the final round of coding, we decided to not continue with further analysis of the variable facial expressions as the intercoder estimates were not sufficient (i.e., % agreement: 37.5; Krippendorff's α : .56; S-Lotus: .57).

Table 1
Intercoder Reliability Estimates of Coded Variables for Individual Selfies

Variable	N = 60				N = 400				Final N = 200			
	N	%	Krippendorff- f'salpha	S-Lotus	N	%	Krippendorff- 'salpha	S-Lotus	N	%	Krippendorff- salpha	S-Lotus
Selfie	52	76.9	.84	.93	389	87.4	.89	.96	199	88.4	.89	.96
Persons	30	93.3	.94	.96	259	93.8	.95	.99	136	97.8	.97	1.00
Gender	22	86.4	.87	.95	201	95.0	.96	.99	120	95.8	.97	.99
Pose	22	18.2	.41	.68	201	21.8	.53	.75	120	67.5	.67	.83
Filter usage	22	77.3	.69	.92	201	91.5	.84	.97	120	95.8	.91	.95
Equipment	22	95.5	.93	.99	201	92.5	.89	.98	120	90.8	.91	.98
Belly	22	95.5	.00	.99	201	98.0	.59	.99	120	97.5	.70	.99
Buttocks/ Breast	22	95.5	.00	.99	201	91.0	.63	.96	120	87.5	.63	.91

Note. Following the coding scheme, the sample size decreases as the photos in the sample did not meet the criteria for inclusion (i.e., being an individual selfie).

To increase levels of agreement, the coding scheme was adjusted by eliminating specific categories or combining specific categories. The seven coders rated an additional sample of 400 images with this adjusted coding scheme. However, the levels of agreement on some variables were still not sufficient, leading the variable referring to portraying sexualized selves being removed. Coding for other insufficient variables was further tightened by providing a stricter description or elimination/combining coding categories. Finally, the coders used this scheme to rate a last sample of 200 images, determining the intercoder reliability of this study's variables. Table 1 describes the percentages of agreement, Krippendorff's alpha and S-Lotus. These 200 collectively coded images were added to the total of 7000 images that were individually coded, resulting in the study's total sample of 7200 images.

Operationalization

This section describes the software that was used to determine ethno-racial identity, the metadata accompanying the Instagram photos, and the variables coded by the independent coders.

Ethno-racial identity. Facial recognition software was used to allot individuals to a specific ethno-racial identity, via race/ethnicity-related appearance features. Individuals were allotted to one of five categories (i.e., Asian, Black, Hispanic, White, and other). In considering the nuances of applying appearance features to determine specific ethno-racial identities, the software applies scores between 0 and 1 for all categories. From there, for the scope of this study, individuals adhered to the category with the highest score. To verify the functioning of machine learning software as a valid measure of estimating ethno-racial identity based on physical appearance, we have calculated an intercoder reliability with manual coding of ethno-racial identity. With a Krippendorff's alpha of .88, externally imposed ethno-racial identity was deemed sufficient. As only one of the selfie-takers was classified as 'other', this image was omitted for further analyses.

Metadata. The URL to the specific Instagram photos provided underlying data from which the number of likes and number of comments accompanying the selfies were reported. Moreover, coders used the metadata to report the caption of the photo, the tags attributed to the photo, and (if present) the location where the selfie was taken. These metadata provide more descriptive information about the acquired selfies.

Contextualization. The degree of contextualization of the selfie-taker was measured with two variables: 1) the face-frame ratio (i.e., context inclusiveness) and 2) the number of persons in the selfie (i.e., social inclusiveness). First, the face-frame ratio was used to determine the amount of context versus the amount of the selfie-taker that was portrayed in the selfie (Huang & Park, 2013; Masuda et al., 2008). For the face area, we measured the height and width of the face. Height was measured from the top of the head (including hair and hat) to the bottom of the head (chin). Width was determined by measuring the widest part of the face

that was visible in the selfie (including hair). The surface of the entire image was measured by the height*width of the image. Then, the specific face-frame ratio was determined by dividing the surface of the face by the surface of the entire image. Via collaborative discussion throughout the various rounds of coding reliability, we created consensus on this measurement (see supplementary material on OSF for an illustration of the measurement).

Second, the number of persons in the selfie was determined by counting how many persons were visible in the selfie. Note that passers-by in the background were not counted in selfies with multiple persons. The actual number of persons was counted up until 10 persons; if more than 10 persons were portrayed in the selfie, the exact number was not further counted but referred to as >10 (i.e., clearly indicating a large group-selfie). This variable was used to indicate whether the focus was on the individual or on the social context.

Filter usage. The use of clearly visible filters in the selfie was coded to indicate the use of strategic self-presentation (Yes/No). Filters could appear, for instance, as how they are available in snapchat filters.

Self-objectification elements. Ratings for self-objectification were adapted from Carrotte et al. (2017) and Tiggemann and Zaccardo (2016). Coders interpreted the Instagram image in terms of being an image emphasizing subjects' buttocks and/or breast/chest (i.e., No objectification elements; Yes, buttocks; Yes, breast/chest; Yes, buttocks and Breast/Chest) and/or belly (Yes/No). From there, the scores of the self-objectification elements were further combined, leading to a picture being categorized as showing (1) no elements of objectification, (2) one element of objectification, (3) two elements of objectification, or (4) all three elements of objectification.

Self-presentation characteristics. Based on earlier research by Batool and Saleem (2018), Bij de Vaate et al. (2018), and Meier and Gray (2014), this study also included some additional self-presentation characteristics to answer RQ1. First, the *amount of body parts* visible in the selfie was rated (e.g., only face visible, or face till hips). Second, the *use of typical facial expressions* such as duck face were determined (e.g., duck face appears to be one of the preferences for facial depictions in selfies; (Batool & Saleem, 2018). Lastly, to indicate how a selfie was taken, the use of *special tools to take the selfie*, such as using a selfie-stick or mirror, was rated.

Results

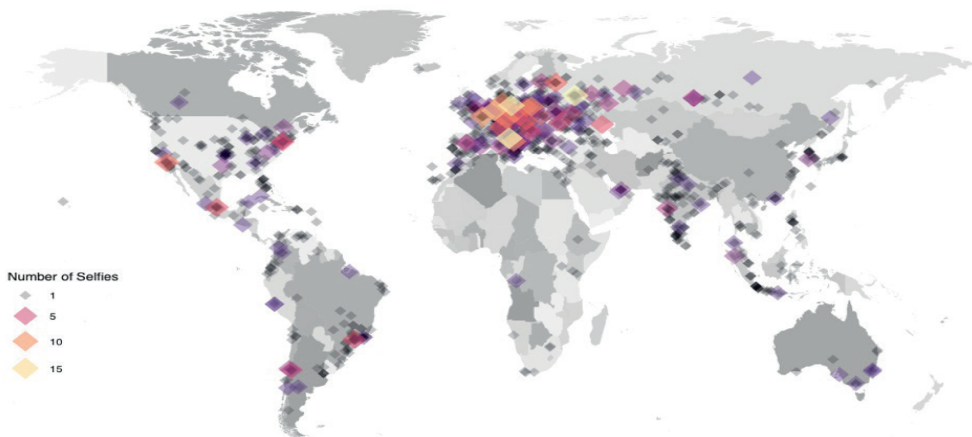
This section reports on the results of this exploratory study examining the differences and similarities in online self-presentation between individuals varying in ethno-racial identity. First, results profiled how individuals, characterized within an externally software imposed ethno-racial identity, present themselves online. Second, statistical analyses are reported on significant differences in self-presentation features of individuals varying in ethno-racial identity.

Profiling Online Self-Presentation According to Ethno-Racial Identity

To answer RQ1, we performed descriptive analyses to profile how individuals with different ethno-racial identities express themselves online through selfies. First, by exploring metadata accompanying selfies, this study provided an overview of where selfies are taken by using the location of the selfies which is visualized in Figure 1. Second, we explored the similarities and differences in the self-presentation features among individuals varying in ethno-racial identity. See Figure 2 for an overview of descriptive analyses per ethno-racial identity. Descriptive findings of the selfies showed that, across all ethno-racial identities, females took more selfies than males. Similarly, across all ethno-racial identities, selfie-takers mostly did not reveal their location. If location was shown, Hispanic selfie-takers did so most often. Regardless the ethno-racial identity they were allotted to, most individuals presented their face and upper body (until hips) via online selfies, rather than face only or full body, however, they rarely portrayed self-objectified selves. Additionally, the selfie-takers hardly used special equipment such as selfie-sticks to take selfies. While the aforementioned self-presentation features of gender, location, self-presentation characteristics, and self-objectification largely overlap for individuals varying in ethno-racial identity, variation in self-presentation features was also found. Strategic self-presentation by using clearly visible filters was most often used by individuals with a Black identity.

Figure 1

Locations of Publicly Posted Selfies



Testing Differences in Online Self-Presentation as a Function of Ethno-Racial Identity

RQ2a pertained to differences in contextualization for people varying in ethno-racial identity. This analysis consisted of two measures for such contextualization: 1) face-frame ratio (i.e., context inclusiveness), and 2) number of persons in the selfie

(i.e., social inclusiveness). First, differences in degrees of face-frame ratio and individuals varying in ethno-racial identity were examined. A One-way ANOVA with ethno-racial identity as independent variable and contextualization in terms of face/frame-ratio as dependent variable showed a significant difference in the degrees of face-frame ratios between the various ethno-racial identities, $F(3, 3875) = 10.623$, $p < .001$, $d = 0.18$, $n = 3878$. Post hoc analyses (Games-Howell procedure) indicated that Asian selfie-takers scored significantly lower on the face-frame ratio than Black selfie-takers (mean difference = 4.45, $p < .05$, $d = .24$) and White selfie-takers (mean difference = 2.15, $p < .05$, $d = 0.12$). This means that individuals with Asian selfie-takers put less emphasis on the individual face and more emphasis on the background (i.e., context) of the photo, resulting in a lower face-frame ratio than individuals with Black and White selfie-takers. Additionally, Hispanic selfie-takers portrayed significantly less of the individual face than Black selfie-takers (mean difference = 6.63, $p < .001$, $d = 0.38$) and White selfie-takers (mean difference = 4.32, $p = .00$, $d = 0.24$). No significant differences between other groups were found.

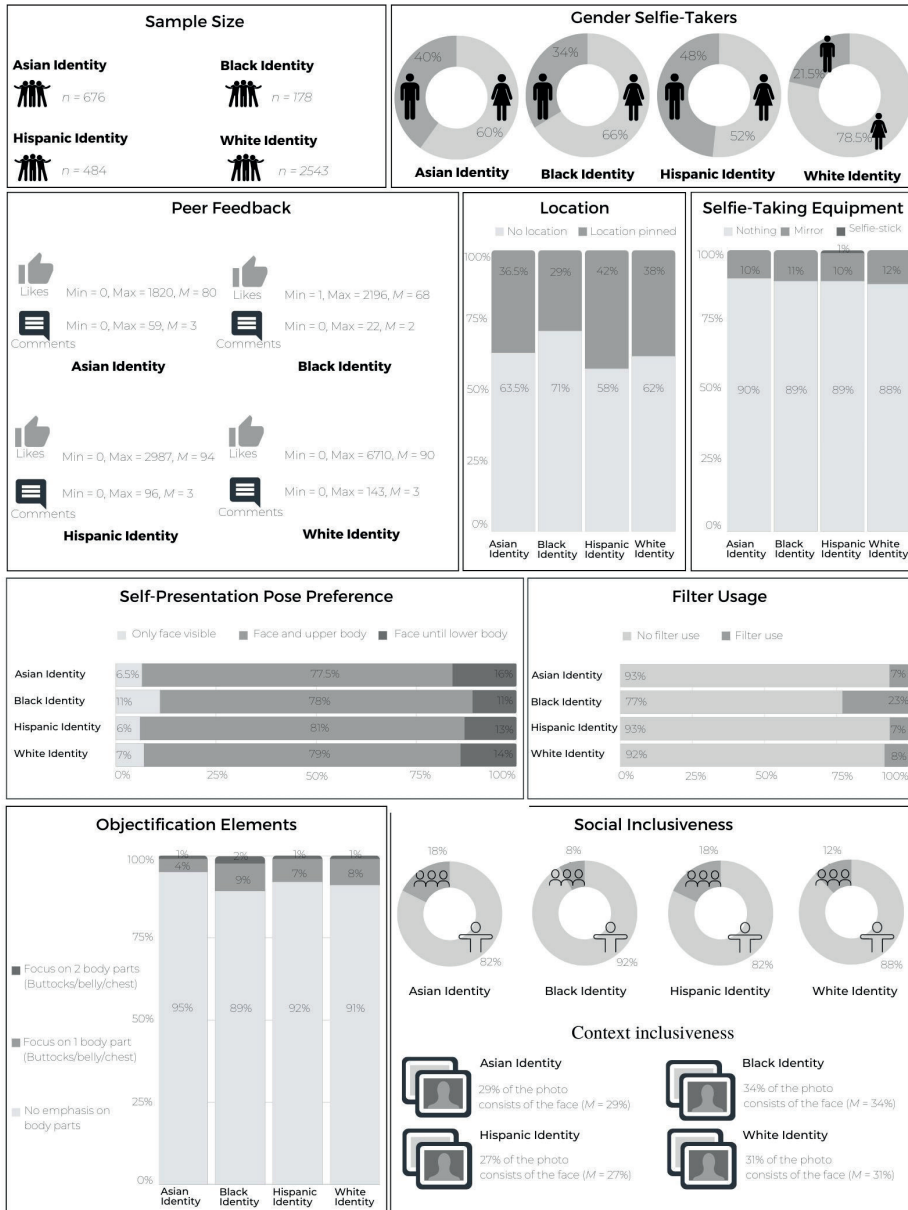
Second, differences in the number of people in the selfie were analyzed between the ethno-racial identity groups. Although the assumptions of normality were violated, performing an ANOVA remains a robust measure regardless of normal distribution, sample size, and equal or unequal distribution in groups (Blanca et al., 2017)⁴. The results of the one-way ANOVA with ethno-racial identity as independent variable and number of persons as the dependent variable, yielded significant differences in the number of persons portrayed in the selfies between individuals varying in ethno-racial identity ($F(3, 616.816) = 10.984$, $p < .001$, est. $\omega^2 = .007$, $n = 3880$, Welch Ratio, as the assumption of homogeneity of variance was violated). Further, post hoc analyses using the Games-Howell procedure indicated that Asian and Hispanic selfie-takers posted significantly more group selfies than Black selfie-takers (respectively, mean difference Asian-Black = 0.24, $p < .001$, $d = 0.22$ and mean difference Hispanic-Black = 0.21, $p < .01$, $d = 0.22$) and White selfie-takers (respectively, mean difference Asian-White = 0.21, $p < .001$, $d = 0.27$, mean difference Hispanic-White = 0.18, $p < .01$, $d = 0.28$). We found no other evidence of differences between the other ethno-racial identity variations. In sum, the results of this analysis partly align with the notion that differences in ethno-racial identity results in divergence in self-presentation. That is, Asian and Hispanic selfie-takers portrayed more interdependent selves than Black and White selfie-takers.

Then, RQ2b pertained to investigate differences in display of filter usage between individuals varying in ethno-racial identity. A Pearson Chi Square indicated that there was a significant association between different ethno-racial identities and filter usage ($\chi^2(3) = 53.745$, $p < 0.001$; Cramer's $V = 0.118$, $p < .001$, $n = 3879$). Post hoc comparisons using Bonferroni correction indicated that Black selfie-takers used significantly more filters in their selfies than all other groups. Of the selfies posted

4 Results of a Kruskal-Wallis test showed similar results as the one-way ANOVA ($\chi^2(3) = 30.832$, $p = 0.00$); Asian and Hispanic selfie-takers post more group selfies than Black and White selfie-takers.

by Black selfie-takers, 23% included filter usage, compared to 6.7% for Asian selfie-takers, 6.6% for Hispanic selfie-takers, and 8.3% for White selfie-takers. No other significant differences were found. Underlining the descriptive findings for RQ1, results show that Black selfie-takers diverge in their preference for filter usage compared to the other groups.

Figure 2
Self-Presentation Characteristics per Ethno-Racial Identity



3

For RQ2c, differences in displaying objectified selves among individuals varying in ethno-racial identity were examined. A Pearson Chi Square indicated that there are no significant associations in presenting objectified selves and ethno-racial identities ($\chi^2(9) = 15.594, p > .05$; Cramer's $V = 0.037, p > .05, n = 3879$). Thus, across all selfie-takers similarities were found in portraying self-objectification in selfies, resulting in convergence in online self-presentation.

Discussion

This study aimed to take an exploratory step in examining how individuals varying in externally imposed ethno-racial identity, in terms of Asian, Black, Hispanic, and White ethno-racial identities, present oneself online. First, this study profiled self-presentation strategies among individuals varying in ethno-racial identity. Across all ethno-racial groups, females posted more selfies than males, mainly face and upper body were presented, and selfie-taking tools were barely used. These results align with previous research that profiled self-presentation strategies of selfie-takers (Batool & Saleem, 2018; Bij de Vaate et al., 2018; Sorokowska et al., 2016). However, differences were also found, filter usage was most often applied by Black selfie-takers in comparison to the other groups.

Second, this study included two opposing theoretical lines of argumentation either expecting convergence or divergence in self-presentation (Grasmuck et al., 2009; Jenkins, 2006; Kapidzic & Herring, 2015; Liu et al., 2018). Supporting divergence, findings showed that self-presentation strategies, in terms of contextualization and filter usage diverged as a function of ethno-racial identity. More specifically, regarding contextualization, results revealed that Asian and Hispanic selfie-takers displayed more context and less focus on the individual than Black and White selfie-takers. Hence, Black and White self-takers presented themselves in line with individualistic norms, whereas Asian and Hispanic selfie-takers presented themselves along the lines of collectivistic norms (cf. Gudykunst, 1997; Hofstede, 2001). Divergent patterns in presenting context-focused vs. object-focused styles may stem from the differential cognitive processing of visuals (cf. Nisbett & Masuda, 2003): Both Hispanics and Asian individuals are typically embedded in a collectivistic context-inclusive culture, whereas Black selfie-takers in our study adhered more to individualistic object-focused self-presentation, even though it is argued that Black individuals historically have a more collectivistic orientation.

Additionally, results of this study also provide more evidence for the important role of ethno-racial identity regarding filter usage. Findings showed that Black selfie-takers made more use of the digital affordances at hand than the others. These findings especially align with previous notions that students with African American identities invested more in identity construction online than White students (Grasmuck et al., 2009). One of the reasons for Black selfie-takers to engage more in filter usage might reside in the heightened awareness of one's ethno-racial identity to present positive and unique aspects of one's own culture, and reflect

some sort of resistance to the dominant ideologies of Western culture (cf. Barker, 2019; Grasmuck et al., 2009). Altogether, following the theoretical argumentation of culturally dominant ideologies of race and ethnicity formed through Social Identity Theory (Tajfel & Turner, 1979), these results provide supportive evidence that self-presentations are constructed differently across individuals varying in ethno-racial identity. Thus, results align with previous research indicating that offline norms regarding culture and ethno-racial identity are transferred to online self-presentation (e.g., Grasmuck et al., 2009; Huang & Park, 2013; Kapidzic & Herring, 2011, 2015; Williams & Marquez, 2015; Zheng et al., 2016).

In contrast to divergence, self-presentations including objectified elements converged. Whereas previous research showed differences between ethno-racial identities and presenting objectified elements (cf. Frith et al., 2005; Hall et al., 2012), the current study did not find any differences in presenting objectified elements between individuals varying in ethno-racial identity. Thus, previously found evidence for the role of ethno-racial identity in portraying objectified selves was not supported for selfie-takers who publicly posted selfies in the current social media saturated environments. However, we must note that objectifying elements were barely present in the dataset, probably due to the public nature of the selfies. Nevertheless, for publicly posted selfies, this result is indicative of convergence in presenting objectified elements. Results are thus indicative of the theoretical assumption that internalization of the globally dominant cultures can result in more homogenized images as also found in previous research (cf. Liu et al., 2018).

Strengths, Limitations, and Future Directions

This study examined whether individuals' self-presentations converge or diverge as a function of ethno-racial identity showing that, even though we found some evidence that self-presentations tend to converge, online self-presentations diverge as a function of ethno-racial identity. A strength is that our study highlights that, even though we found some support that self-presentations converge likely due to digitalized globalization and changing norms towards more individualistic standards, ethno-racial identity still contributes to the online construction of self-presentation (i.e., divergence). Moreover, this study included a rich and unique dataset that comprised actual selfies of individuals in a naturally occurring setting, which means that their self-presentations were not created in an artificial (lab) setting or influenced in any way by the study goals. Furthermore, data collection was not limited by any selection criteria and internationally varied.

This study was not without limitations, however. First, this study could only include publicly posted selfies because private selfies could not be accessed at such large scale. Therefore, selfie-posting behaviors as well as the content of images on Instagram of private postings may deviate from the findings in the current study. The results of this study therefore only apply to public self-presentations online posted with the hashtag 'selfietime'. Future research could aim to acquire

Instagram take-out data to examine self-presentation in more private settings. Results regarding privately posted photos on Instagram provide more information in view of the generalizability of the results of the current study.

Second, this study was unable to verify if the individuals that were digitally classified into a specific ethno-racial identity, based on their appearance features, also identify themselves as such. For example, individuals who were classified as having a Hispanic identity might actually self-identify differently. Therefore, this study can only make conclusions based on externally software imposed ethno-racial identity. Future studies could investigate how automatic classification or externally imposed classifications coincide with self-reported classifications of ethno-racial identity. Related, this study was unable to ask or detect the national culture of the individuals portrayed in the photos. The cultural dimensions of Hofstede (2001) are typically applied to national cultures, in terms of residing in countries scoring either higher or lower on individualism-collectivism. Although specific ethno-racial identities are more common in certain countries, in this study no conclusions can be drawn regarding national cultures. Especially as pinned location does not necessarily mean that the selfie-takers reside in that particular area (e.g., because pinned location can be used for holiday destinations, for example). Future studies could examine if individuals from various countries portray self-presentation features in line with more individualistic or collectivistic standards.

Another limitation, due to the nature of a content analysis, is that no inferences can be made on the motivations of why the selfies were taken and posted online, or on how users have perceived these selfies. Based on individualistic standards, this study aimed to objectively code convergence or divergence on these characteristics. However, selfies including more background, thereby representing more collectivistic standards, may still come from self-expression motives. This would then refer more to individualistic standards than collectivistic standards. Similarly, the nature of our study could not capture how the online photos were perceived by the recipients. Qualitative research would allow to more carefully study such motivations on why someone posted a specific photo (i.e., with what goal and what emphasis) and how such photos are perceived by others who encounter them online.

Moreover, a final limitation within this study resides in the manual coding of our variables. That is, for filter usage only the clearly visible filters could be encoded to generate a sufficient intercoder-reliability. To accurately extract information on the application of such enhancement tools, future research could ideally use machine coding. For example, to estimate the percentage of how the posted photos deviate from original photos. A similar approach could also be used for the face-frame ratio. Regarding measurement of the face-frame ratio, one could also think of categorization of context inclusiveness instead of the exact ratio (e.g., person is focal point, background is focal point). This approach would, however, be less specific than the ratio. Lastly, although a strict coding scheme was applied to objectively code

objectifying elements in the best way possible, by the nature of the study, subjectivity could have played a role in what was perceived as objectifying and what not. This subjectivity in our coding scheme led to the removal of sexualization in images, which could have also been a good reflection of objectification. Moreover, the overall very low prevalence of presenting objectified elements might also have been the result of such a strict coding scheme. The relatively low intercoder reliability statistics of some of the manually coded variables indicate that our results should be interpreted with caution. We would like to point out that establishing a high intercoder reliability with seven coders from subjective real-life materials is extremely challenging (Carrotte et al., 2017). Nevertheless, the variables included did meet the threshold of inclusiveness based on at least 2 of the intercoder reliability statistics.

The results of this study addressed the interplay between globalization, digitalization, and ethno-racial identity. A fruitful area for future research lies within further examining the mechanisms that play an important role in constructing visual online self-presentations to determine the potential consequences. For example, once important mechanisms of online self-presentation have been identified, heterogeneous results of the impact of self-presentation on well-being could be further explained (Bij de Vaate et al., 2020). For example, based on the findings of the current study, future studies could examine how differences in self-presentation resulting from variation in ethno-racial identity influence individuals' mental health. Additionally, an interesting line of research would be to examine the role of ethno-racial identity in visual online self-presentation from the viewers' perspective. Visual self-presentations have limited cues, leaving individuals to make judgements almost solely based on appearance, which for example might be interesting for dating research examining partner preferences based on self-presentation (Ranzini & Lutz, 2017). Related, based on specific self-presentation features one could look into homogamy or heterogamy among dating partners (Courtiol et al., 2010). Lastly, identity construction via online self-presentation is a complex phenomenon that highly depends on differential factors, such as gender, personality traits and contextual factors, such as peer surroundings, and environmental factors such as culture (cf. Valkenburg & Peter, 2013). Future studies could further examine factors that predispose creating online self-presentations, as well as the possible interplay between predisposing factors.

To conclude, this study further unravels the complexity of the construction of online self-presentation and explored to what extent individuals' online self-presentation diverge as a function of ethno-racial identity, or rather converge as influenced by globalized digitalization. Results provided some evidence for converging self-presentations among selfie-takers, however, our study results generally showed that online self-presentations diverge as a function of ethno-racial identity. Hence, the creation of online self-presentations seems to not generally align with the globally dominant Western ideals, rather ethno-racial identity characteristics remain important in manifestations of online self-presentations.

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CHAPTER 4

The active-passive dichotomy refined: How active visual self-presentations and passive exposures coincide with adolescents' mental health and body image

Abstract

From both scholarly and public debate there is no clear-cut answer to the question how social media use (SMU) coincides with mental health and body image. To explain mixed results, we suggest that the active-passive dichotomy should be further specified by the self-presentation types one creates or is exposed to (i.e., authentic, edited, intimate, and positive). This study focused on self-photo sharing, given the popular focus on appearance on social media. We designed a cross-sectional study to examine how various types of visual active self-presentation, and exposure thereto, coincide with mental health and body image among 408 adolescents ($M = 14.07$, $SD = 1.64$; 48.8% female). Results demonstrated that it is not about being either active or passive on social media, but rather the self-presentation types one creates, or sees, that are important to understand how SMU behaviors coincide with mental health and body image: Social media behaviors do not uniformly relate to all mental health and body image indicators. Altogether, the current study emphasized that we should move away from the active-passive frequency dichotomy, and follow a more detailed communication-centered approach emphasizing the message types.

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Introduction

An ongoing debate questions how social media use (SMU) affects adolescents' mental health and body image: The question is whether or not using social media induces positive or negative effects on mental health and body image. Scholars generally argued that active SMU leads to more positive feelings about oneself, whereas passive SMU leads to more negative feelings (cf. Dienlin & Johannes, 2020; Verduyn et al., 2017). However, such a binary distinction for a range of possible behaviors on social media resulted in a mixture of conceptualizations and operationalizations of active and passive SMU, and consequently also resulted in mixed results (e.g., Bij de Vaate et al., 2020; Valkenburg et al., 2022). Hence, in this study, we argue that the active-passive dichotomy may still not sufficiently explain its relationship with mental health and body image. Therefore, in order to adequately investigate potential outcomes, we propose that the active-passive dichotomy should be further specified via the type of self-presentation one creates or is exposed to (e.g., ranging from, for example, authentic, edited to intimate self-presentations). This study particularly focuses self-photo sharing, which we refer to as visual online self-presentations, given the recent scientific as well as public media attention towards self-photo sharing on social media (Chang et al., 2019; Fein, 2019). Thus, the main research question of this study is how are types of active visual online self-presentations, and passive exposures thereto, related to adolescents' mental health and body image?

Pathways to Changes in an Individual's Mental Health and Body Image

SMU is linked to various types of outcomes for an individuals' mental health and body image (e.g., Bij de Vaate et al., 2020). Relying on the (extended) two-continua model of mental health, the current study included both psychopathology and psychological well-being (cf. Greenspoon & Saklofske, 2001; Meier & Reinecke, 2020). Psychopathology reflects disturbance or personal distress in one's life, whereas psychological well-being reflects one's overall functioning and quality of life (Diener et al., 2018; Lahey et al., 2017; Meier & Reinecke, 2020; Ryan & Deci, 2001). Then, body image, conceptualized as the thoughts, feelings and perceptions one has about one's body, is a profound variable of interest in media effect research among adolescents (Veldhuis, 2020). Studies thus far revealed mixed relations between SMU and mental health and body image (Dienlin & Johannes, 2020; Holland & Tiggemann, 2016; Huang, 2017).

To explain mixed results, scholars disentangled SMU into more concrete behaviors. More specifically, previous research argued that there are two general distinct types of activities on social media: active and passive usage (e.g., Ellison et al., 2020; Verduyn et al., 2017). Active SMU refers to active engagement on the site that facilitates exchanges with others, such as posting photos. Passive SMU, often called lurking, refers to consuming content of others without direct exchanges, for example scrolling through social media or viewing others' posts without creating

content (Gerson et al., 2017; Verduyn et al., 2017). To understand possible changes in an individual's self-concept social media research has been guided by various theoretical pathways, discussed next separately for active self-presentation and passive exposure.

Impact of Active Self-Presentation

The possible impact of active self-presentation on mental health and body image is often explained from the theoretical principles of the *hyperpersonal model of computer-mediated communication* (Walther, 1996) and the *identity shift* (Gonzales & Hancock, 2008). Online self-presentations of individuals rely on the online platforms' affordances and individuals' knowledge of technologies to selectively present themselves (cf. HPM; Walther, 1996). These selective self-presentations can then become integrated in how individuals see themselves and guide changes herein, known as the identity shift (Gonzales & Hancock, 2008). This process is further underpinned by the *Proteus Effect* from avatar studies, that also found evidence for changes in the self-concept due to virtual transformation (Yee & Bailenson, 2007). The options for selective self-presentation can foster feelings of being in control, and subsequently positively influence one's mental health and body image (cf. empowerment theory; Tiidenberg & Gómez Cruz, 2015).

In contrast, options for the idealization of online self-presentations ensure a larger deviation between the online and the offline self (cf. self-discrepancy theory; Higgins, 1987), which through (automatic) comparisons of individuals' online and offline selves, may detrimentally impact an individuals' self-concept (Duval & Wicklund, 1972). These mixed theoretical assumptions are further underpinned by diverse findings from empirical evidence. Conform selective exposure and empowerment principles, various studies found that active self-presentation coincided with a more positive mental health and body image (e.g., Veldhuis et al., 2020, Chang et al., 2019; Gonzales & Hancock, 2011). Other studies found negative associations, that could be expected from self-discrepancy theory and objective self-awareness theory (e.g., Cohen et al., 2018; Frison & Eggermont, 2016; Valkenburg et al., 2022; Yang, 2016).

Impact of Passive Exposure

Outcomes of passive exposures to social media content on mental health and body image seemed to be mainly guided by two mechanisms: Internalization of the exposed media content and the tendency to compare one's appearance to others (Veldhuis, 2020). The first pathway, argues that internalization of hard to obtain beauty standards in visual media is detrimental for mental health and body image (e.g., Holland & Tiggemann, 2016; Veldhuis, 2020), which was also found for particularly engagement in appearance-related social media (Mingoia et al., 2017). In a similar vein, the objectification theory argues that the focus on appearances may lead to adopting a third-person perspective on the self (Fredrickson & Roberts, 1997). This third-person perspective also applies to an online setting and can likewise lead to more negative emotions about oneself.

The second pathway, social comparison tendency, argues that the direction of comparison guides how media content impacts mental health and body image (Veldhuis, 2020; Festinger, 1954; Tsay-Vogel & Krakowiak, 2019). For example, a positive influence on mental health and body image may be expected from downward comparisons (i.e., comparing oneself with someone who is worse-off), whereas negative influences may be expected from upward comparisons (i.e., comparing oneself with someone who is better-off). The social media environment specifically adds an extra dimension here in that the target comparisons also include peers instead of models for example, and thus may not always depict the hard to obtain beauty ideals. Mixed theoretical perspectives and empirical evidence go hand in hand in pointing at both positive as well as negative associations between passive SMU and mental health and body image (positive impact: e.g., Frison & Eggermont, 2016; Valkenburg et al., 2022; Yang, 2016; negative impact: Escobar-Viera et al., 2018; Thorisdottir et al., 2019; Wang et al., 2019).

Current Directions

Both positive and negative relationships between active self-presentation and passive exposure on the one hand, and mental health and body image on the other hand, could be expected from theory as well as empirical studies. Previously, most studies focused on time spent engaging in active or passive SMU (Valkenburg et al., 2022). However, such a distinction provides no information about how individuals present themselves or what type of content they are exposed to. Therefore, we suggest that further refinement of SMU at the micro-level, following a communication-centered approach, emphasizing the types of social media content (Meier & Reinecke, 2020). Thus, to accurately examine how SMU coincides with mental health and body image, SMU should be investigated by examining types of self-presentation as well as types of passive exposures.

Types of Online Self-Presentation and Passive Exposure

Via (online) self-presentations individuals can selectively present aspects of themselves to control how they are perceived by others (Goffman, 1959; Leary, 2019; Walther, 1996). Individuals can create various types of active online self-presentations, which in turn can be passively consumed on social media by others. Thus far, studies have investigated types of active self-presentation, without specifying passive types (cf. Yang et al., 2017; Yang & Brown, 2016) or considered active versus passive behaviors, without articulating the specific types of self-presentation one creates or is exposed to (cf. Escobar-Viera et al., 2018; Thorisdottir et al., 2019; Yang, 2016). Therefore, we examined to which extent actively creating specific types of active self-presentation are related to passive exposure to such types. Derived from self-presentation and self-disclosure theorizing in combination with the current technological affordances to adjust self-presentations (Goffman, 1959; Schlenker, 2012; Wheelless, 1976; Yang & Brown, 2016), the current study renders visual self-presentation to be authentic, edited, intimate and positive in

nature. Although these types do not necessarily occur exclusively, each type of self-presentation taps into unique characteristics, which will be further described in the following.

Even though self-presentations are often thought to be deceptive or manipulated, they can also include accurate, 'true to self' reflections, for example to ensure an accurate view of one's identity, minimize personal doubts of who one really is, or minimize risks of deceit (Higgins, 1987; Schlenker, 2012). As such, here *authentic* self-presentations reflect how online self-presentations represent the offline actual self (Bij de Vaate et al., 2020). Therefore, there would be no inconsistencies between actual and ought for self. Hence, both creating authentic self-presentations as well as being exposed to authentic self-presentations of others may foster positive feelings about oneself (e.g., Grieve & Watkinson, 2016; Reinecke & Trepte, 2014).

Contrary to authentic self-presentations, built-in or add on social media tools easily facilitate appearance adjustments and enhancements, for example, by using filters in photos. The shift in emphasis from text-based to appearance-based online platforms, pointed special attention to the abilities to use technological affordances to *edit* self-presentations (cf. Cohen et al., 2018). Especially these affordances make it possible for online self-presentations to exceed face-to-face self-presentations and result in so-called false, idealized, or inauthentic self-presentations (Twomey & O'Reilly, 2017; Walther, 1996). These self-presentations can be beneficial for the creator following identity shift principles. However, at the same time, the created discrepancy between the actual-self and edited self-presentation may be detrimental for mental health for both the creator as the one viewing this type of self-presentation (cf. Higgins, 1987). In line with such self-discrepancy theorizing, recent studies suggested that both passively consuming edited self-presentations of others as well as actively engaging in posting edited self-presentations increases negative feelings about oneself (e.g., Kleemans et al., 2018; Twomey & O'Reilly, 2017; Wang et al., 2019).

Then, self-presentations can also specifically focus on sharing personal and intimate private information. Generally, this taps into self-disclosure principles by communicating personal and private information about oneself regardless of the impression one creates (Kim & Dindia, 2011). This information focuses, for example, on sharing feelings and emotions, but may also include personal information such as showing one's personal opinion. We refer to this type of self-presentation as *intimate* online self-presentation, as revealing personal and intimate information is a crucial element in establishing relationships (Kim & Dindia, 2011). Especially during adolescence, actively presenting intimate self-presentations may induce feelings of insecurity and anxiousness about how these self-presentations are perceived by others (Markovitch et al., 2017; Yang et al., 2017). Contrary, for those who are passively exposed to intimate self-presentations of others may experience feelings of social closeness (Yang & Brown, 2017) and, for example, feel less lonely.

Lastly, as for *positive* self-presentation, individuals often tactically select and reveal favorable parts of themselves to make good impressions (Leary, 2019). Especially the affordances of SNSs allow for such selective self-presentations, resulting in a positivity bias (cf. Chou & Edge, 2012). People can highlight positive aspects of oneself and withhold to present undesirable features and negative aspects on social media (cf. Chou & Edge, 2012). Hence, this dimension of self-presentation is referred to as positive self-presentation. For the active creators, positive self-presentations may in turn also foster positive feelings about oneself (cf. Gonzales & Hancock, 2011; Walther, 1996). Contrastingly, exposure to these types of self-presentations may give the impression that other are happier and have better lives, and lead to negative feelings of oneself (Chou & Edge, 2012).

In all, SMU is highly multifunctional and offers options for individuals to engage in various types of self-presentations as well as being exposed thereto. Different types of SMU can have different associations with mental health and body image (cf. Dienlin & Johannes, 2020). Therefore, we argue that the active-passive dichotomy should be further refined through a more detailed level of analysis (cf. Meier & Reinecke, 2020; Valkenburg et al., 2022), by including the directionality of interaction (i.e., active vs. passive), function of interaction (i.e., self-photo sharing), and the content of the interaction (i.e., authentic, edited, intimate and positive). Importantly, even though empirical and theoretical perspectives can guide possible outcomes of these specific social media behaviors, we could not expect consistent results of these social media behaviors for each mental health and body image variable (as also argued by Meier and Reinecke (2020). Each indicator of mental health and body image may coincide differently with types of active and passive usage. Therefore, we formulated the following research questions:

RQ1: How are variations in the types of active visual self-presentations (i.e., authentic, edited, intimate, positive) related to the extent to which adolescents passively expose themselves to such types of visual self-presentations of others?

RQ2: To which extent are the various types of active self-presentation (i.e., authentic, edited, intimate, positive), and passive exposures thereto, related to adolescents' (a) mental health and (b) body image?

Method

Participants and Design

To examine how various types of active self-presentation and passive exposure coincide with (a) mental health and (b) body image, we designed a cross-sectional study among adolescents. Based on an a priori power analysis with a desired power of 85%, a maximum error probability of 5%, and the smallest effect size of interest of $b = .15$ (SESOL; cf. Reinecke & Trepte, 2014; Yang et al., 2017), we calculated a minimum required sample size of 395 participants. With a final sample size of 408, we achieved a power of 86% to detect our SESOL.

A total of 514 participants was initially recruited from secondary schools in the Netherlands. Of those participants, 433 owned a social media account on either Facebook or Instagram. Furthermore, participants needed to report on at least one measure of active or passive SMU and one mental health or body image variable. A total of 408 participants met those criteria⁵. Participants' age ranged from 11–19 years old ($M = 14.07$, $SD = 1.64$, $Median = 14$). Of the participants 49.3% were male and 48.8% were female, 1.8% indicated to identify differently. Educational attainment ranged from 72.1% having a lower ability level (pre-vocational secondary education track; preparing for vocational education), 13.3% on the middle ability level (intermediate general secondary education track, preparing for college), and 14.6% on the higher education ability level (pre-university secondary education track; preparing for university level). The study design was approved by the Institutional Ethical Review Board.

Procedure

Online questionnaire data were collected between the 21st of October 2019 and 6th of January 2020. Various secondary schools, pertaining to a larger school organization, in the Netherlands were contacted to participate in the study. Upon the school's permission, all parents were informed about the study. For adolescents under 16 years old, both active parental and participant consent was acquired. Only participants with parental consent were approached to participate in the study. Adolescents of 16 years and older, could authorize data processing themselves (cf. the Dutch law), although parents of those participants were similarly informed about the study. Depending on the school's preferences, questionnaires were either completed in class or at home. Prior to the data collection, the schools checked the questionnaire to ensure readability and understandability of the questions for the students.

Upon providing consent, participants started filling in information about their social media use. Then, they completed specific questions on types of active self-photo sharing, and the type of photos that they are exposed to (i.e., authentic, edited, intimate, positive). These questions were alternated with questions on their mental health and body image. Thereafter, participants were asked to report some demographics. Lastly, participants were thanked for their participation.

Measures

With adolescents as our study's target group, we pre-tested short forms of the mental health and body image measures relevant to our study among 129 adolescents (aged 13–18 years; $M_{age} = 15.34$, $SD_{age} = 1.69$). The internal consistencies ranged from .70 to .84. Based on this independent pre-test, some small adjustments were made to improve readability and comprehensibility for all participants. All

⁵ Missing data analyses was performed for the main items of interest in this study (i.e., types of active self-presentation, passive exposure, mental health and body image). We decided to impute the missing data as the percentage of missing values ranged between 0 and 5.1%. Data was imputed via Mice in R.

variables were 6-point Likert-type measures (totally disagree; totally agree), unless reported otherwise. Hence, higher scores indicated higher levels of each measure.

Social Media Use

SMU was first measured by asking whether participants had an account on Facebook or Instagram. Those who indicated to have an account on Instagram were asked to identify how many others they follow and how many others follow them (open ended question). Furthermore, they were asked to report the average time spent on Instagram (categorical item; cf. Meier & Gray, 2014), and the number of photos they've posted in the past month (categorical item). Similarly, if participants had an account on Facebook, they were asked to fill out more details about usage of that platform (i.e., how many friends, time spent on, and the number of photos they've posted in the past month). Participants who shared photos of themselves in the past month were considered as active photo-sharers, and were asked to complete questions about both types of active self-presentation and passive exposure. Participants who've indicated to not share photos of themselves only completed questions about types of passive exposure.

Types of Active self-Presentation and Passive Exposure

Answering options for these measures of active self-presentation and passive exposure ranged from 1 (=never) to 6 (=always).

Active Types of Visual Online Self-Presentation. Visual online self-presentations were measured via four types of visual self-presentations (i.e., authentic, edited, intimate, positive). Participants were asked to rate how often they have posted these four types of photos of themselves. A Confirmatory Factor Analysis (CFA, Lavaan; Rosseel, 2012) resulted in acceptable model fit indices for the four types of visual self-presentation with an SNMR of .06 and RMSEA of .06, 90%CI (.042, .077), or slightly less than good fit values (CFI = .93; TLI = .91). The full four factor model performed significantly better than a single-factor solution ($\chi^2(6) = 292.33$, $p < .001$). *Authentic* self-presentation was measured with a modified version of the social media self-presentation scale (Wheeless, 1978; Yang & Brown, 2016), resulting in a 4-item scale (sample item: "I post honest pictures about myself"; $\alpha = .82$). *Edited* self-presentation was measured with four items that were based on the photo editing scale from Fox and Rooney (2015). A sample item of edited self-presentation is "I post photos to which I've added filters" ($\alpha = .69$). Four items based on the depth dimension from Yang and Brown (2016), were used to reflect *intimate* self-presentation (sample item: "I post photos that show how I feel"; $\alpha = .68$). *Positive* self-presentation was measured with five items based on previous measures (Cohen et al., 2018; Kim & Lee, 2011; Wheeless, 1978; Yang & Brown, 2016). Factorial construct validity performed best with two positively tinged items (i.e., "I post photos that show my positive sides" and "I post photos I'm happy in"; $r = .55$).

Passive Types of Exposure were measured with the counterparts of active self-presentation. The passive exposure scales thus refer to passive exposure to (1) *authentic* self-presentation (sample item: “I look at photos of others that show how they are in real life”; $\alpha = .91$), (2) *edited* self-presentation (sample item: “I view photos of others of which I think they’ve enhanced coloring”; $\alpha = .91$), (3) *intimate* self-presentation (sample item: “I look at photos of others that show how they feel”; $\alpha = .86$), and (4) *positive* self-presentations of others (sample item: “I look at photos of others that show their positive sides”; $r = .76$). The four-factor model fit had a reasonable to good fit ($\chi^2/df = 3.35, p < .001$; CFI = .96; TLI = .95; RMSEA = .08, 90% CI [.065, .087]; SNMR = .05). The full four factor model performed significantly better than a single-factor solution ($\chi^2(6) = 1517.1, p < .001$).

Mental Health

Mental health was operationalized based on the two-continua model of mental health. Thus, indicators refer to either psychopathology (i.e., negative mental health) or psychological well-being (i.e., positive mental health). All items referred to how participants felt in the past month. A CFA including second order measures via indicators of psychopathology and psychological well-being indicated an a good fit of the two-factor structure ($\chi^2/df = 2.06, p < .001$; CFI = .96; TLI = .95; RMSEA = .05, 90% CI [.042, .060]; SNMR = .05). The two-factor model performed significantly better than a single-factor solution ($\chi^2(1) = 20.55, p < .001$). Reliability of second order factors were good (Psychological well-being, $\omega = .86$; Psychopathology, $\omega = .85$). *Psychological well-being* was measured via indicators of happiness and self-esteem. *Happiness* was measured with four simplified items of the happiness scale by Lyubomirsky and Lepper (1999). One item was omitted to improve the factor structure. Sample items included: “I felt happy”, and ‘I was happier than my peers’ (Cronbach’s $\alpha = .70$; $M = 4.05$; $SD = .98$). *Self-esteem* was operationalized with the single-item measure of self-esteem (Robins et al., 2001), supplemented by 3 items of the original Rosenberg Self-Esteem scale (RSES; Rosenberg, 1965). Factorial construct validity performed best with three positively tinged items: ‘I had a high self-esteem’, ‘I felt that I was a person of worth’, and ‘I felt that I had a number of good qualities’ (Cronbach’s $\alpha = .80$; $M = 4.49$; $SD = 1.02$). *Psychopathology* was measured via indicators of depression, stress, loneliness, and social anxiety. *Depression and stress* were each measured with four items of the DASS-21 for Dutch speaking adolescents (de Beurs et al., 2001; also see Lovibond & Lovibond, 1995). For both depression and stress one item was deleted due to poor construct fit (depression: “I felt sad”; Stress: “I was impatient when something didn’t go my way”). Example item for depression was “I was unable to become enthusiastic about anything” and an example item for stress was “I found it difficult to relax” (Depression: Cronbach’s $\alpha = .80$; $M = 1.90$; $SD = 1.03$; Stress: Cronbach’s $\alpha = .79$; $M = 3.01$; $SD = 1.34$). *Loneliness* was measured with four items of the RULS-8 for Dutch speaking adolescents (Goossens et al., 2014). Construct validity indicated that this indicator reached the most optimum level with two items: ‘I felt alone’, and ‘I felt excluded’ ($r = .60$; $M = 1.67$; $SD = 1.04$). *Social anxiety* was measured with four items

from the Social Anxiety Scale for Adolescents (SAS-A; Greca & Lopez, 1998). One item was removed to improve factorial validity of the construct (e.g., “I felt that other made fun of me”). Example items were ‘I worried about what others think about me’, and ‘I worried others didn’t like me’ (Cronbach’s $\alpha = .85$; $M = 2.62$; $SD = 1.40$).

Body Image

Body image variables represented either positively tinged body image (i.e., body satisfaction) or negatively tinged body image (i.e., body shame). These indicators are not on the same continuum, as having low levels of body shame should not necessarily be presented as having high body satisfaction (cf. Tylka & Wood-Barcalow, 2015). All items referred to how participants felt in the past month. A CFA confirmed the two-factor structure of body image ($\chi^2/df = 2.03$; $p = .09$; CFI = .99; TLI = .99; RMSEA = .05, 90% CI [.00, .10]; SNMR = .02). The two-factor model performed significantly better than a single-factor solution ($\chi^2(1) = 273,96$, $p < .001$). *Body satisfaction* was measured with the 4-item body satisfaction scale (Veldhuis et al., 2017). The items pertain to adolescent’s satisfaction with their physical appearance, such as body shape and facial features. One item, reflecting satisfaction with their weight, was deleted to improve factorial validity of the construct. Participants rated their appearance from 1-10 (Cronbach’s $\alpha = .87$; $M = 7.2$, $SD = 1.65$). *Body shame* was measured with four items from the body shame scale of the self-objectification scale for youth (cf. Lindberg et al., 2006; McKinley & Hyde, 1996). Two items, on being ashamed about weight and size, were removed to improve factorial validity of the construct. Hence, the two items included were ‘I felt bad about myself when I didn’t look as good as I could’, and ‘I felt ashamed of myself when I hadn’t made an effort to look my best’ ($r = .72$; $M = 1.95$, $SD = 1.23$).

Results

Participant Characteristics

Almost all participants (98%) owned an Instagram account, and 43.6% owned a Facebook account (see supplementary material, Table I; all supplementary materials can be found here: https://osf.io/mqxvh/?view_only=876997eb850c-428d8198aa21a8da2c69). Participants with a Facebook account had an average of 157 friends on Facebook ($SD = 796.21$, range = 0–10000), and the majority of participants did not share any photos of oneself on Facebook in the previous month. On a daily basis, participants indicated to use Facebook very little. Instagram was used more often, approximately 0.5 to 2 hours daily (56.5%), and posted between one and five photos in the past month (47.5%). Participants had an average of 544 followers ($SD = 3459.71$, range = 5–69014) and 549 persons being followed ($SD = 672.9$, range = 5–10000). Among participants, 52.5% were categorized as active photo sharers, being those who’ve shared photos of themselves in the past month ($N = 214$). The passive SMU group consists of the complete sample including the non-sharers as well as the active photo sharers ($N=408$).

Relationships Between Types of Active Self-Presentation and Passive Exposure

For both active self-presentations and passive exposures thereto, examining RQ1, Pearson's bivariate correlation analysis revealed positive relationships between the four types of active self-presentation as well as between the types of passive exposure (see supplementary material; Table II). That is, intimate self-presentation was significantly and positively, yet weakly, related to authentic, edited, and positive self-presentation. Authentic self-presentation had a moderately significant and positive association with positive self-presentation. All types of passive exposures were significantly and positively related to each other, varying from weak to strong associations. Furthermore, results showed that almost all types of active online visual self-presentation have positive and significant, yet weak to moderate, relationships with the types of passive exposure. As such, if one is actively engaged in online self-presentation, one also is somewhat passively exposed to the various types of online self-presentation, and vice versa.

To further explore the patterns between the different types of active and passive behavior, we investigated density plots and frequencies. Descriptive results show that there is variation *between* the types of active and passive behaviors (supplementary material on OSF; Figure I and Table III). For instance, whereas 61.2% of de active users posted positive self-presentations either often or always, only 35.5% of the passive users reported to be often or always exposed to positive self-presentations of others. The results further show that there is variation in the frequency *within* the types of active and passive behaviors. For example, only 1.9% of the active social media users indicated to post edited photos often or always, compared to 29.9% of adolescents who indicated to post authentic photos often or always. Similarly, 35.5% of the passive social media users reported to be exposed to positive self-presentations of other often or always, whereas exposure to intimate self-presentations occurred less frequently (9.5% often or always). In all, the plots and descriptive frequencies indicate that there are not only differences in the extent of active and passive behaviors, but also that these behaviors vary per self-presentation type (i.e., authentic, edited, intimate, positive). Results thus already indicate that the passive-active dichotomy is too simplistic to accurately grasp upon associations with mental health and body image, as behaviors within the passive-active dichotomy also vary.

Relationships Between Types of Self-Presentation and Passive Exposure and Mental Health and Body Image

For RQ2, we examined how the various types of active self-presentation and passive exposures coincided with adolescents' mental health and body image. Pearson's correlations were examined between all variables for the complete sample (i.e., passive group) and the subsample of active photo sharers (supplementary material on OSF; Table II). Mental health indicators as well as body image indicators were

moderately and negatively correlated. Within the active photo sharers group, correlations showed that authentic and positive self-presentation coincided with higher levels of psychological well-being, whereas edited self-presentation was associated with higher levels of psychopathology. Furthermore, edited self-presentation had a small positive correlation with body shame. Correlations of the passive SMU group (i.e., complete sample), showed that exposure to edited and intimate self-presentations of others were correlated with higher levels of psychopathology. No significant associations between types of passive exposures and psychological well-being were found. In addition, positive and significant relationships were found between edited, intimate, positive exposures to self-presentations of others and body shame. Lastly, exposure to intimate self-presentations of others had a small negative correlation with body satisfaction.

As the types of self-presentations and passive exposures thereto can occur in varying combinations and are not necessarily mutually exclusive, we tested two different structural models, one for the subsample of active photo sharers (i.e., including all types of active self-presentation) and one for the passive group (i.e., including all types of passive exposures). To reduce parameter estimates, the structural equation model only included the structural part (see Figure 1 and Figure 2 for significant parameters, and Table 1 for all parameter estimates). Age and gender were added as control variables based on previous research (Schemer et al., 2021; Twenge & Farley, 2021).

Figure 1
Model Examining Relations Between Types of Active Self-Presentation, Body Image, and Mental Health

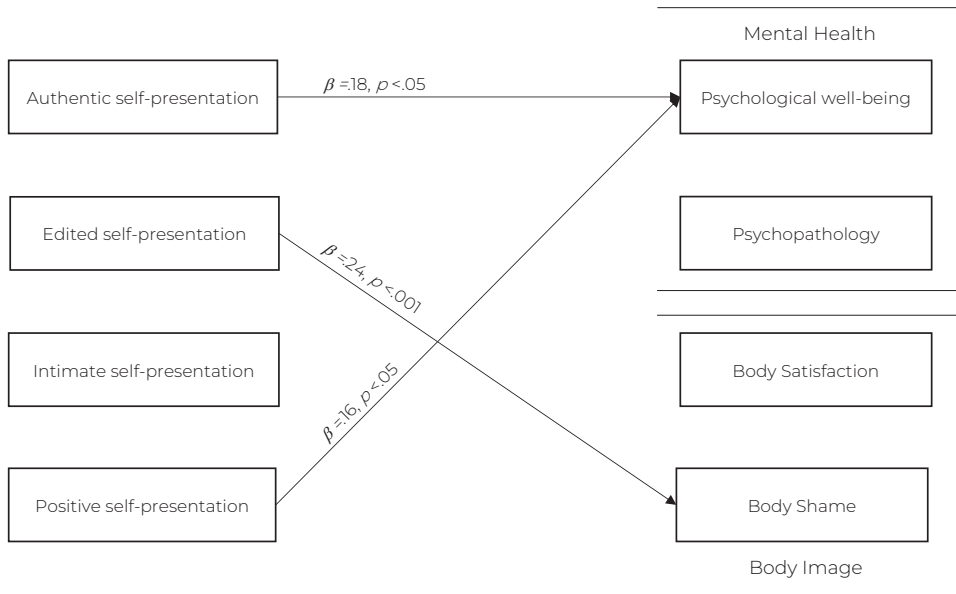
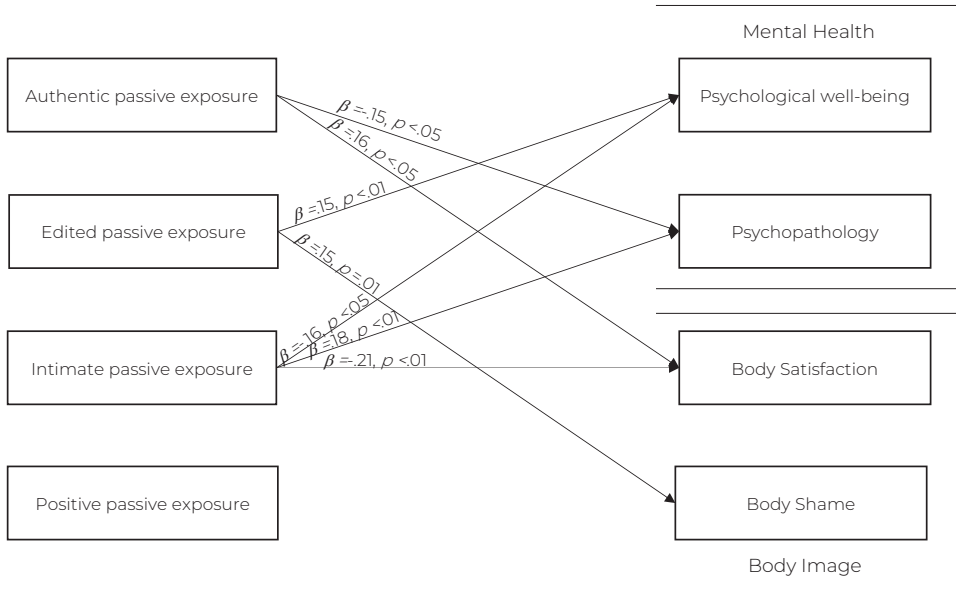


Figure 2

Model Examining Relations Between Types of Passive Exposure, Body Image, and Mental Health



Active Self-Presentation, Passive Exposure, and Mental Health

The structural model conducted with the subsample of active photo sharers revealed that adolescents who actively posted authentic photos ($b = .17, b = .18, p < .05$) and positive photos ($b = .17, b = .16, p < .05$) coincided with higher levels of psychological well-being. Contrary, none of the active self-presentation types were related to variance in psychopathology.

For the complete sample of passive social media users, findings illustrated that being exposed to edited photos of others was associated with higher levels of psychological well-being ($b = .10, b = .15, p < .01$), whereas exposure to intimate photos of others coincided with lower levels of psychological well-being ($b = -.12, b = -.16, p < .05$). For psychopathology, results showed that more passive exposures to authentic self-presentations of others was associated with lower levels of psychopathology ($b = -.12, b = -.15, p < .05$), whereas more passive exposure to intimate self-presentations of others was associated with higher levels of psychopathology ($b = .15, b = .18, p < .01$).

Findings of control variables indicated, for active SMU as well as passive SMU, that specifically girls were less likely to experience psychological well-being and more likely to experience psychopathology. Additionally, older adolescents were more likely to experience higher levels of psychopathology

Table 1
Model Results of the Relations Between Active Self-Presentation, Passive Exposure, Mental Health, and Body Image

	Mental health						Body image					
	Psychological well-being			Psychopathology			Body satisfaction			Body shame		
	<i>b</i>	<i>b</i>	sig	<i>b</i>	<i>b</i>	sig	<i>b</i>	<i>b</i>	sig	<i>b</i>	<i>b</i>	sig
Active self-presentation												
Authentic	.17	.18	.018	-.11	-.11	.129	.04	.02	.758	-.11	.09	.236
Edited	.02	.03	.716	.09	.10	.151	-.07	-.04	.546	.28	.24	.000
Intimate	.05	.05	.500	.07	.07	.291	.20	.12	.094	.09	.07	.335
Positive	.17	.16	.032	-.08	-.08	.299	.01	.00	.966	-.02	-.02	.811
<i>Control variables</i>												
Age (in years)	-.06	-.11	.111	.12	.20	.003	-.14	-.15	.034	.10	.15	.036
Gender (1 = female)	-.48	-.25	.000	.58	.29	.000	-1.01	-.31	.000	.31	.13	.067
Passive exposure												
Authentic	.08	.10	.135	-.12	-.15	.026	.24	.16	.015	-.12	-.11	.110
Edited	.10	.15	.009	.00	.01	.919	.11	.10	.095	.13	.15	.010
Intimate	-.12	-.16	.017	.15	.18	.004	-.30	-.21	.001	.10	.10	.160
Positive	.02	.02	.717	.04	.05	.431	-.03	-.02	.717	.06	.05	.440
<i>Control variables</i>												
Age (in years)	-.04	-.07	.167	.07	.13	.007	-.11	-.11	.029	.06	.08	.122
Gender (1 = female)	-.52	-.29	.000	.64	.34	.000	-1.03	-.31	.000	.48	.20	.000

Active Self-Presentation, Passive Exposure, and Body Image

A structural model including the subsample of active photo sharers revealed that, when controlling for age and gender, adolescents' who shared more edited self-presentation experienced more body shame ($b = .28$, $b = .24$, $p < .05$), but none of the types were significantly related to body satisfaction.

The structural model with the complete sample for passive exposures on social media showed that, after controlling for age and gender, adolescents who were exposed to edited self-presentations of others resulted in higher levels of body shame ($b = .13$, $b = .15$, $p < .05$). Adolescents with higher exposure to authentic photos experienced higher body satisfaction ($b = .24$, $b = .16$, $p < .05$), whereas more exposure to intimate self-presentations was associated with lower levels of body satisfaction ($b = -.30$, $b = -.21$, $p = .001$).

Control variables for active and passive SMU indicate that girls, in comparison to boys, as well as older adolescents experienced lower levels of body satisfaction. Then, for active SMU, older adolescents were more likely to experience body shame, but for passive SMU age was not significantly related to body shame. This result indicated that older adolescents become more self-objectified when actively involved in self-photo sharing in comparison to passively being exposed to visual self-presentations of others. In addition, girls, in comparison to boys did not experience more body shame in case of active self-presentation. Contrary, girls, in comparison to boys, did experience more body shame for passive exposure to self-presentations of others. Hence, girls seem to be more sensitive to passive exposures, whereas active self-presentations might give them more feelings of control and empowerment (cf. Tiidenberg & Gómez Cruz, 2015).

Conclusion and Discussion

The current study aimed to further the debate on social media effects, through refinement of the active-passive dichotomy. That is, we examined a more detailed level of analysis including the directionality of interaction (i.e., active vs. passive), function of interaction (i.e., self-photo sharing) and the content of the interaction (i.e., authentic, edited, intimate, and positive). The current study demonstrated that, in line with our theoretical argumentation, refinement of the passive-active frequency dichotomy creates a better understanding *when*, *if* and *how* SMU coincides with mental health and body image.

First of all, the descriptive results showed that the passive-active frequency dichotomy depicts an oversimplification of the actual content adolescents actively present or are exposed to. Adolescents varied in their frequency of engaging in types of visual active self-presentation, as well as passive exposures thereto. For example, consistent with previous results of Yang and Brown (2017), adolescents reported to most often post *positive* self-presentations of themselves (i.e., posting

photos that show their positive sides), but not so much *intimate* self-presentations (i.e., showing openly show they privately feel) or *edited* self-presentations (i.e., posting adjusted photos).

Second, this study demonstrated that understanding the potential impact on adolescents' mental health and body image depends on specifying types of active and passive SMU. For example, passively being exposed to authentic self-presentations of others was related to reduced levels of psychopathology, whereas exposure to intimate self-presentations coincided with higher levels of psychopathology. Our refinement of the passive-active dichotomy could provide an explanation for the previously found mixed results in earlier studies into visual online self-presentations, as the types of self-presentation were not clearly identified yet (i.e., positive outcomes; Chang et al., 2019; and negative outcomes; Cohen et al., 2018). Study results thus confirm that we should move away from the active-passive frequency dichotomy, and follow a more communication-centered approach emphasizing the message types.

Next to the refinement of the active-passive dichotomy, the current study also emphasized the importance of accurately reflecting on the complexity of mental health as well as body image (cf. Meier & Reinecke, 2020). Results illustrated that social media behaviors do not uniformly coincide with all indicators of well-being and body image. For example, findings illustrated that *active* edited photo sharing coincides with higher body shame, whereas no such association was found for body satisfaction. Similarly, passive exposures to authentic self-presentations of others reduced levels of psychopathology, whereas such a relationship was not confirmed for psychological well-being. As such, future studies should carefully consider which indicators of mental health, and which dimension of mental health (i.e., psychopathology and psychological well-being) are relevant for their study.

Theoretical implications pertain to the various pathways of the possible impact of SMU on mental health and body image. Whereas consequences of active self-presentation were mainly guided by principles of identity shift, hyperpersonal model, self-discrepancy, and self-awareness (cf. Duval & Wicklund, 1972; Gonzales & Hancock, 2008; Higgins, 1987; Walther, 1996), consequences of passive exposures were primarily guided by social comparison and internalization (cf. Veldhuis, 2020; Festinger, 1954). The current study emphasized that the principles guiding passive and active SMU should be integrated with the message type. As such, beyond moving towards a more refined understanding of factors and mechanisms that are of importance for the relationship between SMU and mental health and body image, future research should also work towards a more integrated theoretical framework unraveling the circumstances in which either positive or negative outcomes can be expected.

The limitations of our study are discussed in the context of its strengths. First, this study was well-powered addressing concerns of SMU among adolescents as a relevant target group. However, the self-reported measures involved retrospective reporting in a specific timeframe (e.g., 'last month'), which may include, for example, habitual behavior that is difficult to accurately recall, especially among adolescents. Future research may use tracking technology of what adolescents watch and post on Instagram. Though, especially among adolescents this is paired with many privacy issues. Additionally, this study is cross-sectional, therefore, no claims can be made on either causality or directionality of behaviors and feelings. Future studies with longitudinal research designs would allow to look more specifically into the prolonged impact of visual SMU on mental health and body image as well as to differentiate between within-person person effects and between-person effects (Orben et al., 2019; Schemer et al., 2021). Finally, it should be noted that the relationship between social media use and mental health is extremely complex. Even though the current study exemplifies a next step in further refinement and understanding heterogeneous results in social media effects, social media effects can still vary based on for example person-specific susceptibility (e.g., stable personality characteristics) or environmental factors such as culture (Masur et al., 2022). Grasping upon the complete picture of how individuals use and experience social media remains an important avenue for future research.

Overall, our findings supported our theoretical argumentation that a further refinement of the active-passive dichotomy has the potential to create a better understanding on *when*, *if* and *how* SMU is related to indicators of mental health and body image. The current study presented a next step in unraveling the heterogeneous results within social media effect studies, by distinguishing the type of interactions one engages in, and accounting for the message content they send and receive. Adolescents engage in different patterns of creating and consuming authentic, edited, intimate and positive self-presentation. Studying these types of self-presentation, and exposure thereto, further explained variations in adolescent mental health and body image perceptions. Hence, we argue that social media studies should follow a more detailed communication-centered approach emphasizing the message types, and carefully select a relevant set of mental health and body image indicators.

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5

CHAPTER 5

The impact of seeing and posting photos on mental health and body satisfaction among adolescents: A cross-national panel study

Abstract

A vivid scholarly debate addresses the extent to which social media usage is detrimental for adolescents' mental health and body satisfaction. The current study aims to overcome three limitations of previous studies: (1) we differentiate between different types of active and passive social media use (i.e., authentic vs. edited content), (2) we examine both between- and within-person results, and (3) we take a cross-national approach. Therefore, a three-wave panel study was conducted among 977 adolescents in Japan ($N=433$) and the Netherlands ($N=553$) to longitudinally investigate the relationships between active visual self-presentation, passive exposures thereto, and mental health and body satisfaction. Between-person results generally indicate that, regardless of being active or passive, both creating or seeing *authentic* content can be associated with increases in mental health and body satisfaction. Contrary, both creating and seeing *edited* content can coincide with reduced levels of mental health and body satisfaction. Nevertheless, the results should be seen in light of differences in between- and (lagged) within-person processes as well as cross-country differences. In all, evidence exemplifies the need for a communication-centered approach specifying content heterogeneity, showcases differences in between- and within-person effects, and demonstrates cross-national differential susceptibility to social media effects.

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Introduction

Research on how new media technologies shape and change the way individuals feel and behave has been of interest since decades (e.g., Kraut et al., 1998, 2002; Orben, 2020a). Whether it is about radio, television, or the rise of the internet, widespread concerns regarding the possible effects on young people recurs (Orben, 2020a; Wartella & Jennings, 2000; Wartella & Reeves, 1985). Currently, scholarly attention has been drawn to the possible detrimental effects of digital media and use of social media on mental health and body image. These widespread concerns have led to accumulation of research that has been synthesized in many systematic reviews and meta-analyses, though, with mixed results (Best et al., 2014; McCrae, 2017; Orben, 2020b; Sarmiento et al., 2020). Consequently, a vivid debate on whether or not use of digital media, including social media, has a detrimental effect on adolescents' mental health and body image has arisen (Holland & Tiggemann, 2016; Orben & Przybylski, 2019; Twenge, 2020). Especially for adolescents who are growing up in a social media saturated environment, more thoroughly understanding the conditions under which SMU impacts adolescents' mental health and body image represents an important challenge to further the debate. In the current study we aim to further unravel social media effects by addressing three limitations of previous studies that; primarily 1) applied a channel-centered approach, 2) were cross-sectional in nature, and 3) relied on single-country results.

First of all, previous studies into social media effects largely focused on a channel-centered approach (Meier & Reinecke, 2020). That is, studies specifically focused on investigations of 'screen time' on social media, largely ignoring the different behaviors and activities taking place (cf. Appel et al., 2020; Huang, 2017; Orben, 2020b; Saiphoo & Vahedi, 2019; Vannucci & McCauley Ohannessian, 2019). Without differentiating into more specific behaviors or activities on social media, it is difficult to examine under which conditions associations with mental health and body image apply (e.g., Bij de Vaate et al., 2020; Orben, 2020b; Saiphoo & Vahedi, 2019). Second, to the best of our knowledge, previous studies were most often cross-sectional in nature (e.g., Appel et al., 2020; Bij de Vaate et al., 2020; Saiphoo & Vahedi, 2019; Twomey & O'Reilly, 2017). This means that, thus far, studies mainly looked into social media effects from a between-person perspective (Molenaar, 2004). Results of between-person studies, however, cannot make inferences about the direction of causality between SMU and changes in mental health and body image. Third, to date, most studies concentrated on single-country results. Comparing results from single-country studies is difficult due to, for example, plurality in conceptualizations and operationalizations of variables (Bij de Vaate et al., 2020; Petropoulos Petalas et al., 2021). As a result, it remains unclear how social media effects align or differ across countries.

The current study addresses these gaps by investigating both longitudinally and cross-nationally how specific types of SMU relate to adolescents' mental health and body satisfaction. The next sections will discuss the importance of differentiating

types of SMU, the need for a long-term perspective, as well as a cross-national comparison. To this end, this study aims to further elaborate to which extent content-specific SMU is related to mental health and body satisfaction.

Social Media Usage, Content Heterogeneity, and Mental Health and Body Satisfaction

The mixed results of social media effect research thus far led to the emergence of the distinction between passive and active SMU as an important factor to more accurately examine the impact of social media on mental health and body image. In general, “passive SMU”, characterized by observing, scrolling, and viewing social media content, is hypothesized to coincide with *decreases* in mental health. Contrary, “active SMU”, typically characterized by posting and creating social media content, is predicted to coincide with *increases* in mental health (Dienlin & Johannes, 2020; Verduyn et al., 2017). Recent studies, however, suggest that there is limited support for the active-passive hypotheses (Bij de Vaate et al., 2020; Valkenburg et al., 2022). One of the reasons for the inconsistent results for active and passive SMU is that they can include heterogeneous content, ranging from, for example, authentic to idealized content. The various types of content one creates or sees can have a differential association with mental health and body image. Hence, we propose the active-passive dichotomy should be further refined by specifying the content of the created or seen post. Therefore, this study specifies content heterogeneity of SMU referring to either self-effects (i.e., effects of messages of the creators themselves on their on mental health and body satisfaction) or recipient effects (i.e., effects of *others’* messages on recipients’ mental health and body image).

One way of differentiating content heterogeneity is by studying edited content (i.e., inauthentic or idealized content) in comparison to authentic or unedited content on social media (cf. Cohen et al., 2018; Twomey & O’Reilly, 2017). Looking at self-effects, studies thus far especially indicate a distinction between the effects of actively creating authentic or idealized self-presentations. Generally, actively edited, inauthentic or idealized self-presentations have been systematically shown to relate to negative outcomes for an individuals’ self-concept such as lowered self-esteem or body image (Mills et al., 2018; Twomey & O’Reilly, 2017; Y. Wang et al., 2019). Contrary, creating authentic self-presentations have been found to induce positive outcomes for an individual’s self-concept such as increased life satisfaction and psychological well-being or reduced stress levels (Bij de Vaate et al., 2020b, Grieve & Watkinson, 2016; Reinecke & Trepte, 2014; Twomey & O’Reilly, 2017). Results of the latter studies are consistent with the expectations from the self-discrepancy theory (Higgins, 1987), were small discrepancies between the actual and ought for self would foster positive feelings about oneself as opposed to larger discrepancies that increase negative feelings about oneself. Hence, authentic self-presentations are seemingly triggering little discrepancies between online and offline self, whereas edited self-presentations create larger discrepancies between the online and offline self.

Similarly, recipient effects of *passive* exposures to posts of others also show different outcomes based on the content specification. For example, seeing authentic visual self-presentations of others coincided with higher levels of mental health and body image (Bij de Vaate et al., 2020b). Seeing edited or idealized self-presentations of others, however, is typically associated with decreased body image (Kim & Park, 2016; Kleemans et al., 2018; Politte-Corn & Fardouly, 2020). We must note, however, that in certain cases seeing idealized content also facilitates positive outcomes that may be explained by inspiration, as supported by recent studies (Bij de Vaate, et al., 2020b; Meier et al., 2020). Nevertheless, passive exposure to others' idealized or positive self-presentations has been repeatedly found to reduce mental health, specifically triggered by upward comparisons or envy (e.g., Appel et al., 2016; Sherlock & Wagstaff, 2019). Generally, these results align with the presumptions of the Social Comparison Theory (Festinger, 1954), where upward comparisons are expected to reduce levels of mental health and body image and downward comparisons to increase levels of mental health and body image.

Taken together, results of previous studies indicate that, contrary to the expectations of the active-passive dichotomy presumptions, we argue that it is not about being active or passive on social media, but rather the content one creates or sees that determines the potential associations with mental health and body image. To examine the importance of specifying content heterogeneity we compare authentic content with edited content on self-effects as well as on recipient effects. We specifically focus on content heterogeneity in photos (i.e., visual self-presentations) as photo-sharing social media platforms, such as Instagram, have become increasingly popular (Statista, 2022). Additionally, we differentiate within- and between-person processes. Panel studies offer the opportunity to distinguish whether frequency of types of SMU is related to between-person differences in mental health and body image, and whether frequency of engaging in SMU is related to within-person change in mental health and body image. A within-person approach is important as applying findings from the between level (also referred to as group or inter-individual level) to interpret within-person changes may result in an error of inference (Curran & Bauer, 2011; Hamaker et al., 2015). That is, between-person processes may differ from within-person processes. Between-person correlations (i.e., inter-individual correlations) examine the extent to which content-specific SMU relates to mental health and body image relative to the group mean. Within-person correlations (i.e., intra-individual correlations) examine the extent to which deviations from one's overall score of content-specific SMU relates to deviations from one's overall score on mental health and body satisfaction. Put differently, within-person relations observe how aberrations from one's usual SMU behaviors can be linked to aberrations from one's usual mental health and body satisfaction. In line with the majority of prior research and theoretical assumptions, we propose the following between-person and within-person hypotheses:

Hypothesis 1a: Frequency of creating and seeing authentic visual self-presentations are positively related to mental health and body satisfaction (*between-person* correlation).

Hypothesis 1b: Frequency of creating and seeing edited visual self-presentations are negatively related to mental health and body satisfaction (*between-person* correlation).

Hypothesis 2a: Adolescents with higher levels of creating and seeing authentic visual self-presentations than usual will experience higher levels of mental health and body satisfaction than usual (*within-person* correlation of deviations).

Hypothesis 2b: Adolescents with higher levels of creating and seeing edited visual self-presentation than usual will experience lower levels of mental health and body satisfaction than usual (*within-person* correlation of deviations).

Potential Long-Term Effects of SMU

Social media effect research primarily studied short-term effects of SMU on mental health and body image, however, the potential long-term effects remain understudied. To assess social media effects as a prerequisite to infer causality, we need to study whether an individual's change in SMU precedes or follows an individual's change in mental health and body image. Hence, to unravel a potential long-term effect of content-specific SMU on mental health and body image we particularly aim to examine the lagged within-person effects. To the best of our knowledge, no panel studies thus far have been looking into the (lagged) within-person effects of content heterogeneity regarding self- and recipient-effects of SMU.

A few recent studies have examined the (lagged) within-person associations of general SMU and mental health (Boers et al., 2019; Coyne et al., 2020; Jensen et al., 2019; Orben et al., 2019; Schemer et al., 2020), focusing on for example time spent on social media instead of content heterogeneity. Time spent on social media has been found to have a (very) small negative lagged within-person association with mental health (i.e., decreases in life satisfaction, increases in depressive symptoms; Boers et al., 2019; Orben et al., 2019b). However, also non-significant within-person associations have been found by recent panel studies (Coyne et al., 2020; Jensen et al., 2019; Schemer et al., 2020). These inconsistent findings might be due to adolescents' unique susceptibility to media effects (Beyens et al., 2020). This study found that the association between passive SMU and well-being strongly differed across adolescents, with some adolescents feeling worse, some felt feeling better, and others were unaffected. Alternatively, channel-centered approaches may also lead to inconsistent results for longitudinal studies – just like for cross-sectional studies – as merely measuring screentime represents and oversimplification of the various behaviors taking place. Hence, the variation in created and seen content on social media could further provide an alternative explanation for the inconsistent findings.

To underline the importance of specifying the variation in type of content one creates or sees, previous panel studies on the long-term effects of SMU on mental health and body image at the between-level perspective provide initial insights.

For example, mixed evidence was found for the long-term between person impact of *active* SMU, ranging from negative, positive to insignificant outcomes for mental health (J.-L.Wang et al., 2018; K. Wang et al., 2018). Therefore, specifying the content type of active self-presentation might help to give better understand the direction of the potential outcomes. For example, higher levels of editing a selfie was found to be associated with more appearance concerns 6 months later (Wang et al., 2019), whereas, authentic self-presentation was found to increase subjective well-being (Reinecke & Trepte, 2014). These studies, however, differ in the mental health or body image indicators studied and only examined between-person effects. Nevertheless, results indicate that the potential long-term effects of active SMU might be more accurately studied if the type of content is specified.

Long-term effects of *passive* SMU in general seemed to be inducing negative effects on mental health and body image. For example, higher levels of passive SMU at T1 predicted decreased subjective well-being at T2 (Stevic et al., 2019; J.-L. Wang et al., 2018) Similarly, higher levels of selfie-viewing at T1 was related to more appearance related concerns at T2 (Wang et al., 2019). Although these studies are in line with the general idea that passive SMU decreases mental health and body image, specifying the content more clearly might give a more accurate representation of the expected outcomes. Instances can be envisioned in which passively engaging could also be less detrimental. That is, exposure to natural no make-up selfies were found to be less detrimental to an individual's body image than idealized selfies (Politte-Corn & Fardouly, 2020). Similarly, passive exposure to authentic self-presentations was found to increase both mental health as well as body image (Bij de Vaate 2020b).

In all, previous studies confirm the potential lasting effects of SMU on mental health and body image. To further the debate on social media effects and increase understandings of mixed social media effects findings, we need to further unravel both between- and within-person effects, and specifically address content heterogeneity of social media visuals.

RQ1: Do changes in the frequency of creating online visual self-presentations or viewing visual self-presentations of others (i.e., authentic and edited) affect mental health and body satisfaction one month later (time-lagged *within-person* correlation of deviations)?

Cross-National Comparison

Thus far, studies examining how SMU coincides with mental health and body image mainly rely on single country results (Bij de Vaate et al., 2020; Huang, 2017). Since single country studies rely on different conceptualizations and operationalizations of SMU and mental health or body image indicators (Bij de Vaate et al., 2020), making valid cross-country comparisons is difficult. When comparisons are ought to be made

at the country-level, scholars often apply Hofstede's paradigm of national culture (Hofstede, 2001; Odağ & Hanke, 2019). Hofstede's paradigm distinguishes various dimensions in which national contexts can vary. The dimensions of 'individualism-collectivism' and 'uncertainty avoidance' have often been applied to explain differences in SMU in varying national contexts (cf. Bij de Vaate et al., 2020; Liu et al., 2018). In brief, countries varying on the dimension individualism-collectivism differ in the extent to which members place emphasis on the individual being more self-centered, contrasted to being connected to the social context. Countries varying on the dimension uncertainty avoidance differ in the degree to which they try to avoid uncertain and ambiguous situations, such as disclosing information about oneself online (Gudykunst, 1997; Hofstede, 2001). On the one hand, due to differences in national contexts and diversification of audiences, social media effects may not be uniform across countries. On the other hand, due to globalization and individuals becoming more tech-savvy, it can be questioned that social media effects may be more generalizable (Jenkins, 2006; Liu et al., 2018).

Previous studies argue that associations between SMU and mental health may depend on the national context (Bij de Vaate et al., 2020; Boer et al., 2020). A recent study on problematic and intense SMU indicated that associations between types of SMU and mental health indicators varied between countries (Boer et al., 2020). For example, intense social media users reported more psychological complaints than the non-intense users, but this finding was not consistent for each country. Similarly, it has been shown that retrospective self-reports of online engagement are related to higher mental health only in Ireland and the United Kingdom, but not in the United States (Orben & Przybylski, 2019). Hence, results of these studies would suggest differential susceptibility of media effects at the national country level. Nevertheless, similar patterns across countries have also been found. For example, the direction of the associations between social media use and self-esteem, and psychological well-being were largely similar between United States participants and South Korean participants (Lee et al., 2014).

Regarding body image, results of several meta-analyses indicated that the influence of traditional media on body image is similar across national cultures (e.g., Grabe et al., 2008; Mingoia et al., 2017). However, studies included in these meta-analyses could be considered as having relatively similar national cultural values (i.e., all countries scoring higher on individualism, and relatively low on uncertainty avoidance). Recently, it has been argued that the influence of SMU on body image may also depend on the national context. For example, associations between mass-media use, self-objectification, and positive body image were found to differ per country (Karsay et al., 2020). This study found a direct association between Instagram use and positive body image in South Korea, whereas such a link was absent for Austria, Belgium, and Spain. Similarly, effect sizes of the association between SMU and body image disturbance differed per geographical study-area, where highest effect sizes were found in Australia and the lowest were

found in Asia (Saiphoo & Vahedi, 2019). However, even though the strength of the association between SMU and body image disturbance differed, the direction of the associations was found to be similar (i.e., positive). This aligns with a previous study which found that the direction of the association between social media use and body image was similar for the United States and South Korea (Lee et al., 2014).

In all, further research is needed to understand the role of national contexts in studying social media effects. Therefore, the current study examines whether social media usage and its potential outcomes differ across two countries: Japan and the Netherlands. According to Hofstede's paradigm these two countries vary with respect to the dimensions of individualism-collectivism and uncertainty avoidance. More specifically, with Japan being relatively low in individualism and high in uncertainty avoidance as opposed to the Netherlands which scores higher on individualism and lower in uncertainty avoidance. Note, however, that we acknowledge that the utility of Hofstede's dimensions of national culture has been criticized (Baskerville, 2003; McSweeney, 2002; Voronov & Singer, 2002). Even though support has been found that within-country regions still aligned with the values as expected based on the national context (Minkov & Hofstede, 2012), differences within countries may also exist. Likewise, the countries included in our current study also differ with respect to other aspects, such as language and the social media platforms available. However, empirical studies that apply a cross-national design is scarce. Hence, comparing patterns of SMU and its potential outcomes across these two countries, will provide relevant information on the role of national context in studying social media effects.

RQ2: To what extent are the patterns examined in our previous hypotheses and research question argued for in the above, similar or different across the two countries (i.e., Japan, the Netherlands)?

Method

Procedure and Participants

The data have been collected via three online surveys by a renowned data-collection company. The target group of this study included adolescents aged between 12 and 18 years old. Parental consent was acquired via the data-collection company following standardized procedures, adolescent participant consent was actively acquired in wave 1. Data were collected in May, June, and July, with intervals of 1 month each. Participants were removed from analyses if they did not take part in all waves, indicated to not have an account on social media, did not complete IV's and DV's of the study, and did not meet the attention check criteria. The final sample included 554 Dutch participants (56.7% female, $M_{age} = 15.28$, $SD_{age} = 1.87$) and 433 Japanese participants (75.3% female, $M_{age} = 16.05$, $SD_{age} = 1.35$; see Table S1 for participant details per wave).

Scholars have generally argued that the associations between digital technology use and young people's mental health and body image are small in size (Appel et al., 2020; Orben, 2020b; Saiphoo & Vahedi, 2019). The effect size of the current study is based on a comparable study including associations between various types of active self-presentation, passive exposures and mental health and body image (Bij de Vaate, et al., 2020b), setting the current smallest effect size of interest (SESOI) at $b = .15$ (standardized coefficients above .15). An a priori power analysis in R via the 'pwr' package was conducted to compute the required sample size for this study. Results of a pwr.r.test with an error probability of 5%, desired power of 80%, and SESOI of $b = .15$, calculated a minimum sample size of 345 participants per country.

Measures

All measures were answered on 11-point rating scales (1 = *totally disagree*, 11 = *totally agree*), unless otherwise reported. An 11-point scale was chosen as it would increase sensitivity and is closest to the normal distribution (Cummins & Gullone, 2000; Leung, 2011). Higher scores indicate higher levels of each measure. All measures were tested for factorial validity using a confirmatory factor analysis (CFA). Per construct, all items of each wave were included in the CFA. To account for longitudinal and multigroup (i.e., countries) measurement invariance, factor loadings of each item were constrained to be equal among the two groups and constrained to be equal across waves. Constrained and unconstrained models were compared using ΔCFI , as indicator of measurement invariance. A ΔCFI less than .01 indicates invariance (Cheung & Rensvold, 2002; Meade et al., 2008). Multigroup factorial invariance was not established for the two-dimensional factor of active self-presentation, suggesting that this factor could have a different meaning across Dutch and Japanese adolescents. For all other factors, results of the ΔCFI comparisons indicated longitudinal factorial invariance as well as multigroup (i.e., country) factorial invariance. Hence, these constructs were invariant over time and allow for valid comparisons across groups.

Types of active SMU. Active visual online self-presentation was measured via two content-types: (1) *authentic* self-presentation, (2) *edited* self-presentations in the past month. *Authentic* self-presentation was measured via six items of a modified version of the social media self-presentation scale, revised self-disclosure scale, and the Self-Presentation-on-Facebook-Questionnaire (Michikyan et al., 2015; Wheeless, 1976, 1978; Yang & Brown, 2016). A sample item of the authentic self-presentation scale is "I posted photos of myself online that are similar to who I am offline". Reliability of authentic self-presentation was high (JP: $\omega_{t1} = .92$, $\omega_{t2} = .95$, $\omega_{t3} = .94$; NL: $\omega_{t1} = .99$, $\omega_{t2} = .99$, $\omega_{t3} = .99$). *Edited* self-presentation was measured with six items based on previous photo editing scales (Chua & Chang, 2016; Fox & Rooney, 2015; McLean et al., 2015). A sample item of the edited self-presentation scale is "I have posted photos of myself, to which I've enhanced coloring". The item "I have posted photos of myself, where I made specific body parts look larger or smaller"

has been deleted due to low factor loading on the latent variable. Indicators of edited self-presentation showed high reliability (JP: $\omega_{t1} = .91$, $\omega_{t2} = .93$, $\omega_{t3} = .93$; NL: $\omega_{t1} = .89$, $\omega_{t2} = .90$, $\omega_{t3} = .89$). Answering options ranged from *never* (1) to *always* (11). A CFA validated the two-factor structure of active *authentic* versus *edited* self-presentation, with a satisfactory fit ($\chi^2/df = 3.20$; $p < .001$; CFI = .95; TLI = .94; RMSEA = .07, 90% CI [.064, .070]; SNMR = .05). The two-factor structure model performed significantly better than a one-factor structure solution ($\chi^2(28) = 5154.6$, $p < .001$), supporting our assumed typology.

Types of passive SMU. In contrast to the types of active self-presentation, *passive* SMU was measured by examining the extent to which individuals were exposed to (1) *authentic* photos of others (JP: $\omega_{t1} = .95$, $\omega_{t2} = .94$, $\omega_{t3} = .95$; NL: $\omega_{t1} = .97$, $\omega_{t2} = .97$, $\omega_{t3} = .98$), and (2) *edited* photos of others in the past month (JP: $\omega_{t1} = .94$, $\omega_{t2} = .95$, $\omega_{t3} = .94$; NL: $\omega_{t1} = .92$, $\omega_{t2} = .93$, $\omega_{t3} = .94$; Chua & Chang, 2016; Fox & Rooney, 2015; McLean et al., 2015; Michikyan et al., 2015; Wheeless, 1976, 1978; Yang & Brown, 2016). Like edited self-presentation, the item “I have looked at photos of others of which I think specific body parts were made look larger or smaller” of passive exposure to edited photos of others has been dropped to improve factorial validity. The two-dimensional model fitted the data adequately, $\chi^2/df = 2.66$; $p < .001$; CFI = .96; TLI = .95; RMSEA = .06, 90% CI [.055, .061]; SNMR = .05. A two-factor structure model performed significantly better for types of passive SMU than a one-factor structure solution ($\chi^2(29) = 9539.6$, $p < .001$), further supporting our assumed typology.

Mental health. We relied on the (extended) two-continua model of mental health to measure mental health (cf. Greenspoon & Saklofske, 2001; Meier & Reinecke, 2020), which consists of two indicators that refer to either psychological well-being (i.e., positive mental health) or psychopathology (i.e., negative mental health), as described below. Each item asked participants to indicate how they felt in the past month.

Psychological well-being. Psychological well-being was measured as second order factor, via indicators of happiness, life satisfaction, and self-esteem. Psychological well-being comprised both subjective and more cognitive well-being (Dienlin & Johannes, 2020; Meier & Reinecke, 2020). Subjective well-being is reflected by experiences of pleasure and satisfaction and measured via indicators of happiness and life satisfaction (cf. Diener, 1984; Martela & Sheldon, 2019). Contrary, more cognitive well-being was measured via self-esteem (Dienlin & Johannes, 2020; Martela & Sheldon, 2019). *Happiness* was measured with a total of three items, based on the single-item happiness measure and supplemented by two simplified items of the happiness scale (Abdel-Khalek, 2006; Lyubomirsky & Lepper, 1999). Example items were: “In the past month, I felt happy in general” and “In the past month, I was happier than my peers”. *Life satisfaction* was measured via the abbreviated three-item version of the Satisfaction with Life Scale (Kjell & Diener, 2021). Self-esteem was operationalized via the single-item measure of self-esteem (Robins et al., 2001), and supplemented by 2 items of the Rosenberg (1965)

Self-Esteem scale. Reliability was high in both countries (JP: $\omega_{t1} = .88$, $\omega_{t2} = .90$, $\omega_{t3} = .91$; NL: $\omega_{t1} = .91$, $\omega_{t2} = .92$, $\omega_{t3} = .93$, respectively for each wave). The CFA showed a reasonable fit with the data ($\chi^2/df = 4.11$; $p < .001$; CFI = .94; TLI = .93; RMSEA = .08, 90% CI [.076, .083]; SNMR = .07).

Psychopathology. Psychopathology was measured as a second order factor via indicators of depression, stress, and social anxiety. *Depression* was measured via three items with the highest factor loadings of the dysthymia subscale of the State-Trait Depression Scale, representing the inability to experience positive feelings (Krohne et al., 2002). An example item was: "In the past month, I felt sad". *Stress* was measured with three items of the DASS-21 based on the factor loadings of a cross-cultural comparison among adolescents (Henry & Crawford, 2005; Lovibond & Lovibond, 1995; Mellor et al., 2015). Example item was "In the past month, I found it difficult to relax". *Social anxiety* was measured via three items with the highest factor loadings from the original Fear of Negative Evaluation subscale of the Social Anxiety Scale for Adolescents (SAS-A; Greca & Lopez, 1998). Sample item was "In the past month, I worried about what others think of me". Reliability of second order factors was good in both countries (JP: $\omega_{t1} = .82$, $\omega_{t2} = .83$, $\omega_{t3} = .84$; NL: $\omega_{t1} = .82$, $\omega_{t2} = .85$, $\omega_{t3} = .84$, respectively for each wave). The model fit was sufficient ($\chi^2/df = 3.26$; $p < .001$; CFI = .95; TLI = .94; RMSEA = .07, 90% CI [.064, .071]; SNMR = .08).

Body satisfaction. We used the 4-item body satisfaction scale, reflecting adolescents satisfaction with their physical appearance (Veldhuis et al., 2017). One item, reflecting satisfaction with their weight, was deleted to improve factorial validity of the construct. Reliability of body satisfaction was high in both countries (JP: $\omega_{t1} = .91$, $\omega_{t2} = .92$, $\omega_{t3} = .91$; NL: $\omega_{t1} = .91$, $\omega_{t2} = .92$, $\omega_{t3} = .93$), and the model had good incremental fit (CFI = .95, TLI = .94) but less than good absolute fit indices ($\chi^2/df = 8.54$; $p < .001$; RMSEA = .12, 90% CI [.114, .134]; SNMR = .17).

Analysis Plan

Hypothesis 1 was tested by correlating the random intercepts, representing the between-person perspective (i.e., individual's mean scores across all three waves). The second hypothesis was tested from the within-person perspective, via correlating the within-person variance at T1, capturing their specific deviation at T1 from their overall score (i.e., their usual score). RQ1 has been analyzed by regressing the variables on all measures obtained 1 month earlier. Lastly, RQ2 examined all previous analyses for both countries separately. Model estimations were conducted separately for, on the one hand, psychological well-being, psychopathology, and body image, and on the other hand types of active self-presentation and types of passive exposures. Thus, in all, this study estimated six random intercept cross-lagged panel models (RI-CLPM; see Figure 1 for an example of the examined RI-CLPM for the self-presentation effects on psychological well-being). Autoregressive and cross-lagged paths were constrained to be equal across waves to achieve

more parsimonious models (cf. Hamaker et al., 2015). To answer RQ2 multigroup path invariance was tested. Results indicated that parameter estimates should be freely estimated across groups. Hence, we report on the results of the RI-CLPM's separately for each country (RQ2). In addition, based on previous social media effect research age and gender have been added as control variables to the models (cf. Beyens et al., 2020; Twenge & Martin, 2020). An OSF page provides analysis scripts (R code) additional analyses, merged dataset, and supplementary tables: https://osf.io/pkhdy/?view_only=72675a9c774d46aaa1632171dcaec293.

Results

In a first descriptive step, we analyzed the frequencies of types of active and passive SMU behaviors. For both authentic and edited content types, descriptive findings indicate that participants – across the three waves – are more passively engaged in seeing authentic and edited content (respectively: $M = 5.51$, $SD = 2.12$ and $M = 5.47$, $SD = 2.14$), than actively creating authentic and edited content (respectively: $M = 4.31$, $SD = 3.06$ and $M = 2.57$, $SD = 1.76$). This also indicates that, if participants are actively creating content, they construct more authentic visual self-presentations than edited self-presentations. In general, the Dutch participants were more actively as well as passively engaged, however, Japanese adolescents, on average, reported slightly more edited self-presentations than the Dutch adolescents (respectively $M = 2.94$, $SD = 2.07$; $M = 2.87$, $SD = 1.41$; see Table S2 for all descriptive results of active and passive SMU typologies). Second, we analyzed the zero-order correlations between types of active SMU, passive SMU, body image and mental health (see Table S3 for zero-order correlations). Significant correlations between variables included in our hypotheses were mainly in line with our theoretical assumptions. However, among the Japanese sample we also found associations opposite to our assumptions, namely that creating and seeing authentic content was associated with higher levels of psychopathology (i.e., lower levels of mental health), further analyzed below.

Content Heterogeneity, Active Self-Presentation, and Mental Health

H1a predicted that, at the between person-level, creating authentic self-presentations are positively related to mental health (see Table 1a-b for findings of the RI-CLPM including types of active self-presentations and mental health). Findings showed that the correlation of random intercepts of authentic self-presentation and psychopathology was non-significant across the two countries. The correlation between random intercepts of authentic self-presentation and psychological well-being yielded a significant and positive relationship among Dutch adolescents, but not for Japanese adolescents. Dutch adolescents who – on average across the three waves – had a higher frequency of posting authentic self-presentations also experienced slightly higher levels psychological well-being. Results of H1a (i.e., authentic self-presentation effects on mental health) are only partly supported.

H1b proposed that frequency of posting *edited* self-presentations is negatively related to mental health. Findings yielded a significant correlation between the random intercepts of edited self-presentation and psychopathology. In both countries, results indicated that adolescents who – on average across the three waves – had a higher frequency of posting edited photos experienced higher levels of psychopathology, and thus experienced lower levels of mental health. In both countries, we did not find a significant correlation between the random intercepts of edited self-presentation and psychological well-being. Thus, H1b regarding edited self-presentation effects on mental health, is only partly supported.

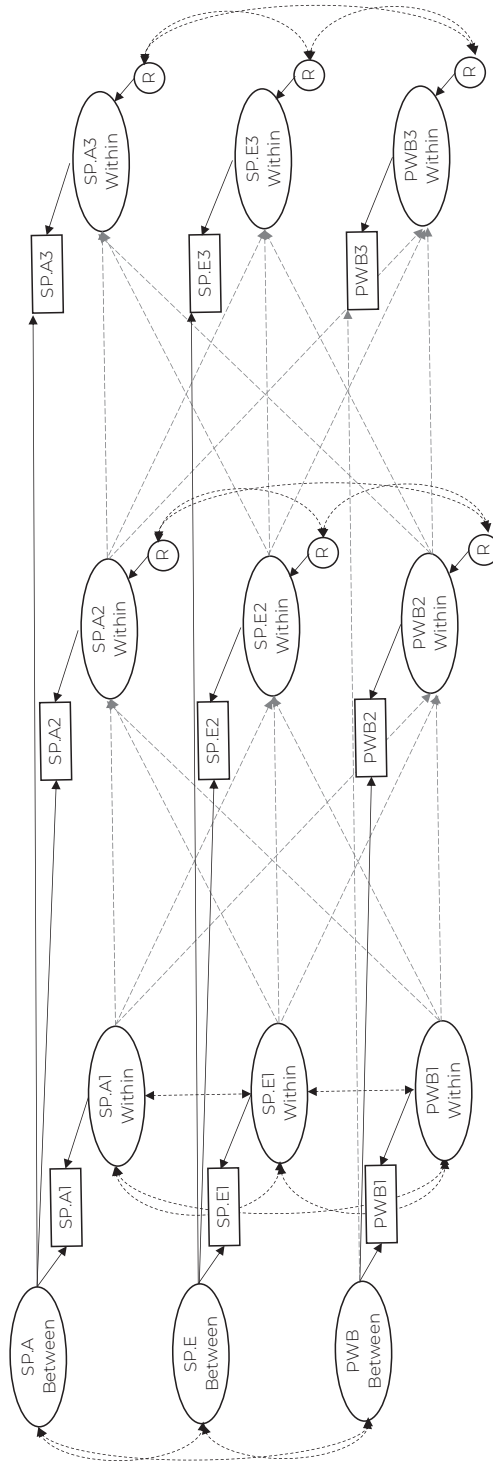
H2a postulated that a within-person change in creating *authentic* self-presentation should be positively related to within-person changes in mental health. Then, H2b predicted that a within-person change in frequency of *edited* self-presentation should be negatively related to within-person changes in mental health. In both countries, no such significant correlations were found. Hence, looking at within-person self-effects on mental health, results did not support the predictions of H2a and H2b.

With RQ1 we examined the prolonged impact of online self-presentations on mental health 1 month later. Results showed that, for both Dutch and Japanese adolescents, changes in frequency of an individual's online self-presentation did not have a prolonged impact on an individual's mental health 1 month later. Among the Dutch sample, however, results did indicate that an individual's increase in levels of psychological well-being predicted a lower frequency of posting edited photos of oneself in the subsequent month. Thus, regarding RQ1 we did not find a longitudinal effect of self-presentation and mental health, but we did find a longitudinal effect of psychological well-being on edited self-presentation.

Content Heterogeneity, Self-Presentation Effects, and Body Satisfaction

At the between-person level, H1a postulated that frequency of creating authentic self-presentations is positively related to body satisfaction (see Table 1c for findings of the RI-CLPM including types of active self-presentations and mental health). Results indicated that the random intercepts of the two variables were significantly correlated within the Dutch adolescent group. No such significant correlation between the random intercepts was found among the Japanese adolescent sample. Hence, the assumption that adolescents who – on average across the three waves – had a higher frequency of posting authentic photos also experienced slightly higher levels body satisfaction (H1a), was only supported among Dutch adolescents.

Figure 1
Hypothesized Between-Person and Within-Person Relationships between Types of Active SMU and Psychological Well-being



Note. SPA = Self-presentation authentic, SPE = Self-presentation edited, PWB = Psychological well-being. The dotted lines connecting the between-person variables represent between-person relations across all waves. The dotted lines connecting the within-person variables represent within-person relations per wave. The striped lines represent the within-person cross-lagged relations across waves.

Table 1a
Parameter Estimates of Active Self-Presentation and Psychopathology Obtained from the Random-Intercept Cross-Lagged Panel Model, Specified for the Two Countries

		JP			NL		
		b	SE	p	b	SE	p
<i>Between-person correlation across all waves</i>							
Authentic self-presentation	↔	1.541	0.192	<.001	0.948	0.232	<.001
Authentic self-presentation	↔	0.213	0.156	0.172	-0.394	0.289	0.172
Edited self-presentation	↔	0.609	0.190	<.01	0.417	0.122	<.01
<i>Within-person correlations at T1</i>							
Authentic self-presentation	↔	0.597	0.150	<.001	1.134	0.213	<.001
Authentic self-presentation	↔	-0.071	0.138	0.608	0.191	0.233	0.412
Edited self-presentation	↔	0.128	0.156	0.412	-0.161	0.107	0.131
<i>Autoregressive paths across 1 month (constrained)</i>							
Authentic self-presentation	→	0.338	0.063	<.001	0.053	0.091	0.558
Edited self-presentation	→	0.302	0.061	<.001	0.068	0.063	0.279
Psychopathology	→	0.221	0.107	<.05	0.349	0.070	<.001
<i>Cross-lagged within person changes across one month (constrained)</i>							
Authentic self-presentation	→	0.087	0.060	0.150	0.049	0.024	<.05
Authentic self-presentation	→	0.034	0.072	0.635	0.003	0.028	0.915
Edited self-presentation	→	-0.002	0.050	0.971	0.351	0.141	<.05
Edited self-presentation	→	-0.059	0.065	0.364	0.061	0.059	0.296
Psychopathology	→	-0.032	0.055	0.554	0.076	0.139	0.587
Psychopathology	→	-0.018	0.062	0.778	0.115	0.047	<.05

Note. Significant findings included in our hypotheses and research questions have been highlighted in bold. Model fit: $\chi^2/df = 1.65$; $p < .05$; CFI = .99; TLI = .98; RMSEA = .04, 90% CI [.013, .056]; SNMR = .02.

Table 1b
Parameter Estimates of Active Self-Presentation and Psychological Well-Being Obtained from the Random-Intercept Cross-Lagged Panel Model, Specified for the Two Countries

	JP			NL		
	<i>b</i>	SE <i>b</i>	<i>p</i>	<i>b</i>	SE <i>b</i>	<i>p</i>
<i>Between-person correlation across all waves</i>						
Authentic self-presentation ↔ Edited self-presentation	1.581	0.189	<.001	0.991	0.210	<.001
Authentic self-presentation ↔ Psychological well-being	0.333	0.182	0.068	0.933	0.295	<.01
Edited self-presentation ↔ Psychological well-being	-0.073	0.215	0.734	-0.073	0.118	0.538
<i>Within-person correlations at T1</i>						
Authentic self-presentation ↔ Edited self-presentation	0.565	0.146	<.001	1.115	0.225	<.001
Authentic self-presentation ↔ Psychological well-being	-0.174	0.154	0.258	0.260	0.239	0.276
Edited self-presentation ↔ Psychological well-being	-0.056	0.172	0.746	0.131	0.106	0.214
<i>Autoregressive paths across 1 month (constrained)</i>						
Authentic self-presentation → Authentic self-presentation	0.315	0.064	<.001	0.049	0.096	0.611
Edited self-presentation → Edited self-presentation	0.301	0.064	<.001	0.094	0.071	0.190
Psychological well-being → Psychological well-being	0.422	0.081	<.001	0.478	0.075	<.001
<i>Cross-lagged within person changes across one month (constrained)</i>						
Authentic self-presentation → Edited self-presentation	0.080	0.061	0.192	0.044	0.026	0.093
Authentic self-presentation → Psychological well-being	-0.014	0.065	0.832	-0.009	0.025	0.711
Edited self-presentation → Authentic self-presentation	-0.005	0.051	0.921	0.311	0.154	<.05
Edited self-presentation → Psychological well-being	0.091	0.059	0.127	-0.040	0.052	0.440
Psychological well-being → Authentic self-presentation	0.051	0.053	0.334	-0.202	0.193	0.296
Psychological well-being → Edited self-presentation	0.014	0.059	0.812	-0.167	0.066	<.05

Note. Significant findings included in our hypotheses and research questions have been highlighted in bold. Model fit: $\chi^2/df = 1.45$; $p > .05$; CFI = .99; RMSEA = .03; 90% CI[.000, .051]; SNMR = .02.

H1b predicted that adolescents with a higher frequency of posting edited self-presentations than others would experience lower levels of body satisfaction. The random intercepts of the two variables were found to be non-significant among both groups. Results of between-person edited self-presentation effects on body image did not support the predictions of H1b.

At the within-person level, H2a proposed that adolescents with a higher frequency of posting authentic self-presentation at T1 than they normally do across all waves, will also experience higher levels of body satisfaction at T1 than they normally have across all waves. In both countries, no such significant correlation was found. Thus, no support was found for within-person changes of self-presentation effects on body image (H2a).

H2b hypothesized that adolescents with a higher frequency of posting edited self-presentation than usual, will also experience lower levels of body satisfaction than usual. Results revealed a small significant correlation among Japanese adolescents, suggesting that when these adolescents posted more edited self-presentations at T1 than they normally do across three waves, they also experienced higher levels of body satisfaction at T1 than normally. Contrary to our expectation, we found a positive correlation instead of the hypothesized negative relationship. No significant correlation was found among Dutch adolescents. Thus, findings did not support the expected within-person effects of edited self-presentation on body satisfaction (H2b).

To answer RQ1, we examined the prolonged impact of online self-presentations on body satisfaction 1 month later. Findings indicated that an individual's increase in posting authentic self-presentations resulted in an individual's increase of body satisfaction 1 month later among Japanese adolescents. Contrary, among Dutch adolescents, we found that an individual's increase in posting authentic self-presentations resulted in an individual's decrease of body satisfaction 1 month later. Additionally, a higher level of body satisfaction for an individual resulted in a lower frequency of posting authentic photos 1 month later for that individual, among Dutch adolescents. Hence, results showed a reciprocal relationship between authentic self-presentation and body satisfaction. Additionally, for Dutch adolescents a higher level of body satisfaction for an individual resulted in a lower frequency of posting edited photos 1 month later for that individual.

Table 1c
 Parameter Estimates of Active Self-Presentation and Body Satisfaction Obtained from the Random-Intercept Cross-Lagged Panel Model, Specified for the Two Countries

	JP			NL		
	<i>b</i>	SE	<i>p</i>	<i>b</i>	SE	<i>p</i>
<i>Between-person correlation across all waves</i>						
Authentic self-presentation ↔ Edited self-presentation	1.551	0.192	<.001	0.860	0.235	<.001
Authentic self-presentation ↔ Body satisfaction	-0.068	0.157	0.665	1.160	0.245	<.001
Edited self-presentation ↔ Body satisfaction	-0.349	0.193	0.070	-0.162	0.111	0.142
<i>Within-person correlations at T1</i>						
Authentic self-presentation ↔ Edited self-presentation	0.578	0.149	<.001	1.166	0.214	<.001
Authentic self-presentation ↔ Body satisfaction	0.053	0.115	0.646	0.230	0.182	0.207
Edited self-presentation ↔ Body satisfaction	0.281	0.133	<.05	0.070	0.084	0.401
<i>Autoregressive paths across 1 month (constrained)</i>						
Authentic self-presentation → Authentic self-presentation	0.312	0.066	<.001	0.021	0.082	0.793
Edited self-presentation → Edited self-presentation	0.305	0.060	<.001	0.086	0.074	0.243
Body satisfaction → Body satisfaction	0.148	0.111	0.182	0.058	0.099	0.562
<i>Cross-lagged within person changes across one month (constrained)</i>						
Authentic self-presentation → Edited self-presentation	0.100	0.063	0.114	0.057	0.025	<.05
Authentic self-presentation → Body satisfaction	0.144	0.068	<.05	-0.068	0.027	<.05
Edited self-presentation → Authentic self-presentation	0.011	0.049	0.819	0.399	0.142	<.01
Edited self-presentation → Body satisfaction	-0.035	0.058	0.543	-0.046	0.064	0.473
Body satisfaction → Authentic self-presentation	0.108	0.069	0.118	-0.467	0.158	<.01
Body satisfaction → Edited self-presentation	-0.034	0.079	0.666	-0.146	0.064	<.05

Note. Significant findings included in our hypotheses and research questions have been highlighted in bold. Model fit: $\chi^2(df = 1.45)$; $p > .05$; CFI = .99; TLI = .99; RMSEA = .03; 90% CI[.000, .051]; SNMR = .02.

Content Heterogeneity, Effects of Passive Exposure, and Mental Health

At the between-person level, H1a predicted that the frequency of passive exposure to authentic photos of others is positively related to mental health (see Table 2a-b for findings of the RI-CLPM including types of passive exposure and mental health). Contrary to our expectation, we found a positive correlation between the random intercepts of authentic passive exposure and psychopathology among the Japanese adolescents. Hence, individuals who – on average across three waves - see more authentic photos of others, experienced higher levels of psychopathology (i.e., and thus experience lower levels of mental health). We did not find a significant correlation between authentic passive exposure and psychopathology among the Dutch sample. However, we did find a significant positive correlation between the random intercepts of authentic passive exposure and psychological well-being for Dutch adolescents, which was in line with our expectations. No significant correlation was found in the Japanese sample. Thus, effects of passive exposure (H1a) were only partly supported.

H1b proposed that adolescents who see more edited photos, experience higher levels of mental health. For Dutch adolescents who - on average across three waves – see more edited photos, experienced higher levels of psychopathology (i.e., lower levels of mental health). We did not find this relationship for Japanese adolescents. For both Dutch and Japanese adolescents, we did not find a significant correlation between edited passive exposure and psychological well-being. H1b is thus supported for Dutch adolescents, but only for the psychopathology indicator of mental health.

At the within-person level, H2a predicted that those with higher levels of passive exposures to authentic photos of others than usual across all waves will also experience higher levels of mental health than they usually have. This hypothesis is only found support for psychological well-being as mental health indicator as well as only for Dutch adolescents. Hence, among Dutch adolescents, an intra-adolescent change in passive exposures to others' authentic photos is positively related to intra-adolescent changes in psychological well-being.

H2b examined the within-level relationships between passive exposures to edited self-presentations and mental health indicators. Findings only yielded a significant within-person relationship between exposure to others' edited photos and psychopathology in the Japanese sample. Japanese adolescents with a higher frequency of passive exposure to others' edited photos than usual also experienced a higher level of psychopathology than usual (i.e., lower levels of mental health).

Table 2a
Parameter Estimates of Passive Exposures and Psychopathology Obtained from the Random-Intercept Cross-Lagged Panel Model, Specified for the Two Countries

	JP			NL		
	<i>b</i>	SE <i>b</i>	<i>p</i>	<i>b</i>	SE <i>b</i>	<i>p</i>
<i>Between-person correlation across all waves</i>						
Authentic passive exposure ↔ Edited passive exposure	2.199	0.406	<.001	0.270	0.169	0.111
Authentic passive exposure ↔ Psychopathology	0.560	0.245	<.05	-0.029	0.180	0.873
Edited passive exposure ↔ Psychopathology	0.445	0.299	0.136	0.813	0.176	<.001
<i>Within-person correlations at T1</i>						
Authentic passive exposure ↔ Edited passive exposure	3.064	0.373	<.001	0.519	0.152	<.01
Authentic passive exposure ↔ Psychopathology	0.185	0.237	0.436	-0.122	0.142	0.392
Edited passive exposure ↔ Psychopathology	0.488	0.248	<.05	-0.024	0.147	0.872
<i>Autoregressive paths across 1 month (constrained)</i>						
Authentic passive exposure → Authentic passive exposure	0.048	0.082	0.558	-0.215	0.076	<.01
Edited passive exposure → Edited passive exposure	0.155	0.109	0.156	0.110	0.077	0.155
Psychopathology → Psychopathology	0.233	0.091	<.05	0.398	0.067	<.001
<i>Cross-lagged within person changes across one month (constrained)</i>						
Authentic passive exposure → Edited passive exposure	-0.042	0.079	0.596	-0.105	0.065	0.105
Authentic passive exposure → Psychopathology	-0.166	0.052	<.05	-0.131	0.051	<.05
Edited passive exposure → Authentic passive exposure	0.052	0.077	0.501	0.056	0.072	0.432
Edited passive exposure → Psychopathology	0.090	0.056	0.106	0.037	0.045	0.405
Psychopathology → Authentic passive exposure	-0.239	0.092	<.01	-0.161	0.097	0.096
Psychopathology → Edited passive exposure	-0.005	0.110	0.963	0.166	0.073	<.05

Note. Significant findings included in our hypotheses and research questions have been highlighted in bold. Model fit: $\chi^2/df = 2.12$; $p < .001$; CFI = .99; TLI = .97; RMSEA = .05, 90% CI [.029, .066]; SNMR = .03.

Table 2b
Parameter Estimates of Passive Exposures and Psychological Well-Being Obtained from the Random-Intercept Cross-Lagged Panel Model, Specified for the Two Countries

	JP			NL		
	b	SE	p	b	SE	p
<i>Between-person correlation across all waves</i>						
Authentic passive exposure ↔ Edited passive exposure	2.141	0.378	<.001	0.340	0.175	0.051
Authentic passive exposure ↔ Psychological well-being	-0.048	0.259	0.852	0.284	0.131	<.05
Edited passive exposure ↔ Psychological well-being	-0.302	0.308	0.327	0.077	0.180	0.669
<i>Within-person correlations at T1</i>						
Authentic passive exposure ↔ Edited passive exposure	3.040	0.376	<.001	0.521	0.157	<.01
Authentic passive exposure ↔ Psychological well-being	0.312	0.249	0.211	0.424	0.154	<.01
Edited passive exposure ↔ Psychological well-being	-0.102	0.266	0.702	0.133	0.144	0.355
<i>Autoregressive paths across 1 month (constrained)</i>						
Authentic passive exposure → Authentic passive exposure	0.036	0.088	0.679	-0.201	0.079	<.05
Edited passive exposure → Edited passive exposure	0.138	0.106	0.192	0.131	0.084	0.118
Psychological well-being → Psychological well-being	0.423	0.077	<.001	0.470	0.080	<.001
<i>Cross-lagged within person changes across one month (constrained)</i>						
Authentic passive exposure → Edited passive exposure	-0.055	0.082	0.508	-0.108	0.065	0.093
Authentic passive exposure → Psychological well-being	0.025	0.051	0.623	0.080	0.041	0.052
Edited passive exposure → Authentic passive exposure	0.044	0.073	0.543	0.007	0.074	0.929
Edited passive exposure → Psychological well-being	0.052	0.052	0.323	-0.046	0.039	0.233
Psychological well-being → Authentic passive exposure	0.221	0.087	<.05	0.358	0.122	<.01
Psychological well-being → Edited passive exposure	0.244	0.104	<.05	-0.186	0.104	0.073

Note. Significant findings included in our hypotheses and research questions have been highlighted in bold. Model fit: $\chi^2(df = 2.25; p < .001; CFI = .99; TLI = .97; RMSEA = .05, 90\% CI [.032, .068]; SNMR = .03$.

RQ1 examined the longer-term impact of passive exposures (i.e., authentic and edited) on mental health. Results showed that an individual's increase in frequency of exposure to authentic photos of others led to lower levels of an individual's psychopathology in the next month in both countries (i.e., increased mental health). Additionally, among Japanese adolescents an individual's decrease in levels of psychopathology resulted in an individual's increase of authentic passive exposures. Hence, a reciprocal effect between authentic passive exposure and psychopathology among Japanese adolescents was found. We did not find a prolonged impact of passive exposures (i.e., authentic or edited) on psychological well-being. However, the reverse was significant; an individual's increase in psychological well-being led to an increase in passive exposures to both authentic and edited passive exposures among Japanese adolescents, yet, among Dutch adolescents only to an increase in passive authentic exposures.

Content Heterogeneity, Effects of Passive Exposures, and Body Satisfaction

Examining the between-person relationships, H1a predicted that frequency of passive exposure to authentic photos of others is related to higher body satisfaction (see Table 2c for findings of the RI-CLPM including types of passive exposure and body satisfaction). A correlation between the random intercepts of the two variables indicated a positive and significant relationship in both countries. Dutch and Japanese adolescents who - on average across the three waves - had a higher frequency of being exposed to authentic photos also experienced higher levels body satisfaction. Hence, the between-person relationship between authentic passive exposure and body satisfaction is supported for both countries (H1a).

Then, H1b hypothesized that the frequency of exposure to edited self-presentations is negatively related to body satisfaction. This hypothesis is only supported for the Dutch adolescent sample. That is, Dutch adolescents who - on average across the three waves - had a higher frequency of passive exposure to edited photos, experienced lower levels of body satisfaction.

At the within-person level, H2a predicted that a within-person change in passive exposures to others' *authentic* photos is positively related to within-person changes in body satisfaction. Then, H2b postulated that a within-person change in passive exposures to others' *edited* photos is negatively related to within-person changes in body satisfaction. In both countries, no such correlations were found significant. Hence, results did not support the within-person predictions of H2a and H2b, regarding the passive exposure effects on body satisfaction.

Table 2c
Parameter Estimates of Passive Exposures and Body Satisfaction Obtained from the Random-Intercept Cross-Lagged Panel Model, Specified for the Two Countries

	JP			NL		
	b	SE	p	b	SE	p
<i>Between-person correlation across all waves</i>						
Authentic passive exposure « Edited passive exposure	2.100	0.368	<.001	0.231	0.179	0.197
Authentic passive exposure « Body satisfaction	1.969	0.283	<.001	0.599	0.150	<.001
Edited passive exposure « Body satisfaction	-0.206	0.215	0.339	-0.592	0.157	<.001
<i>Within-person correlations at T1</i>						
Authentic passive exposure « Edited passive exposure	2.991	0.371	<.001	0.525	0.147	<.001
Authentic passive exposure « Body satisfaction	0.005	0.190	0.980	0.114	0.102	0.264
Edited passive exposure « Body satisfaction	-0.258	0.202	0.201	-0.017	0.104	0.870
<i>Autoregressive paths across 1 month (constrained)</i>						
Authentic passive exposure → Authentic passive exposure	0.052	0.089	0.556	-0.153	0.090	0.089
Edited passive exposure → Edited passive exposure	0.148	0.098	0.131	0.055	0.101	0.589
Body satisfaction → Body satisfaction	0.193	0.102	0.060	0.069	0.116	0.551
<i>Cross-lagged within person changes across one month (constrained)</i>						
Authentic passive exposure → Edited passive exposure	-0.025	0.080	0.756	-0.079	0.070	0.260
Authentic passive exposure → Body satisfaction	0.004	0.048	0.930	-0.117	0.048	<.05
Edited passive exposure → Authentic passive exposure	0.052	0.072	0.472	0.047	0.078	0.546
Edited passive exposure → Body satisfaction	0.059	0.047	0.209	0.077	0.055	0.161
Body satisfaction → Authentic passive exposure	0.180	0.106	0.089	-0.290	0.115	<.05
Body satisfaction → Edited passive exposure	0.215	0.118	0.069	0.035	0.117	0.762

Note. Significant findings included in our hypotheses and research questions have been highlighted in bold. Model fit: $\chi^2/df = 2.36$; $p < .001$; CFI = .99; TLI = .96; RMSEA = .05; 90% CII [.035, .070]; SNMR = .03.

RQ1 subsequently investigated the prolonged impact of passive exposures on body satisfaction. No significant prolonged impact of passive exposures (i.e., authentic and edited) was found within our Japanese sample. However, among Dutch participants, we found a reciprocal relationship between authentic passive exposures and body satisfaction. An individual's increase in authentic passive exposures led to a decrease in an individual's body satisfaction 1 month later, and vice versa.

Cross-National Comparison

In the previous section, results showed that patterns between types of SMU and mental health and body satisfaction are generally not consistent across countries. Here, we would like to highlight some noteworthy similarities and differences. At the between-person level, relationships between creating authentic and edited content and psychopathology were consistent across countries (i.e., self-presentation effects), whereas effects of passive exposure to others' authentic or edited content were found to be significant in one country but not the other. Similarly, within-person effects of SMU on both mental health indicators were found to be insignificant regarding self-presentation effects across the two countries, but for recipient-effects differences in path estimates were found. That is, a significant and positive correlation was found between *edited* passive exposure and *psychopathology* among Japanese adolescents, whereas a significant and positive correlation between *authentic* passive exposure and *psychological well-being* was found in the Dutch sample. Contrary, we found that within-person correlations regarding body satisfaction only differed for the self-presentation effects and not passive exposure effects. Hence, especially within- and between-person passive exposures effects on mental health seem to be guided by differential susceptibility at the country-level, whereas particularly within-person self-presentation effects on body image are dependent upon the country of origin.

Moreover, looking at the within-person cross-lagged path estimates we mainly found non-significant results for both self-presentation and passive-exposure effects on mental health in both countries. However, for self-presentation effects on body image, contrasting results were found between Dutch and Japanese adolescents. A *positive* effect of creating authentic self-presentations on body satisfaction one month later was found among Japanese adolescents, whereas a *negative* effect was found among Dutch adolescents.

Discussion

The current study examined the cross-national within- and between-person processes of content heterogeneity in both active self-presentation and passive exposure on mental health and body satisfaction. Results of testing our between-person hypotheses showed partial support. That is, hypotheses were generally either only supported among adolescents in one country or only supported for

one of the content types (i.e., authentic or edited). Even though the hypotheses were mainly only partly supported, the relationships we found were generally in line with the extant literature of between-person correlations. Between-person results indicated that regardless of being active or passive, both creating or seeing *authentic* content is associated with higher levels of mental health and body satisfaction. Contrary, both creating and seeing *edited* content coincided with decreases in mental health and body satisfaction. However, one significant relationship that was contrary to our expectations. Namely, among Japanese adolescents, seeing more authentic self-presentations of others coincided with higher levels of psychopathology (i.e., lower mental health).

We found no support for within-person correlations between the types of active self-presentation and the indicators of mental health (i.e., psychological well-being and psychopathology). Contrary to our expectations, we did find a positive within-person correlation between creating *edited* self-presentations and body satisfaction among Japanese adolescents. Then, in line with our expectations, a within-person change among Japanese adolescents in passive exposures to edited self-presentations of others is positively related to within-person changes in psychopathology. Furthermore, seeing more authentic self-presentations of others than usual is associated with higher than usual levels of psychological well-being among Dutch adolescents. No support was found for within-person correlations between the types of passive exposure and body satisfaction. In all, results showed that between-person processes differ from within-person processes. For example, no between-person correlation was found between creating edited self-presentations and body satisfaction, but rather a positive within-person correlation between those two variables was found. Hence, in line with previous studies findings illustrate the importance of separating between- and within-person variance (Orben et al., 2019; Schreurs et al., 2021). Results highlight that the results of cross-sectional between-person studies cannot be directly translated to within-person inferences.

No long-term effects of actively creating either authentic or edited self-presentations were found on the mental health indicators. However, reversely, results indicated that a decrease in psychological well-being and an increase in psychopathology led to an increase in creating edited self-presentation one month later among Dutch adolescents. Additionally, a Dutch adolescent's increase in creating authentic self-presentation resulted in lower levels of body satisfaction one month later, whereas an individual's increase in creating authentic self-presentation among Japanese adolescents resulted in higher levels of body satisfaction one month later. Findings also showed that for Dutch adolescents, an individual's increase in body satisfaction led to reduced self-presentation activities one month later.

Furthermore, no long-term effects were found of passively viewing edited self-presentations on the mental health indicators. However, we did find that passive exposures to authentic photos of others led to lower levels of an individual's

psychopathology in the next month in both countries (i.e., increased mental health). Moreover, findings also showed that an individual's increase in psychopathology decreased exposure to authentic self-presentations one month later of others among the Japanese adolescents, whereas an individual's increase in psychopathology led to an increase in exposure to others' edited self-presentations one month later among Dutch adolescents. Furthermore, an individual's increase in psychological well-being resulted in more passive exposures to others' authentic self-presentations one month later among both Dutch and Japanese adolescents. Moreover, an individual's increase in psychological well-being resulted in an increase in passive exposure to others' edited self-presentations one month later among Japanese adolescents (i.e., not for Dutch adolescents). Lastly, a reciprocal relationship was found between authentic passive exposure and body satisfaction for Dutch adolescents. An individual's increase in authentic passive exposure results in a decrease of body satisfaction one month later, and vice versa.

Altogether, results of the current study showcase that differences in active self-presentation and passive exposure to others' self-presentation are not in line with the previously assumed presumptions in the literature in which active SMU would be connected to positive outcomes whereas passive SMU would relate to negative outcomes for mental health and body image. For example, at the between-person level, we found that both creating more edited self-presentations as well as seeing more edited self-presentations also resulted in higher levels of psychopathology (i.e., lower mental health). Additionally, at the within-person level, among Dutch participants seeing more authentic self-presentations of others than usual is connected to higher levels of psychological well-being than usual (i.e., higher mental health). Moreover, within-person lagged effects showed that an individual's increase in exposure to authentic photos of others reduces an individual's levels of psychopathology on month later (i.e., higher mental health) in both countries. Hence, as theorized, the type of created and seen content play a very important role in determining either positive, negative, or non-significant findings on mental health and body image. Results showed that regardless of being active or passive online, creating and seeing authentic content can result in positive outcomes, whereas creating and seeing edited content resulted in negative outcomes.

In all, we may coin several explanations for the thus far inconsistent results that have been found in social media effect research and instigated an intense debate. In this study we highlight three possible explanations: (1) specification of content heterogeneity; (2) distinguish within-person and between-person differences; and (3) account for differential susceptibility to media effects (here, national culture at the group/macro level). Other possible explanations may further answer why hypotheses were only partly supported. Social media environments include a rich context that are hard to disentangle. For example, the content we currently examined is commonly embedded within a broader context experienced, including a caption, reactions, likes, and is also mixed with other content. The way in which

individuals experience such content may heavily depend on the other features they encounter, and individuals might differ in how they process the context. Additionally, other group-level moderators such as peer norms, or person-specific effects can underline differential susceptibility to media effects.

Limitations and Future Research

This study aimed to further the social media effects debate by focusing on limitations within the field, however, the current study also has its own limitations. The first refers to the inference of causality. Whereas findings of the current study indicate support for causality of relationship because the measurement points precede in time, still panel design are at risk of measuring changes in mental health and body image that are not necessarily caused by SMU. A second limitation concerns the retrospectively self-reported data, which are prospect to known issues of accuracy and validity of the measures (Johannes et al., 2021; Verbeij et al., 2021). We must additionally note that no multigroup measurement invariance for the types of active self-presentation was found. That is, the dimensions of active self-presentation can have a different meaning in the two countries, indicating caution when comparing these countries. Nevertheless, based on these retrospective self-reported measures, we were able to take a next step in disentangling the importance of specifying content heterogeneity in self-presentation and passive exposure effects. Future studies could aim to use different approaches to disentangle content heterogeneity for example through diary measures or data donation packages (van Driel et al., 2021). Moreover, the long-term impact of SMU may be different when applying a different time interval between waves (cf. Schemer et al., 2020). Therefore, short-term intervals (e.g., daily, weekly) as well as longer (e.g., yearly) could be applied to provide more information about the potential longer-term effects of content-specific SMU.

As a third limitation, this study only focused on content heterogeneity of visual photos, but these were not placed into full social media context which, for example, includes caption, reaction and likes. Hence, we should acknowledge that how the content is perceived may depend on the contextualization of the photo or post (cf. Veldhuis et al., 2014). The contextualization of content heterogeneity is another important avenue for future research. Lastly, we have largely used brief measures, to specifically address our adolescent target group, that slightly differentiate from the original measures. As such, this should be kept in mind when making comparisons with other studies.

Conclusion

In all, the current research contributes to previous research in several ways. Our results (1) showcase the importance of a communication-centered approach including different content types of SMU; (2) extend to a longer period of time; (3) distinguish both between and within-person effects; (4) taps upon the complexity

of measuring mental health by including indicators for both psychological well-being and psychopathology; and (5) informs about cross-national differences and similarities. In line with our theoretical assumptions, we hardly found support for the active-passive hypotheses in previous literature. Rather, the content one either creates or sees (i.e., authentic vs. edited) is found to be more accurate in determining the potential outcomes than being active or passive. Here, both the creation of and being exposed to authentic photos can induce positive outcomes, whereas both the creation of and being exposed to edited photos of others was found to relate to negative outcomes. However, results were dependent upon (lagged) within- and between-person processes, and showed cross-national differential susceptibility.

References

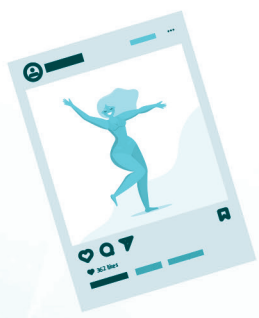
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CHAPTER 6

General discussion

General Discussion

The possible impact of social media use (SMU) on mental health and body image has been a primary reason for concern in society given the rapid growth and widespread adaptation of social network sites (SNSs) in the past decades. To advance knowledge on this matter, there is a need to investigate how young people use social media specifically in terms of what they consume and what they actively post. Thus, the main goal of the research in this dissertation was to unravel how differences in content and user behaviors on social media guide mental health and body image, particularly among adolescents. By doing so, this dissertation specifically examined how variation in seeing and posting different types of online content impacts mental health and body image differently: Hereby, content-specification ranged, for example, from more true-to-self content, portraying the user authentically, to more edited content, in which the user's portrayal is more idealized by using filters. Altogether, a multi-method approach examined different elements of social media effects to provide a more comprehensive and nuanced overview of how social media effects should be empirically studied.

This dissertation started by providing a review of extant literature to map current understandings of how types of active self-presentation, in comparison to types of passive exposure, are linked with mental health and body image. Thereafter, to address individual differences, we examined how differences in ethno-racial identity predispose online identity construction through online self-presentations. A follow-up study examined the prevalence of seeing and posting various photo-types (like authentic or edited photo-types) and how this prevalence coincides with mental health and body image. Lastly, this dissertation included a longitudinal study design to examine the longer-term impact of seeing and posting various photo-types on mental health and body image and examined cross-national differences and similarities on the impact of SMU between Dutch and Japanese adolescents. Collectively, these studies provided additional explanations for the previously found mixed results of social media effects on mental health and body image (e.g., Holland & Tiggemann, 2016; Orben & Przybylski, 2019; Twenge et al., 2020).

This General Discussion chapter includes a summary of the main findings per study. Thereafter, findings are discussed into the broader context of the social media effects debate and related theorizing. Subsequently, results of these studies are considered in light of methodological strengths and limitations, as well as future research directions. Additionally, this chapter provides an overview of societal implications and recommendations from our study results, and highlights the main conclusions that can be drawn from this dissertation.

Summary of Main Findings

In **Chapter 2**, we provided a systematic literature review that examined how and which types of presenting oneself on social media are related to mental health

and body image. In comparison, this review also mapped how passive exposure to various content-types relates to mental health and body image. Findings indicated that specifying types of self-presentation and types of passive exposure are crucial in determining beneficial or detrimental links with mental health. On the one hand, negative self-presentations through, for example, sharing negative life events, decreased subjective well-being. On the other hand, true-to-self authentic self-presentations generally increased subjective well-being. Looking at body image, higher engagement in active self-presentation as well as passive exposures on the one hand, related to more negative body image-related outcomes on the other. Zooming into the role of individual differences, this review indicated provisional findings that effects of SMU on mental health and body image differed across countries. For instance, studies originating from individualistic-oriented countries generally showed that idealized self-presentations increased well-being, whereas such a relationship was absent in collectivistic-oriented countries. Furthermore, this study highlighted additional audience segments who might be more susceptible to social media effects. Girls, for example, were found particularly more susceptible as well as individuals who engaged more in social comparison processes.

In **Chapter 3** we reported a content analysis to examine how ethno-racial identity may predispose differences in users' self-presentations. Findings showed that for presenting contextualized selves (i.e., showing more of the environment or other people in the photo) and engaging in filter usage (i.e., strategic self-presentation), self-presentations diverged as a function of ethno-racial identity. To be more specific, results showed that both Asian and Hispanic selfie-takers displayed more of their context and focused less on them as individuals than Black and White selfie-takers. Moreover, Black selfie-takers made more use of the digital affordances via filter usage to digitally alter their self-presentations than the other groups. Hence, results of this study provide (initial) support that differences in ethno-racial identity predispose self-presentation types.

Chapter 4 included a cross-sectional study among adolescents that examined the link between the prevalence of seeing and posting differential photo-types and mental health and body image. Self-presentation was categorized according to authentic, edited, intimate and positive content-types, that also provided content-types for others to passively consume. The main findings of this study highlight that variations in adolescents' mental health and body image go hand in hand with specific types of active and passive SMU. As an example, results indicated that passive exposure to authentic self-presentations of others was linked with lower levels of ill-being (i.e., feeling bad about oneself), whereas exposure to intimate self-presentations of others (i.e., presenting personal information, such as sharing feelings and emotions) was related to higher levels of ill-being. Overall, findings of this study supported the theoretical argumentation that in order to explain heterogeneous results from SMU, we need a more communication-centered approach that accounts for content- and behavior-specific SMU.

Chapter 5 presented a between- and within-person panel design among Dutch and Japanese adolescents to examine whether a change in content-specific social media behaviors precedes a change in mental health and body image. Additionally, cross-national differences and similarities in social media effects were examined. Results again supported the theoretical assumptions that content-specification of the types of photos posted and seen is more important than being active or passive on social media. For example, at the between-person level, findings illustrated that both *creating* and *seeing* more *edited* self-presentations resulted in higher levels of ill-being compared to *authentic* self-presentations. Overall, findings of this study highlight (1) the need for a content-specific social media approach in research that account for the types of photos seen and posted; (2) differences in between- and (lagged) within-person effects; (3) the importance of person-specific susceptibility factors to media effects; and (4) the need to examine both positive and negative outcomes on mental health.

Implications to Unravel Social Media Effects

The approaches to unravel SMU and subsequent results within this dissertation altogether led to important insights on social media effects theorizing. *When*, *if*, and *how* SMU coincides with fluctuations in mental health and body image perceptions among (young) media users is currently heavily debated by scholars (e.g., Appel et al., 2020; Huang et al., 2021; Orben & Przybylski, 2019; Twenge et al., 2020; Vandenbosch et al., 2022). Moreover, the theoretical assumptions to explain how SMU guides mental health and body image were fragmented and relied on different prerequisites of how online communication is used. The studies in this dissertation therefore applied a more targeted focus on the *type* of SMU individuals engage in, and *how* they do so: We particularly aimed to examine the combination of SMU behaviors (active and passive SMU) and the type of content (e.g., authentic vs. edited). Hence, we argued that there is a need to apply an integrated content-specific and behavior-specific approach. In sum, this approach assumes that social media behaviors cannot be captured into a monolithic operationalization of SMU as, for instance, time spent on social media. Additionally, this approach also suggests that the passive-active dichotomy still represents an oversimplification of the differential content one creates and sees on social media. An overview of the main theoretical implications is conceptualized in Figure 1, which will be further discussed next.

Theoretical implication I: *Technological affordances and individual goals and motivations guide heterogeneous user behaviors and content on SMU.*

The variations in content that people actively post or passively consume (i.e., content heterogeneity), is one of the main explanations in this dissertation for the previously found mixed results from studies focusing on general *time* spend on SMU. Hereby, the findings of this dissertation all advocate that indeed the active-passive dichotomy is an oversimplification of the potential outcomes of SMU, as it

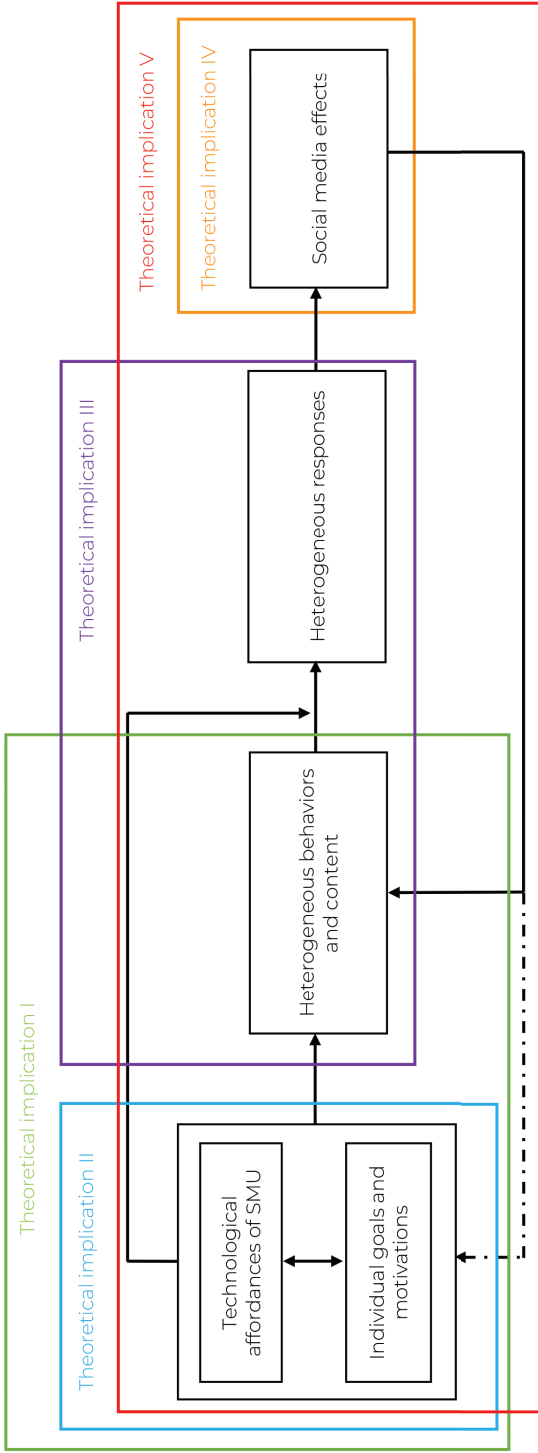
provides no specification on the variety of content social media users either create or consume. Results particularly implied that social media interactions should be studied more at the micro level, where the type of interaction (i.e., active or passive SMU) should be combined with the content of the interaction (e.g., authentic vs. edited social media content) that targets a specific function of the interaction (i.e., the function of the interaction being visual self-presentation). The active-passive dichotomy does not allow for studying such nuances in online content.

For example, seeing edited photos of others including filters and effects increased body shame, whereas seeing photos of others that show how they really are (i.e., authentic, without filters or editing) increased body satisfaction (see Chapter 4). Both cases pertain to passive SMU, but vary in content the social media user is exposed to. Particularly these contrasting directions are indications that the passive-active dichotomy can represent oversimplifying conclusions on the possible positive, negative, or null effects of SMU (as found in previous research; e.g., Appel et al., 2020; Huang et al., 2021; Valkenburg, 2022). That is, the found positive and negative effects that were found could balance each other out, possibly leading to null results, when a more nuanced approach on content-specific SMU is not taken into account.

The basis of heterogeneous content creation and exposure particularly stems from the online affordances social media offers individuals to selectively present themselves online. That is, the ‘protean powers’ individuals currently have to be versatile, flexible and adjust self-presentations in seemingly unlimited ways accommodates autonomy over their identity construction (Walther, 1996; Yee & Bailenson, 2007). The options for selective and optimized self-presentations largely rely on the platforms’ affordances, such as, built-in tools to optimize self-presentations.

I therefore argue that a focus on *technological affordances* is crucial for social media effects theorizing, as technologies are ever evolving and allow for insights on different activities that they allow individuals to take place in. Looking at the history of media effects research, it becomes apparent that with every new wave of technology scholars aim to unravel the potential consequences (cf. Orben, 2020; Wartella & Jennings, 2000). Though, in unraveling potential consequences, focusing on the new media technology’s affordances seems promising because the way in which people use digital communication technologies in part depends upon the platforms’ affordances. The technological affordances are thus an important aspect in guiding individuals’ engagement in *type* of SMU and *how* they can do so. Hence, technological affordances can guide heterogeneous behaviors and content on social media.

Figure 1
Theoretical Implications for Social Media Effects Theorizing



Theoretical implication I: Technological affordances and individual goals and motivations guide heterogeneous user behaviors and content on SMU.
Theoretical implication II: There is an interplay between technological affordances and individual goals and motivations.
Theoretical implication III: Heterogeneous behaviors and content direct differences in responses. Such different responses to heterogeneous behaviors and content are guided by differences in motivations and technological affordances.
Theoretical implication IV: Social media outcomes should include both positive and negative dimensions of well-being and body image that represent either more stable or fleeting components.
Theoretical implication V: Social media effects also direct consecutive engagement in social media behaviors.

Next to technological affordances, heterogeneous content also stems from different goals and motivations for engaging in social media behaviors. Previous literature on self-presentation and self-disclosure theorizing provide input on the different dimensions of self-presentation (e.g., authentic, edited, intimate, positive). For example, more authentic self-presentations can be used to display an accurate view of one's identity and minimize personal doubts of one's identity (cf. Higgins, 1987; Schlenker, 2012), whereas edited self-presentations may be used to give off a more desirable or idealized impression towards their followers (cf. Goffman, 1959; Walther, 1996). Differences in motivations and goals can be understood based on individual differences (i.e., dispositional, developmental, and social/environmental factors) as argued in the Differential Susceptibility to Media effects Model (DSMM; Valkenburg & Peter, 2013). As shown in Chapter 3, ethno-racial identity was found to predispose differences in users' self-presentations, and thus indicated that there is no uniform way of SMU. These individual differences guide different goals and motivations, and subsequently result in heterogeneous behaviors and content creation on social media. In sum, both the technological affordances as well as individuals' goals and motivations guide heterogeneous behaviors and content on social media (see Theoretical implication I in Figure 1).

Theoretical implication II: *There is an interplay between technological affordances and individual goals and motivations.*

Following Theoretical implication I, I argue that individuals' goals and motivations go hand in hand with the technological affordances available. On the one hand, individuals' goals of self-presentation might be more limited due to, for example, reduced capacity to convey social cues within the social media platform compared to face-to-face interactions (Oh et al., 2018). On the other hand, individuals' goals might be amplified by, for example, the technological affordances to enhance online self-presentations compared to face-to-face interactions (McLean et al., 2015). Hence, I propose an *interplay* between the technological affordances and individual goals and motivation to further understand differences in user behaviors and online content (see Theoretical implication II in Figure 1).

Theoretical implication III: *Heterogeneous behaviors and content direct differences in responses. Such different responses to heterogeneous behaviors and content are guided by differences in motivations and technological affordances.*

Individuals can have different responses to creation of or exposure to various content online and therefore possibly induce different effects. Findings of this dissertation pointed at such differential responses to content-specific SMU. That is, exposure to similar content can induce different effects for mental health among Dutch adolescents. To be more specific, results of our cross-sectional study implied that *passive exposure* to *edited* self-presentation of others is related to higher levels of *psychological well-being*. Contrary, results between-person results from our longitudinal study implied that *passive exposure* to *edited* self-presentations of others coincides with higher levels of *ill-being*. Such a result can be explained through

different responses to this edited content. That is, results of the cross-sectional study are in line with expectations by upward assimilative processes, where exposure to optimized content can lead to inspiration via upward assimilative processing of content, and subsequently increase *well-being*. Oppositely, results of the panel study are in line with expectations from upward contrastive processes, where exposure to optimized content can lead to malicious envy via upward contrastive processing of content, and subsequently increase *ill-being*. Thus, the different responses to and receptions of SMU are indicative of the social media effects that are experienced, that can be positive, negative, or null. Therefore, I argue that the creation of and exposure to different types of content guide different kinds of responses (i.e., heterogeneous responses, such as upward assimilative or contrastive responses) and subsequently induce social media effects.

The way in which people respond differently to creation of or exposure to social media content can be further explained through individual differences and the technological affordances at hand. First, how individuals respond to SMU can widely differ per person. For example, this dissertation pointed at national culture as an important factor to understand boundary conditions of SMU effects (see Chapter 2 and 5). Findings implied that social media effects cannot be generalized across countries, and therefore social media effects do not apply to all adolescents worldwide in the same way. Thus, the way in which media creation, such as active visual self-presentation, and media exposure, such as seeing photos of others, affects well-being and body image depends on person-specific factors, such as the cultural environment one finds oneself in. Several previous social media effects studies also pointed towards individual differences in responses to SMU (e.g., Kleemans et al., 2018; Twenge & Martin, 2020). Put differently, the person-specific factors, such as cultural environment, may each serve individual differences in goals and motivations to engage in SMU and subsequently may drive differences in responses to social media use. Second, as known from previous research, the technological affordances of platforms, such as peer feedback in terms of giving hearts and likes, also guide difference in responses, such as peer feedback in terms of giving hearts and likes (e.g., Sumner et al., 2018). Hence, both person-specific factors as well as the platform's affordances are argued to play a role in guiding different responses to SMU. Altogether, I suggest that heterogeneous behaviors and content guide differences in responses. Such different responses to heterogeneous behaviors and content are argued to be guided by differences in motivations and technological affordances (see Theoretical implication III in Figure 1).

Theoretical implication IV: *Social media outcomes should include both positive and negative dimensions of well-being and body image that represent either more stable or fleeting components.*

The findings as presented in this dissertation also have implications for the general discussion about possible outcomes of SMU on well-being and body image, particularly among adolescents. Previous meta-analyses that unraveled

social media effects, revealed the complexity and ambiguity of the constructs of well-being and body image (Holland & Tiggemann, 2016; Meier & Reinecke, 2021; Valkenburg, 2022). Our systematic literature review (see Chapter 2) also highlighted such ambiguity and complexity through the wide variety of mental health and body image indicators that have been included in previous studies. To provide a more comprehensive overview of mental health and body image indicators for the studies in this dissertation, we particularly relied on the two-continua model of mental health (Greenspoon & Saklofske, 2001; Meier & Reinecke, 2021). From there, we distinguished well-being from ill-being, and negative body image from positive body image as co-occurring. Our analyses supported the notion that both well-being and ill-being indicators, and negative and positive body image indicators, are not on the same continuum. Meaning that well-being is not just the flip side of ill-being and similarly, negative body image is not just the opposite of positive body image. In line, scholars argue that conclusions about the effects of SMU and mental health depend on whether measures of ill-being or well-being are examined (cf. Masur et al., 2022; Meier & Reinecke, 2021). Hence, SMU does not uniformly affect all types of well-being. Results of Chapter 4, for example, showed that actively presenting an accurate reflection of oneself (i.e., authentic self-presentation) coincided with increased psychological well-being for the sender, but no meaningful link was found with ill-being. In similar vein, active edited self-presentations through applying filters and effects, for example, increase body shame for the sender, but have no relationship with body satisfaction for the sender (see Chapter 4). Thus, the findings of this dissertation support that there is no one-size-fits-all impact of social media behaviors on mental health and body image (also see Chapter 2 and 5). Therefore, upon unraveling social media effects, empirical approaches need to cover indicators of both ill-being and well-being as well as negative and positive body image.

The findings of this dissertation, however, also imply that scholars should agree on *core* mental health indicators (cf. Meier & Reinecke, 2021). Such core indicators could capture, for example, orientations (i.e., what individuals seek in life and why), behaviors (i.e., what individuals do, such as going to social events or parties), experiences (i.e., what an individual feels such as subjective or cognitive measures), and functioning (i.e., how well individuals typically do in life; Huta, 2017). At this point, the abundance of mental health measures hinders the accumulation of empirical evidence of social media effect studies, and similarly makes integration of results via, for example, systematic reviews or meta-analysis highly difficult. Adding to this complexity is the temporal stability of mental health and body image indicators. That is, mental health and body image indicators can be measured as more stable or fleeting components (i.e., trait or state level indicators, respectively). Often, mental health and body image indicators are measured at the more stable trait level (cf. Huang et al., 2021; Meier & Reinecke, 2021). However, indicators can also fluctuate within specific timeframes and may have a temporal connection with SMU indicators. The empirical studies in this dissertation, therefore, applied

measures indicating a specific timeframe of a month (i.e., state level indicators with relatively high temporal stability; see Chapter 4 and 5). Particularly the longitudinal study (Chapter 5) provides information about the lasting connectivity of content-specific SMU and mental health and body image. Results indicate the potential long-term effect of content-specific passive exposure on mental health and body image, whereas such enduring effects of types of active self-presentation on mental health were absent (see Chapter 5). Though, the absence of enduring SMU effects in this study does not necessarily conclude that there are no lasting or accumulating effects. Perhaps, the impact of active engagement on social media already vanished before the next measurement point. Hence, implications to further unravel social media effect studies also indicate a specific need to test the temporal connectivity between SMU and mental health and body image indicators through examination of different timeframes. Altogether, social media outcomes should include both positive and negative dimensions of mental health and body image (preferably a *core* set of indicators) that represent either more stable or fleeting components (see Theoretical implication IV in Figure 1).

Theoretical implication V: *Social media effects also direct consecutive engagement in social media behaviors.*

Lastly, the findings of our longitudinal study on content- and behavior-specific SMU (see Chapter 5), implied that it is not just social media use that guides mental health and body image outcomes but also vice versa. Several reciprocal relationships were found between social media behaviors and mental health and body image outcomes. For example, increases in authentic passive exposures guided a decrease in an individual's body satisfaction and ill-being a month later, and vice versa. Hence, the outcomes of behavior- and content- specific SMU in its turn also guide subsequent engagement in social media behaviors (Theoretical implication V in Figure 1). The reciprocity between outcomes of media use and engagement in media use is in line with previous media effects theorizing (cf. Slater, 2007), as well as previous empirical studies that demonstrated the reciprocity between SMU and social media outcomes (Wang et al., 2018; Wang et al., 2021). Additionally, previous literature has extended these assumptions by arguing that outcomes of SMU do not only affect subsequent media use, but also impacts media responses and individual differences (cf. Valkenburg & Peter, 2013). Therefore, this line of theorizing and reciprocity is important for future social media effect studies (as indicated by the dotted line in Figure 1). For example, continuous exposure to social media content and its consequences can lead to transformations in an individual's self-concept (cf. identity-shift principles; Gonzales & Hancock, 2008). Moreover, following reasoning behind so-called Technoself studies (Luppigini, 2013), there is a need to study the mutual influence between social media engagement and social media effects in order to understand how individuals shape who they are.

In all, to further unravel social media effects, the theoretical implications as summarized in Figure 1 provide a framework for future studies that highlights

various aspects to understand the conditions of whether, when and for whom social media effects are more detrimental or beneficial.

Methodological Strengths, Limitations and Recommendations

The methodological approaches in this dissertation included several clear strengths. By means of a systematic review, content analysis, and a cross-sectional and longitudinal study in the studies of this dissertation, this multi-method approach enabled to report on several important aspects to further unravel social media effects. For example, this dissertation examined person-specific factors both as a predictor and moderator (Chapter 2, 3, and 5); captured evidence from a real-life online setting (Chapter 3); investigated prevalence of seeing and posting various photo-types (Chapter 4); and studied the long-term impact of seeing and posting authentic vs. edited photos (Chapter 5). Hence, an overall methodological strength of this dissertation is that the combination of these approaches provided a more comprehensive and nuanced view on social media effects (cf. Mingers, 2001). Moreover, each methodological approach has its own strengths, but these are also paired with limitations. I will first report on several methodological strengths, followed by several limitations and methodological recommendations.

Our systematic literature review provided a synthesis of previously found relationships between the types of self-presentation and various types of passive exposure and mental health and body image (Chapter 2). Hence, it mapped understandings of concepts and summarizes current knowledge generated by previous scientific advancements. Herewith, this systematic literature provided a solid foundation to grasp the current state-of-the-art of the literature to inform development of future studies (Poklepović Peričić & Tanveer, 2019). Then, in further examining the possibilities for differential identity construction online, a content analysis in a real-life environment provided objective content, that could not have been influenced by study participation or subject to social desirability in answers in self-reports (Chapter 3). Moreover, this study included a relatively large sample size to examine how externally imposed ethno-racial identities construct online identities via posting selfies. Hence, this study provided an important step through a relatively big data analysis.

Additionally, a strength of our cross-sectional survey design is that it provided knowledge about the prevalence of more nuanced social media behaviors (Chapter 4). As we applied a relatively new content- and behavior-specific SMU approach, an important step was to examine the prevalence of such SMU. Moreover, initial relationships with possible outcomes could be examined to build towards hypotheses in follow-up studies (Chapter 5). A further strength within the cross-sectional survey is that we pre-tested short measures of mental health and body image. Therefore, we were able to include a broad scope of mental health indicators in our studies (see Chapter 4 as well as Chapter 5) among a highly relevant target group.

Lastly, a clear strength of this dissertation is the longitudinal approach (Chapter 5). A longitudinal approach offers the ability to disentangle between-person from within-person effects. Several scholars specifically urged for this disentanglement (Orben & Przybylski, 2019; Schemer et al., 2021), because in media effect research within-person effects are particularly ought to be highly relevant. That is, only (lagged) within-person results can unravel whether, for example, an individuals' increase in SMU coincides with an individuals' increase or decrease in mental health or body image (over time). Additionally, results of a longitudinal approach also inform about longer-term impact and reciprocity between SMU and social media effects outcomes. Lastly, this study also included a cross-national approach and thereby examined the extent to which social media effects can be applied to adolescents across two countries.

Still, we must note that the effect sizes of the relationship between content- and behavior-specific SMU on the one hand and well-being and body image on the other were relatively small. Nevertheless, the found relationships can be highly meaningful even if they are small in size. That is, findings show that relatively subtle behaviors targeting just a small proportion of all types of SMU guided mental health and body image indicators. The integration of SMU in daily life and the continuous, repeated engagement in such behaviors may accumulate over time. Therefore, even though small in size, these relationship provide substantial support for the importance of the examining the link between content- and behavior-specific SMU and mental health and body image (Cortina & Landis, 2009; also see similar reasoning of video game violence on aggression; Ferguson & Konijn, 2015).

Besides the strengths, the studies included in this dissertation also held several limitations. Overall, a limitation of the studies is that we cannot provide conclusions on the causality of the found relationships. The panel design in Chapter 5 does provide some indications about whether social media behaviors precede change in mental health and body image, though, we cannot claim causality here. Therefore, to infer causality, there is an explicit need for a complementing experimental approach (Parry et al., 2022). Both between-person and within-person experimental approaches can be used to test causality of being exposed to heterogeneous photos of others, or of being observed in a specific content-creating task for making online self-presentations. Additionally, underlying mechanisms of differential responses to content-types could be examined (cf. Meier et al., 2020), or systematically combined with peer feedback (cf. Veldhuis et al., 2014). Experimental approaches to study self-presentation effects could follow experimental procedures of studies examining identity shift processes (Gonzales & Hancock, 2008; Jang et al., 2018). Along those lines, participants can for example be asked to browse through their photos and select and post a photo reflecting their authentic self, whereas other participants can be asked to browse, select, and post a photo resembling an optimized self to assess momentary impact of content-specific self-presentation on mental health or body image.

Whereas our studies clearly showed the importance of taking into account person-specific factors in studying social media effects, I would like to point out that examination of both ethno-racial identities and national culture needs more empirical scrutiny. In our study in Chapter 3, we examined externally imposed ethno-racial identities via facial recognition software. Therefore, no conclusions can be drawn about whether people also self-identify with the externally imposed ethno-racial identity. Related, another limitation includes the reproducibility of findings from machine and deep learning used for facial recognition detection. Machine learning and deep learning models are continuously updated and therefore result in different values per execution (Beam et al., 2020), causing the field to face a reproducibility and replication crisis (Bell & Kampman, 2021). Therefore, other methodological approaches using self-identification of ethno-racial identities and self-presentation choices should be used to provide firmer empirical support for perceived ethno-racial identity as differential susceptibility variable in SMU. Hence, I particularly argue that future studies should triangulate facial recognition software with self-identifications.

Then, as a macro-level moderator, national culture has been studied in two countries. Including multiple countries (cf. Boer et al., 2020; Karsay et al., 2021) would provide a better understanding on the role of national culture in SMU and perceptions in terms of, for example, differences and similarities among people from more individualistic-oriented countries vs. collectivistic-oriented countries. Moreover, micro-level studies on the different representations of how one views oneself provide more individual level insights. Here, particularly differentiation of interdependent self-construal (i.e., seeing the self as unique and separate from others) in comparison to interdependent self-construal (i.e., seeing the self as a part of a larger (in)group) could be examined as a factor to explain why individuals engage differently in SMU (see Theoretical implication I) and respond differently to creation of and exposure to SMU (see Theoretical implication III).

Furthermore, I would like to point out that this dissertation specifically targets self-presentation via posting photos of oneself and passive exposures via seeing photos of others. However, the content one creates and sees is certainly more diverse than that. Hence, future research could disentangle different categories such as person, food, nature, and pet photos, and subsequently per category further differentiate content-types (cf. Tiggemann & Zaccardo, 2018). Related, the social media landscape is changing rapidly. To date, many scholars are shifting focus from text-based to image-based content platforms, however, platforms such as TikTok that currently gain a lot of popularity are particularly shifting towards video-based content. Regardless of the specific platform however, the goals and motivations and technological affordances within a platform (as proposed in Theoretical implication I and II; see Figure 1) should be key in studying new technological advancements. Hence, the theoretical approaches as applied in the current dissertation could be transferred to newer platforms.

Finally, I would like to emphasize once more how complex it is to unravel social media effects. The studies in this dissertation provided fruitful implications for theorizing on social media effects, but the explanations and findings as discussed in this dissertation cannot provide conclusive answers to the question of how and to which extent SMU exerts positive or negative effects on social media users, be it that we could refine the way on how to examine this in future research. As an overall conclusion, it has become clear that a one-size-fits-all approach is not effective. Based on the current findings, I particularly urge for future endeavors to focus on content heterogeneity and heterogeneous reception among participants. Hence, in further unraveling social media effects, scholars should further examine, detail, and refine content-specific SMU, and apply a differential susceptibility paradigm to further unravel social media effects.

Directions for Future Research

The implications of the findings in this dissertation are based on a content- and behavior-specific social media approach and provide input for future directions in unraveling social media effects (see Figure 1 for a summary of the Theoretical implications).

Embedding the Social Media Context

An integrated part of social media platforms is the social engagement with others, primarily manifested by the likes and comments affordances on social media platforms. Particularly the social context is a key feature that distinguished the social media environment from the mass media environment (Perloff, 2014). The social context of such platforms can be indicative of further unraveling in which cases effects apply and to whom (also see reasoning in Veldhuis (2020) about processing (social) media content in a social context). As shown by our systematic literature review (Chapter 2) several social context factors, such as peer comments or social comparison, were found as relevant group-level moderators. Herewith, the online constructed identity can, for example, be reinforced or perhaps rejected by peers (cf. Tiggemann et al., 2018; Veldhuis et al., 2014; Walther et al., 2011). Particularly this interactive nature between active and passive behaviors emphasizes the need to study content-specific SMU into the social media context. Hence, fruitful implications for future research lie within exploring the *combined* impact of content-specific SMU with likes and comments.

Objective Content Characteristics

The studies in this dissertation supported the need for more content-based SMU to predict social media effect outcomes (cf. Valkenburg, 2022; also see Theoretical implication III, Figure 1). In short, our studies highlighted differences in prevalence of the various types of active photo-posting as opposed to being passively exposed to those types. An important avenue to explore, based on our findings, is gaining

insights on differences in online content via more objective social media content analysis. Data Download Packages (DDPs) allow each European social media user to access a copy of their own personal data as archived by social media platforms since the implementation of the General Data Protection Regulation (GDPR) in 2018 (cf. Boeschoten et al., 2020). Hereby, voluntary donation of DDPs provides a new and promising method to gain more objective content-based insights of SMU (van Driel et al., 2021). Based on the goals and motivations for self-presentation and self-disclosure in combination with the technological affordances (see Theoretical implication 1, Figure 1), scholars can develop a more objective measure to code for content-specific SMU. For example, the retrospective self-reported measures as studied in Chapter 4 (i.e., authentic, edited, intimate and positive content), and Chapter 5 (i.e., authentic vs. edited content) provide input on the elements that should be transferred to a manual coding scheme. Future research could, for example, specifically follow coding procedures of a previous content analysis specifying content-dimensions of fitspiration images (being images that aim to motivate people to exercise and pursue a healthier lifestyle; Tiggemann & Zaccardo, 2016).

Development of a manual coding scheme also provides a first step to address methods that are able to analyze the ever-growing datasets derived from social media posts. Particularly through the development in voluntarily donation of DDPs do scholars have the opportunity to gain access to large and information rich datasets. That is, DDPs collect all interactions and activities on the social media platform from the moment an account was created. The activities and interactions captured by the DDPs for example include private interactions through direct messaging, actively sharing content, browsing through others' profiles, and giving feedback to others as manifested by likes and comments (cf. van Driel et al., 2021). Even though conducting research based on DDPs also comes with challenges, such as coding of activities and interactions, DDPs also offer opportunities to access objective information about various activities and interactions the user engaged in over time.

Thus far, in handling very large datasets methods particularly rely on automated content analysis addressing textual data (cf. Boumans & Trilling, 2018; Trilling & Jonkman, 2018). However, especially on social media platforms such as Instagram, images are the primary type of content. Therefore, there is a call to address methods for automated visual content analysis (AVCA; Araujo et al., 2020). Following the proposed protocol for AVCA, a solid codebook and rigorous coding procedure are prerequisites for training machine learning algorithms (Araujo et al., 2020). Hence, developing a rigorous coding procedure for content-specific SMU serves two goals. First, it serves the purpose of gaining more objective social media content in comparison to self-reported data. Second, it provides a first step in allowing to scale-up the analysis with larger sample sizes and more content per person. In all, I argue that methodological advances through triangulation of self-reported data and objective content-coding support development of more robust understandings of whether, how, and for whom social media affects mental health and body image.

Differential Susceptibility

The findings of this dissertation implied that there is no one-size-fits all approach to unravel social media effects, which is in line with recent theorizing and empirical studies (Beyens et al., 2020; Twenge & Farley, 2021; Valkenburg & Peter, 2013). In short, our findings implied that there is no uniform way in which individuals create and see online content, and no uniform impact of SMU on all adolescents. Following Theoretical implications I and III (see Figure 1) person-specific factors guide how social media is used and also guide different responses to SMU. Based on our findings from chapter 3, where ethno-racial identity was found to predispose differences in online self-presentation, I particularly see merit in further examining appearance factors and outward cues that become more prominent via images or video's than text-based self-presentations. For example, the ethnical diversity of online audiences can guide a diversification of self-presentation and subsequently also guide adaption of or strengthen certain appearance and body ideals standards (cf. Watson et al., 2019). Hence, future research can further examine motivations for and differences in creating online self-presentations from individuals varying in ethno-racial identities. Such examinations also help to understand why some individuals are impacted differently from social media usage as not everyone resonates with the same appearance and body standards (cf. Schaefer et al., 2018). Moreover, other appearance factors such as body-type could also be highly informative in understanding differences in self-presentations and guiding differential responses.

Additionally, findings of the current study implied that social media effects are not generalizable across counties, which is in line with previous studies (Boer et al., 2020; Karsay et al., 2021). This study particularly focused on macro-level differences of national culture and indicated different social media effect patterns across countries. Hence, future studies should carefully take the cultural environment in which the study takes place into account. Next to macro-level research on the role of cultural orientations, micro-level cultural aspects are also still relatively unexplored areas that could play a central role in media effect research (cf. Odağ & Hanke, 2019). For example, following our social media effects theorizing (Theoretical implication I; Figure 1), such micro-level differences in, for example, individuals' values and beliefs can lead to different goals predisposing SMU as well as responses to SMU.

Moreover, studies should acknowledge the complexity of studying social media effects. That is, SMU can depend on many person-specific factors that indicate that there is no uniform way of SMU and no uniform reception of SMU. Hence, to unravel to whom social media effects apply future studies should examine the extent to which dispositional, developmental, and social/environmental factors help to clarify differences in SMU and the impact of SMU. Furthermore, recent research calls for an idiosyncratic approach to unravel to whom social media effects apply at an individual level (Beyens et al., 2020; Valkenburg et al., 2021). Such an idiosyncratic approach suggests that average within-person associations

may still depend on person-specific differences. Aggregate within-person effects are typically applied to generalize results to larger populations, but cannot be attributed to an individual level. Hence, to complement group-level nomothetic research, future research should also apply an idiosyncratic approach that further specifies differences in SMU and the impact of SMU.

Underlying Processes and Mechanisms

The results from this dissertation implied that individuals differ in their reception of social media usage (see Figure 1; Theoretical implication III). Hence, future research could aim to examine different responses to media effects to further unravel underlying processes and mechanisms. Some findings in this dissertation are in line with expectations from upward assimilative processes where exposure to optimized content can lead to inspiration via an assimilative emotional response, and subsequently increased well-being. Contrary, results also found outcomes that were more in line with expectations from upward contrastive responses where exposure to optimized content can lead to a more contrastive (harmful) response, subsequently reducing well-being. Following research by Meier et al. (2020) future research could specifically target such different responses to exposure to media use. Herewith, the underlying theoretical assumptions of the Social Comparison Theory (cf. Festinger, 1954), explaining why passive exposure to media can lead to both positive and negative outcomes can be expanded and further replicated. For instance, next to upward assimilative (e.g., benign envy) and contrastive processes (e.g., malicious envy), also more downward oriented processes such as self-enhancement motives could be studied as a downward contrastive response to social media content (cf. Veldhuis et al., 2017).

Moreover, similar processes and underlying mechanisms can be further examined for outcomes of active self-presentation. For example, identity shift processes are argued to be indicative of changes in a self-concept and well-being. Identity shift processes have been primarily studied in terms of self-transformations in self-reported extraversion after selective extraverted or introverted self-presentation (cf. Carr, 2021). Such principles, however, can also be applied to other dimensions of self-presentation such as more authentic or optimized self-presentations (Jang et al., 2018). Whether such selective self-presentation leads to a self-transformation consistent with their self-presentation provides further understandings of how various dimensions of self-presentation can lead to different self-transformations. Moreover, such underlying processes could be tested against other underlying assumptions such as heightened self-awareness, and experienced self-discrepancy (cf. Duval & Wicklund, 1972; Higgins, 1987). That is, these theoretical principles could potentially lead to different responses to actively creating social media content, and guide outcomes on well-being and body image. For example, whereas identity shift principles are often argued to lead to positive outcomes, the assumptions of objective self-awareness and self-discrepancy are less optimistic and could

potentially guide more negative responses. Altogether, insights on the underlying assumptions provide additional understandings on how individuals may have different responses to posting photos of oneself online or being passively exposed to photos of others.

Practical and Societal Implications and Recommendations

Time and time again, societal moral panic arises when new technologies enter daily life (cf. Orben, 2020). Typically, emergence of new technologies is thought to have negative consequences. As for the possible effects of social media usage, headlines from news outlets also inform society on such negative consequences “*New studies show just how bad social media is for mental health*” (Walton, 2018). However, more recently, headlines of news coverage also questions whether social media use really is as bad as it is argued to be “*Is social media as bad for teens as we thought it was*” (Nash, 2022). To address societal concerns and mixed information, the findings of this dissertation provide several practical and societal implications and recommendations that I will discuss in this section. Herewith, the findings provide more nuanced understandings about how and to what extent SMU can be detrimental for youngsters.

The importance of unraveling social media effects on mental health and body image has been acknowledged among professionals from various fields, such as, youth development and health, as well as various relevant stakeholders, such as scholars and policy makers. Based on urgent questions in society, the taskforce ‘Youth in development, parenting, and education’ as part of the part of the Dutch Research Agenda for Youth (Nationale Wetenschapsagenda Route Jeugd; <https://nwa-jeugd.nl>) developed a Knowledge agenda for youth (Kennisagenda Jeugd; Taskforce Jeugd, 2018). The aim of this so-called ‘Knowledge agenda’ for youth is to provide concrete themes for scholars, policy makers, and relevant professionals to gain and develop new knowledge about youth development. A large number of parties have been involved in the creation of the knowledge agenda for youth, for example the Ministry of Education, Culture and Science (Onderwijs, Cultuur en Wetenschappen; OCW), and Ministry of Health, Welfare and Sports (Volksgezondheid, Welzijn en Sport; VWS). Moreover, professionals in the field, but also parents and youth themselves have been included in the development of the knowledge agenda. One of the central research questions to gain and develop new knowledge about youth development is: “*what are the positive and negative effects of social media, Internet, and screen time on the development of adolescents and their functioning in society*” (Taskforce Jeugd, 2018, p. 21). The findings of this dissertation provide important new insights relating to the central question of the Knowledge agenda for youth. Particularly, these findings provide important implications for the development of evidence-based interventions targeting social media literacy. Within the Netherlands there are several relevant organizations and websites that

could develop and distribute social media literacy campaigns or interventions, such as Dutch Youth Health Centre (Nederlands Centrum Jeugdgezondheid; NCJ; hwww.ncj.nl) and Dutch Youth Institute (Nederlands Jeugdinstituut; NJi; www.nji.nl). Here, such information could be particularly targeted to schools, as they include several relevant parties within reach, such as youngsters themselves, parents, and teachers.

Altogether, there are three main findings in this dissertation that hold concrete implications for the development of interventions and improvement of social media literacy. That is, the findings of this dissertation demonstrated 1) differences in online identity construction via self-presentations; 2) to which extent positive or negative outcomes might result from SMU, and 3) and for whom effects may be more beneficial or detrimental. Each finding and the accompanying implications will be discussed in more detail. To start, results highlight that a combination of the content (e.g., authentic vs. edited) and the type of behavior (i.e., active or passive) is more informative to unravel to which extent social media use impacts adolescents than typical channel-centered approaches (e.g., time spent on social media). Several scholarly studies currently argue that there is no meaningful link between SMU and mental health as their findings show either very weak or non-existent effects (Appel et al., 2020; Meier & Reinecke, 2021; Orben & Przybylski, 2019; Schemer et al., 2021). However, these studies also particularly apply channel-centered approaches mainly focusing on the time spent on using digital and social media. Similarly, relevant online websites, such as Dutch Youth Health Centre (Nederlands Centrum Jeugdgezondheid; NCJ), to provide information on media literacy and how to deal with new media also typically apply channel-centered approaches focusing on for example differences between platforms, but not target the different behaviors taking place within those platforms (NCJ, 2015). The findings of this dissertation showed that such channel-centered approaches may be a too granular measure to accurately reflect to which extent social media use impacts adolescent mental health and body image. Generally, results of this dissertation imply that seeing and creating authentic photos online relates to higher body satisfaction and well-being and reduced ill-being. Contrary, seeing and creating edited photos can increase body shame and ill-being. Hence, upon informing relevant target groups, differences in how adolescents use social media should be explicitly addressed.

Based on our findings, I recommend to communicate results based on the typology as introduced by Meier & Reinecke (2021). Here, results can be reported according to how social media behaviors have been studied in terms of more communication-centered approaches (such as the content- and behavior- specific approach in this dissertation) or channel-centered approaches (typically time-based SMU approaches). Specifically, such a typology also provides relevant information for media literacy among adolescent, as it provides a comprehensive framework on different behaviors that may apply to a smaller or larger extent to them. For example, the findings of this dissertation particularly addressed content-specific SMU, where adolescents can critically analyze the extent to which they engage in

similar behaviors online. To reach the relevant target groups that can benefit from our results especially working with organizations that already address that target group seems beneficial. For example, Nederlands Jeugdinstituut (NJI) is a relevant party to distribute information on social media effects on well-being and body image as this website addresses several relevant target groups, namely parents, youngsters, professionals, and policy makers. Concretely, NJI could distribute an overview of how focusing on content- and behavior-specific SMU leads to different conclusions than focusing on time spend on SMU. Particularly, they should inform that it is not necessarily about how much time you spent on social media but rather *how someone uses social media is informative in understanding the consequences.*

Additionally, the results provided a more nuanced view on social media effects where both positive and negative effects are possible and can possibly also coexist. For example, seeing edited content of others was found to relate to increases in well-being, and at the same time also coincided with higher levels of body shame (see Chapter 4). To overcome the argued negative consequences of social media use several studies targeted either quitting or reducing social media use (Hunt et al., 2018; Tromholt, 2016). The moral panic and information about the possible negative consequences consequently resulted in a campaign to raise awareness about the negative impact of social media on mental health by means of a digital detox (i.e., being 100% off; www.digitaldetoxday.org). This campaign reached more than six billion people with individuals from 50 countries aiming to partake in the digital detox event (Scrivo, 2020). Similarly, in the Netherlands a campaign was developed to inspire people to make more elaborate choices (Sire, 2016). This campaign also included an item about why individuals post selfies, and specifically claimed that posting selfies is making individuals less happy. Hence, both scholarly intervention studies and public campaigns particularly target negative outcomes, ignoring the potential positive outcomes. Importantly, such a digital detox may actually also have risks on its own as individuals are also being withheld from the experienced positive effects (Vanden Abeele, 2021). Hence, especially for intervention campaigns, I recommend suggesting activities that relate to positive outcomes (i.e., posting *authentic* content) and at the same time aim to reduce activities that relate to negative outcomes (i.e., posting *edited* content). Herewith, interventions reduce the risk of being withdrawn from positive effects as well as address the potential concerns for negative outcomes. Following the core of media literacy, we should aim to reduce the possible negative effects and maximize the envisioned positive outcomes (Schreurs & Vandenbosch, 2021). Hence, upon providing guidelines for adolescents on healthy engagement with social media both the positive and negative consequences should be equally addressed.

Lastly, the results discussed in this dissertation clearly indicated that a person-specific approach to susceptibility to media effects is advised. That is, in informing about social media effects, we should acknowledge that the effects may not be applicable to everybody. Some person-specific factors may amplify social media

effects, whereas other factors might diminish possible social media effects. These factors can be seen as risk and resilience factors (Meier & Reinecke, 2021) in similar ways as has been argued in the media violence effects debate (cf. Anderson et al., 2017; Gentile & Bushman, 2012). Therefore, in addition to the recommendation to clearly specify the type of SMU, I also recommend explicating the potential risk and resilience factors of social media effects. Informing adolescents about different goals and motivations to engage in social media usage as well as providing information about who seems more susceptible than others, could help to improve cognitive skills to critically analyze understandings and evaluations of created and viewed social media messages (Briandana & Dwityas, 2019). For example, this could help individuals to understand why, for example, specifically optimized photos are shared (in comparison to, for example, authentic photos), and how individuals differ in their responses to that content (e.g., different goals and motivations that subsequently guide positive, negative, or null effects on mental health and body image). Such an approach aligns with an earlier campaign in the Netherlands about making more conscious choices on, for example, what to share online (Sire, 2016). Being aware of the different ways individuals can present themselves online, and the goals it may serve, can therefore lead to more conscious choices. Hence, to paint the most accurate picture at this point, interventions should clearly identify the type of SMU (specifying both user behaviors and the content), include both positive and negative dimensions of possible outcomes from SMU (e.g., well-being and ill-being), and address risk and resilience factors (group-level moderators such as peer feedback and country-of-origin). Collaboratively, findings of this dissertation concretely inform about the possible positive and negative consequences of SMU, and highlight several important aspects to develop evidence-based interventions to develop social media literacy particularly among adolescents.

Concluding Remarks

Unraveling social media effects on mental health and body image entails a highly complex picture including various factors that play a role in the determining *when, if and how* social media influence mental health and body image. The main objective of this dissertation was to examine to which extent social media behaviors and content guide mental health and body image. Overall, it can be concluded that both a monolithic approach (i.e., typically a channel-centered approach, in which only time-based measures are taken into account) and the active-passive SMU dichotomy reflect an oversimplification of the interpretation of social media effects. This argument is strengthened by the nuances found in the studies of this dissertation regarding the content young social media users view and create online. The findings from this dissertation advocate that social media interactions should follow a more communication-centered approach where the type of the interaction of social media (i.e., active or passive) should be integrated with the content of the interaction (e.g., authentic vs. edited) and should target a specific function of the interaction (e.g., visual self-presentation). Hence, future research examining social

media effects among young people should focus on content- and behavior-specific online behaviors to deepen insights in the conditional impact of SMU.

Nevertheless, it should be noted that although the present dissertation added to unraveling social media effects, it also indicated that behavior- and content-specification is not the conclusive answer to which extent SMU guides mental health and body image. In other words, a one-size-fits-all approach does not seem to be effective. Hence, based on the findings of this dissertation I strongly argue for a more holistic integrated framework on how to unravel social media effects (as tentatively sketched in Figure 1). This framework implies that young people use social media differently. For example, adolescents may aim to present a more accurate representation, or perhaps a more idealized or edited version of oneself. They may use technological affordances, such as editing software or build-in tools on, for example, Instagram to create more idealized self-presentations. Control over and use of technological affordances, as well as differences in what young people would like to achieve online, explains differences in the behaviors (i.e., active and passive) and content (e.g., authentic or edited) they engage in. Then, how young people respond to the diverse range of behaviors and content on SMU can also greatly differ among individuals and subsequently shape different social media effects. Here, social media effect outcomes need to accurately reflect both dimensions of mental health and body image that account for more momentary or durable effects. Lastly, social media effect outcomes in turn also direct consecutive engagement in content- and behavior-specific SMU. Altogether, an integrated theoretical framework to unravel social media effects, as proposed in this dissertation, lays the foundation for the development of a more robust understanding about the conditions of whether, when, and for whom social media effects are more detrimental or beneficial.

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APPENDICES

English Summary

In the past two decades, the rapid growth in popularity of social media platforms has fueled concerns about the possible negative effects of social media use on young people among, for example, parents, policy makers, and health-care professionals. Particularly, concerns have arisen regarding the possible negative effects of social media use on young people's mental health and body image. In response, a vivid scholarly community made substantial efforts to unravel to which extent this is actually the case. However, despite the many scientific endeavors, results were inconclusive. A possible cause may be that these studies have examined social media use in terms of time spent on a social media platform, such as Facebook or Instagram. Yet, this "screentime" provides no specification of the type of behaviors social media users engage in. Therefore, it has been argued that social media activities should be divided into active and passive social media use. Generally, active social media use is characterized by creating and posting content on social media. Contrary, passive social media use is typically characterized by merely viewing and scrolling through social media content. As such, it has been hypothesized that active social media use leads to positive effects on mental health and body image, whereas passive social media use leads to negative effects.

These assumed active-passive hypotheses have, however, recently also been criticized. That is, in some cases active social media use appeared to also lead to more negative feelings about oneself and one's life, while passive social media use can lead to more positive feelings about these matters. Hence, the active-passive dichotomy seems a rough division that needs further specification. To understand the possible impact of social media use on mental health and body image, research on social media use should distinguish between the variety of content actively posted and passively consumed. For example, what types of content do young people post online, and what do they passively consume? How does that affect their mental health and body image? And for whom might the impact of social media use be more detrimental or beneficial? To advance our knowledge and insights on these matters, the overarching goal of this dissertation was to investigate how young people use social media at the micro-level and *if, when, and how* it affects their mental health and body image.

Against this background, this dissertation carried out four studies (*Chapter 2, 3, 4, and 5*) that examined the different types of content created and seen online, and how these coincide with mental health and body image, particularly among young people. In *Chapter 2*, a solid foundation for this dissertation was built by mapping what was already known about how and which types of active self-presentation and types of passive exposure were related to mental health and body image. Findings of this systematic literature review, drawing together the results of 55 studies, indicated that how social media use coincides with mental health and body image largely depends on the content of the self-presentation created or

passively consumed. To give an example, sharing negative life events was generally linked to decreased subjective well-being. In contrast, sharing authentic self-presentations, meaning that someone presents an online identity similar to who one is in real life, was linked with increased subjective well-being. Regarding body image, findings indicated that various types of active self-presentations as well as different types of passive exposures related to more negative body image-related outcomes. In addition, Chapter 2 also identified audience segments who might be more susceptible to social media effects. That is, the effects of social media use on mental health and body image seem to vary across countries. For instance, studies originating from individualistic-oriented countries, such as the USA, generally showed that idealized self-presentations increased well-being, whereas such a relationship was absent in collectivistic-oriented countries, such as South-Korea. Moreover, particularly individuals who often compare themselves with others seemed to be more susceptible to social media effects.

To further advance our knowledge on the type of content individuals post online, and how this might vary among individuals, the second study of this dissertation examined online self-presentation features (*Chapter 3*). Specifically, this study examined how ethno-racial identities may predispose differences in publicly posted selfies. In doing so, two opposing theoretical ideas were examined. On the one hand, similarities in self-presentations between individuals from different ethno-racial cultures may be expected due to globalization of Western white ideals and individuals becoming more tech-savvy. This line of reasoning is called the convergence-hypothesis of online self-presentation. On the other hand, differences in self-presentations could be expected due to adherence to (socio)cultural dominant ideologies of race and ethnicity, called the divergence-hypothesis of online self-presentation. To empirically study these contrasting theoretical ideas, facial recognition was used to classify the selfie-takers' externally imposed ethno-racial identity on over 3000 publicly posted selfies on Instagram. In addition, self-presentation features of the selfies, such as digital enhancement via filters, were examined. Findings revealed that individuals varying in ethno-racial identity generally differed in their online self-presentations. For example, Asian and Hispanic selfie-takers posted more of their context and less of themselves than black and white selfie-takers. Additionally, the findings indicated that black selfie-takers digitally enhanced their selfies more via filter usage than the other ethno-racial groups. Overall, results provide (initial) support that self-presentations do not typically align with the global dominant Western white ideals, but rather that ethno-racial identity characteristics are important in manifestations of online selfies.

Based on the knowledge of the first two studies about differences in content on social media and their possible impact, the third study further examined how the prevalence of posting and seeing different photo-types was linked with mental health and body image (*Chapter 4*). This study targeted adolescents as they form the primary reason for concerns about the possible negative effects of social media

use on mental health and body image. To examine differences in the photo-types created or consumed this study asked over 400 adolescents to answer questions about the prevalence of posting authentic, edited, intimate, and positive self-presentations, as well as passive exposures thereto. Moreover, they answered questions about their mental health and body image. Descriptive findings showed that adolescents varied in the prevalence of types of active self-presentation, and similarly also varied in the prevalence of passive exposures thereto. For example, adolescents often posted positive photos, such as photos where they are doing fun things. On the contrary, they did not post a lot of intimate photos where they openly show their emotions. Moreover, findings of this study also indicated that variations in mental health and body image go hand in hand with specific types of active content creation or passively consuming content. Posting more authentic photos of oneself is associated with higher levels of mental health, whereas posting edited photos is associated with more body shame. Altogether, the findings support our theoretical assumption that to unravel the heterogeneous results from previous studies, we need to capture content- and behavior-specific social media use.

As a next step in studying the impact of content-specific social media use on mental health and body image among adolescents, the last study in this dissertation examined the potential longer-term impact of social media use (*Chapter 5*). More specifically, this study examined whether a change in an adolescent's content-specific social media use precedes a change in their mental health and body image. To take the cultural differences found in chapter 2 into account this study was examined in two different cultural contexts, with more than 400 adolescents in Japan and more than 500 adolescents from the Netherlands. The adolescents completed three online surveys, with one-month intervals in between. They answered questions about posting and seeing authentic or edited photos as well as their mental health and body image. Findings of this study indicated that both a higher frequency of posting and being exposed to authentic photos can induce positive outcomes for mental health and body image, whereas both a higher frequency of posting and being exposed to edited photos of others was found to relate to negative outcomes. Results were, however, different between Dutch and Japanese adolescents. For instance, Dutch adolescents who in general see more authentic photos of others also experienced higher levels of mental health. In contrast, no such relationship was found among Japanese adolescents. Similarly, a Dutch adolescent's increase in creating authentic self-presentation resulted in lower levels of body image one month later, whereas an individual's increase in creating authentic self-presentation among Japanese adolescents resulted in higher levels of body image one month later. Hence, social media effects are conditional, meaning that social media effects cannot be attributed to all adolescents and may vary across cultural context.

Theoretical and Societal Contributions

The results of the studies in this dissertation generally conclude that time-based approaches of social media use reflect an oversimplification to interpret the possible effects on mental health and body image. The findings of this dissertation all advocate that there is a need to apply an integrated content-specific and behavior-specific approach. To examine social media effects, active and passive social media use should be further specified into the type of content one posts or sees, such as posting more edited or authentic photos. Time-based approaches, measuring how much time people spent on social media, do not allow for studying such nuances in social media use. Moreover, the findings of this dissertation indicated that unraveling social media effects on mental health and body image entails a highly complex picture. Even though content specification of active and passive usage helps to further unravel social media effects on mental health and body image, it does not provide a conclusive answer to fully understand and explain how social media use coincides with mental health and body image. For example, social media effects vary among adolescents coming from different cultural contexts. Hence, it can be concluded that a one-size-fits-all approach does not seem effective. Young people use social media differently. How they use social media may depend on their personal goals and motivations as well as their autonomy to selectively post and expose themselves to content online. Then, how young people respond to the diverse range of content they actively post or see can also widely differ among individuals. Hence, *if* and *when* social media impacts mental health and body image largely depends on *how* and *why* they use social media as well as the way they *respond* to their social media use.

The theoretical implications of the studies in this dissertation also provide input for future studies. First, to more adequately address the social media context a recommendation is to combine content-specific social media use with some of the platforms' features that allow for interactions with others such as likes and comments. Second, to further underpin the need for more content-based social media use an important avenue to explore is gaining insights on differences in online content via more objective social media content. Such objective user content can be acquired via voluntary data donations from social media users. Third, the findings indicated that a one-size-fits-all approach is generally ineffective. Hence, to understand for whom social media use might be particularly more beneficial or harmful, I recommend to examine person-specific factors that guide how people use and respond to social media. Lastly, I recommend to further examine the underlying processes of how individuals respond to social media content, such as experiencing envy or inspiration, that help to explain why exposure to the same content may lead to different outcomes for one's mental health and body image.

Lastly, the main findings of this dissertation also hold concrete societal implications for the development of interventions and improvement of social media literacy. First, the findings indicate that individuals do not uniformly create and consume

social media content. Second, results demonstrated that social media use can result in both positive and negative outcomes for mental health and body image. Third, some individuals or groups might be more susceptible to social media effects. Hence, to paint the most accurate picture at this point, interventions should clearly identify the type of social media use (specifying both user behaviors and the content itself), include both positive and negative dimensions of possible outcomes from social media use (e.g., well-being and ill-being), and address risk and resilience factors (group-level moderators such as peer feedback and country-of-origin). Collaboratively, findings of this dissertation concretely inform about the possible positive and negative consequences of social media use, and highlight several important aspects to develop evidence-based interventions to increase young people's social media literacy.

Conclusion

This dissertation examined *when*, *if*, and *how* social media use impacts mental health and body image, particularly among young people. The studies specifically focused on what young people actively post, as well as what they are passively exposed to, such as more authentic or edited photos on social media. Additionally, this dissertation examined how these variations in what they post and see are linked to mental health and body image. In summary, the results of this dissertation show that specifying what young people post online and what they passively consume is important for determining how they feel about themselves and their lives. Findings generally reveal that posting authentic photos is associated with improved mental health, whereas the opposite relation was often found for posting edited photos. However, refinement of active and passive social media use through content specification cannot fully explain the effects on young people's mental health and body image. How social media use impacts mental health and body image depends on many factors, the cultural context being one. The findings of this dissertation indicate that social media effects depend on the cultural context an adolescent finds oneself in. Hence, social media effects cannot be attributed to all individuals. Altogether, it can be concluded that *if* and *when* social media impacts mental health and body image largely depends on *how* and *why* they use social media as well as how they respond to it.

Nederlandse Samenvatting

De snelle groei en populariteit van socialmediaplatforms in de afgelopen twee decennia hebben geleid tot een toenemende bezorgdheid over de mogelijke negatieve effecten van socialmediagebruik onder jongeren bij bijvoorbeeld ouders, beleidsmakers en zorgverleners. In de samenleving zijn er met name zorgen ontstaan over de mogelijke negatieve impact van socialmediagebruik op het welzijn en lichaamsbeeld van jongeren. Deze zorgen waren aanleiding voor eerste grondige onderzoeken om te ontrafelen of er daadwerkelijk negatieve gevolgen zijn. Een concreet antwoord werd echter niet verkregen met deze onderzoeken. Een mogelijke oorzaak hiervan is dat de meeste onderzoeken naar de effecten van social media zich hebben gericht op de vraag welke invloed de tijd die jongeren doorbrengen op social media heeft op hun welzijn en lichaamsbeeld. Dit gaat echter voorbij aan wat jongeren nu precies doen en zien op social media. Om meer te weten over hoe jongeren social media gebruiken werd in voorgaande studies onderscheid gemaakt tussen 'actief' en 'passief' socialmediagebruik. Actief socialmediagebruik wordt gekenmerkt door het creëren en plaatsen van eigen inhoud op social media. Passief socialmediagebruik wordt daarentegen gezien als het scrollen door en bekijken van socialmedia-inhoud van anderen. Veel onderzoeken voorspelden dat actief socialmediagebruik zou leiden tot positieve effecten op welzijn en lichaamsbeeld, terwijl passief socialmediagebruik zou leiden tot negatieve effecten.

Deze veronderstelde hypothesen over passief en actief socialmediagebruik zijn echter recentelijk ook bekritiseerd. Zo is aangetoond dat actief socialmediagebruik in sommige gevallen ook kan leiden tot negatievere gevoelens bij jongeren over zichzelf en hun leven, en dat passief socialmediagebruik juist in sommige gevallen ook kan leiden tot positievere gevoelens. Het onderscheid tussen passief en actief socialmediagebruik geeft dus niet voldoende inzicht om de verschillende effecten van socialmediagebruik te verklaren. Om de mogelijke impact van socialmediagebruik op het welzijn en het lichaamsbeeld beter te begrijpen moet de variëteit aan actief geplaatste en passief bekeken inhoud worden gespecificeerd. Wat zien jongeren bijvoorbeeld allemaal als ze op social media zitten en wat posten ze zelf? Welke invloed heeft dat op het welzijn en het lichaamsbeeld van deze jongeren? En voor welke jongeren zijn de mogelijke effecten schadelijker of juist gunstiger? Om onze kennis en inzichten hierover te vergroten, was het overkoepelende doel van dit proefschrift om te onderzoeken hoe jongeren social media gebruiken en *wanneer, of, en hoe* dit hun welzijn en lichaamsbeeld beïnvloedt.

Om hieraan bij te dragen zijn er in dit proefschrift vier onderzoeken uitgevoerd waarin onderzocht is welke verschillende soorten inhoud online gepost en gezien worden door jongeren, en hoe dit samenhangt met het welzijn en lichaamsbeeld van deze jongeren (*Hoofdstuk 2, 3, 4 en 5*). In *Hoofdstuk 2* werd een solide basis

gevormd voor dit proefschrift door eerst te kijken wat er al bekend was over of en hoe het zelf actief posten van bepaalde inhoud of het passief bekijken van bepaalde inhoud van anderen op social media samenhangt met het welzijn en lichaamsbeeld. De bevindingen van deze literatuurstudie, waarin de resultaten van 55 eerdere onderzoeken worden samengenomen, toonden aan dat hoe socialmediagebruik samenhangt met welzijn en lichaamsbeeld grotendeels afhangt van de inhoud die jongeren posten en wat ze zien. Zo werd het posten van negatieve levensgebeurtenissen over het algemeen in verband gebracht met een verminderd subjectief welzijn. Het posten van authentieke zelfpresentaties, waarbij iemand zichzelf laat zien zoals hij of zij ook in het echte leven is, was juist gerelateerd aan een verhoogd subjectief welzijn. Verder toonden de resultaten aan dat de meeste inhoud die jongeren zelf online plaatsen en de socialmediaposts die ze van anderen bekijken een negatieve impact heeft op het lichaamsbeeld. In Hoofdstuk 2 werd ook geconcludeerd dat niet iedereen even gevoelig is voor de effecten van social media. Zo suggereerden de bevindingen bijvoorbeeld dat de effecten van socialmediagebruik op het welzijn en lichaamsbeeld verschillen tussen landen. Onderzoek uit individualistisch georiënteerde landen, zoals Amerika, toonden over het algemeen aan dat geïdealiseerde zelfpresentaties het welzijn verhoogden, terwijl dit effect niet is gevonden bij onderzoek uit collectivistisch georiënteerde landen, zoals Zuid-Korea. Daarnaast bleek dat individuen die zich vaker vergelijken met anderen gevoeliger waren voor socialmedia-effecten.

Om nog meer inzicht te krijgen in welke inhoud individuen online posten, en hoe dit kan verschillen tussen personen, werd in de tweede studie van dit proefschrift onderzoek gedaan naar kenmerken van online zelfpresentatie (*Hoofdstuk 3*). Specifiek is onderzocht in hoeverre etnisch-rationale identiteiten bijdragen aan verschillen in inhoud van publiekelijk geplaatste selfies. Deze studie onderzocht twee tegengestelde theoretische ideeën. Aan de ene kant, vanuit de convergentie-hypothese, werd verwacht dat er gelijkenissen in online zelfpresentaties van individuen uit verschillende etnisch-rationale culturen zullen zijn door de globalisering van Westerse witte idealen en door het feit dat mensen steeds meer dezelfde technologische mogelijkheden gebruiken (bijv. filters). Aan de andere kant, vanuit de divergentie-hypothese, kunnen juist verschillen verwacht worden in zelfpresentaties op basis van sociaal-culturele dominante ideologieën over ras en etniciteit. Om deze tegenstrijdige theoretische ideeën te onderzoeken is gebruik gemaakt van gezichtsherkenning om de etnisch-rationale identiteit van de selfie-maker te classificeren van meer dan 3000 publiekelijk geplaatste selfies op Instagram. Daarnaast werden kenmerken van selfies onderzocht, zoals het digitaal verbeteren van selfies door middel van filters. De bevindingen toonden aan dat er verschillen waren in hoe etnisch-rationale groepen zichzelf online weergaven. Zo toonden Aziatische en Latijns-Amerikaanse selfie-makers meer van hun context bij het posten en minder van hen als individu dan zwarte en witte selfie-makers. Daarnaast toonde de studie aan dat zwarte selfie-makers hun selfies vaker bewerkten via filtergebruik dan de andere etnisch-rationale groepen. Over het geheel

genomen bieden de resultaten ondersteuning voor de stelling dat zelfpresentatie niet typisch overeenkomt met de wereldwijde dominante Westerse witte idealen, maar dat etnisch-rationale identiteitskenmerken juist belangrijk zijn in de uitingen van online selfies.

Op basis van de kennis van de eerste twee studies over de verschillen in inhoud op social media en de mogelijke impact daarvan, werd in de derde studie verder onderzocht hoe het posten en zien van verschillende foto-inhoud samenhangt met het welzijn en lichaamsbeeld van adolescenten (*Hoofdstuk 4*). Deze studie richtte zich specifiek op adolescenten omdat deze groep het meest kwetsbaar lijkt voor de mogelijke negatieve gevolgen van socialmediagebruik. Om de verschillende foto-inhoud die jongeren kunnen posten of bekijken te onderzoeken zijn meer dan 400 adolescenten gevraagd om aan te geven hoe vaak ze authentieke, bewerkte, intieme en positieve foto's van zichzelf posten, en hoe vaak ze dit soort foto's van anderen bekijken. Ook beantwoordden ze vragen over hun welzijn en lichaamsbeeld. De resultaten van dit onderzoek toonden onder andere aan dat er verschillen zijn in type inhoud dat online geplaatst wordt. Zo worden vaak positieve foto's gepost, zoals foto's waarop getoond wordt wat voor leuke dingen iemand aan het doen is. Online worden juist niet zoveel intieme foto's geplaatst, waarbij iemand openlijk zijn of haar emoties laat zien. Daarnaast laten de resultaten van dit onderzoek zien dat variaties in het welzijn en lichaamsbeeld afhangen van welke foto-inhoud iemand actief post en passief bekijkt. Zo hangt het vaker posten van authentieke foto's samen met een verbeterd welzijn, terwijl het posten van bewerkte foto's samenhangt met meer schaamte voor het eigen lichaam. Al met al ondersteunen de bevindingen het theoretische idee dat het verder uitsplitsen van actieve en passieve gedragingen naar de inhoud van deze gedragingen helpt om beter te begrijpen wanneer, of, en hoe socialmediagebruik gerelateerd is aan een verbeterd of verminderd welzijn en lichaamsbeeld.

Als een volgende stap in het onderzoeken van de impact van inhoud-specifiek socialmediagebruik op het welzijn en lichaamsbeeld van adolescenten, is in de laatste studie vooral gekeken naar de mogelijke lange termijn impact van socialmediagebruik (*Hoofdstuk 5*). Specifiek is onderzocht of veranderingen in wat een jongere post of ziet op social media voorafgaat aan een verandering in welzijn en lichaamsbeeld. Om meer inzicht te krijgen in de culturele verschillen zoals aangetoond in hoofdstuk 2, is deze studie uitgevoerd in twee verschillende culturele contexten, met meer dan 400 adolescenten uit Japan en meer dan 500 adolescenten in Nederland. De jongeren in Japan en Nederland hebben allemaal drie keer een online vragenlijst ingevuld over het zien en plaatsen van authentieke en bewerkte foto's, en hun welzijn en lichaamsbeeld. Tussen de vragenlijsten zat iedere keer een maand tijd. De resultaten lieten zien dat zowel het posten als het zien van authentieke foto's kan leiden tot positieve uitkomsten voor het welzijn en lichaamsbeeld, terwijl zowel het posten en het zien van bewerkte foto's samenhangt met negatieve uitkomsten. De resultaten verschilden

echter tussen Japanse en Nederlandse adolescenten. Zo ervaren Nederlandse adolescenten die meer authentieke foto's van anderen zien een hogere mate van welzijn, terwijl deze bevinding niet werd gevonden bij Japanse adolescenten. Ook werden verschillen gevonden voor de langere termijneffecten van inhoud-specifiek socialmediagebruik op het welzijn en lichaamsbeeld tussen Japanse en Nederlandse adolescenten. Zo bleek dat een individuele toename in het posten van authentieke foto's leidde tot een negatiever lichaamsbeeld een maand later bij Nederlandse adolescenten, terwijl een dergelijke individuele toename in het posten van authentieke foto's bij Japanse adolescenten juist leidde tot een positief effect op het lichaamsbeeld een maand later. Dit betekent dat socialmedia-effecten niet aan alle adolescenten kunnen worden toegeschreven en kunnen variëren per culturele context.

Theoretische en Maatschappelijke Bijdrage

Uit de bevindingen van de onderzoeken in dit proefschrift kan worden geconcludeerd dat het onderzoeken van de tijd die jongeren spenderen op social media te simplistisch is om de mogelijke effecten op het welzijn en lichaamsbeeld te verklaren. De bevindingen van dit proefschrift pleiten er allemaal voor om actief en passief socialmediagebruik verder uit te splitsen naar *wat* jongeren posten en bekijken. Concreet betekent dit dat bij socialmediagebruik de actieve en passieve socialmediagedragingen verder uitgesplitst moeten worden naar inhoud, zoals het posten of zien van meer bewerkte of authentieke foto's. Onderzoeken die zich richten op tijd gespendeerd op social media zijn niet in staat om de nuances van wat jongeren zien en posten te bestuderen. De bevindingen van dit proefschrift geven bovenal aan dat het onderzoeken van socialmedia-effecten op welzijn en lichaamsbeeld zeer complex is. Hoewel het verder uitsplitsen van passief en actief socialmediagebruik naar inhoud een stap in de goede richting is, vangt dat nog niet de complexiteit om volledig te begrijpen en verklaren hoe socialmediagebruik samenhangt met welzijn en lichaamsbeeld. Zo toonde dit proefschrift bijvoorbeeld aan dat socialmedia-effecten afhankelijk zijn van de culturele context waarin iemand zich begeeft. Over het algemeen kan dus geconcludeerd worden dat een *one-size-fits-all* benadering niet passend lijkt te zijn. Jongeren gebruiken social media namelijk op verschillende manieren. Hoe zij social media gebruiken, kan afhangen van hun persoonlijke doelen en motivaties, maar ook van de mogelijkheden die ze online hebben om zelf te bepalen wat ze posten en aan welke inhoud ze zichzelf blootstellen. Bovendien kan ook de manier waarop jongeren reageren op de uiteenlopende inhoud die zij actief posten of zien sterk verschillen van individu tot individu. *Wanneer, of en hoe* social media het welzijn en lichaamsbeeld beïnvloeden, hangt dus grotendeels af van hoe en waarom de jongeren social media gebruiken en van de manier waarop ze zelf op hun socialmediagebruik reageren.

De theoretische implicaties van de studies in dit proefschrift bieden ook input voor toekomstige studies. Ten eerste beveel ik aan om socialmediagebruik te onderzoeken in een bredere sociale context. Toekomstig onderzoek zou de inhoud die jongeren posten en zien op social media kunnen combineren met de verschillende reactiemogelijkheden zoals 'likes' en 'comments'. Een tweede aanbeveling is om inhoud-specifiek socialmediagebruik te onderzoeken door meer objectief socialmedia-inhoud te bekijken, via vrijwillige data donaties bijvoorbeeld. Zo wordt meer inzicht verkregen in het belang van het specificeren van inhoud op social media. Ten derde is in dit proefschrift aangetoond dat een *one-size-fits-all* aanpak over het algemeen niet doeltreffend is. Om te begrijpen voor wie het gebruik van social media in het bijzonder gunstiger of schadelijker zou kunnen zijn, beveel ik aan om de individuele verschillen die van invloed zijn op hoe mensen social media gebruiken en erop reageren verder te onderzoeken. Ten slotte beveel ik aan om de onderliggende processen van hoe individuen reageren op socialmedia-inhoud verder te onderzoeken, zoals geïnspireerd of juist jaloers raken, om te verklaren waarom blootstelling aan dezelfde inhoud kan leiden tot verschillende uitkomsten voor iemands welzijn en lichaamsbeeld.

Tot slot zijn er drie belangrijke bevindingen van dit proefschrift die concrete maatschappelijke implicaties hebben voor de ontwikkeling van interventies en de verbetering van socialmediawijsheid. Ten eerste geven de bevindingen aan dat individuen social media niet allemaal op dezelfde manier gebruiken. Jongeren verschillen in wat ze posten en wat ze zien op social media. Ten tweede toonden de resultaten van het onderzoek aan dat het gebruik van social media kan leiden tot zowel positieve als negatieve uitkomsten voor het welzijn en lichaamsbeeld. Tot slot is duidelijk geworden dat sommige individuen of groepen gevoeliger zijn voor socialmedia-effecten. Om een zo accuraat mogelijk beeld te schetsen, moeten interventies daarom duidelijk het type socialmediagebruik identificeren (waarbij zowel het gedrag van de gebruiker als de inhoud gespecificeerd moet worden), zowel positieve als negatieve dimensies van de mogelijke uitkomsten van socialmediagebruik omvatten, en aandacht besteden aan versterkende en dempende factoren (moderatoren op groepsniveau, zoals feedback van leeftijdsgenoten en land van herkomst). De bevindingen van dit proefschrift geven concrete informatie over de mogelijke positieve en negatieve gevolgen van socialmediagebruik en benadrukken belangrijke aspecten voor het ontwikkelen van interventies om socialmediawijsheid van jongeren te bevorderen.

Conclusie

In dit proefschrift is onderzocht *wanneer, of en hoe* socialmediagebruik het welzijn en lichaamsbeeld van jongeren beïnvloedt. Hierbij is specifiek gekeken naar welke inhoud jongeren zelf online posten en wat ze van anderen zien, zoals meer authentieke of juist bewerkte foto's. Daarnaast is gekeken hoe variatie in wat ze posten en zien kan worden gelinkt aan hun welzijn en lichaamsbeeld. De resultaten

van dit proefschrift toonden aan dat specificeren wat jongeren online plaatsen en passief consumeren belangrijk is om te bepalen hoe ze zich voelen over zichzelf en hun leven. Zo blijkt namelijk dat het posten van authentieke foto's samenhangt met een verbeterd welzijn, terwijl juist vaak het tegenovergestelde effect werd gevonden voor het posten van bewerkte foto's. Het verder uitsplitsen van actieve en passieve social media gedragingen naar inhoud kan echter niet de effecten op het welzijn en lichaamsbeeld van jongeren volledig verklaren. De invloed van social media is afhankelijk van verschillende factoren. Zo is in dit proefschrift gevonden dat de effecten van socialmediagebruik afhankelijk zijn van de culturele context waarin een adolescent zich bevindt. De effecten van social media zijn dus niet voor alle adolescenten gelijk. Samenvattend kan worden geconcludeerd dat *of* en *wanneer* socialmediagebruik het welzijn en lichaamsbeeld van jongeren beïnvloedt afhangt van *hoe* en *waarom* ze social media gebruiken en hoe ze daarop reageren.

About the Author

Nadia Bij de Vaate (Zierikzee, 1993) obtained a bachelor's degree in Communication Science in 2014 at the Vrije Universiteit Amsterdam. In 2016, she received her master's degree in Communication Science at the Vrije Universiteit Amsterdam (cum laude). During her master trajectory she followed several specialization tracks, namely, 'Marketing and Health Communication', 'Corporate Communication and New Media, and 'Media Psychology'. In her master thesis she investigated how selfie-related behaviors, such as selection criteria and editing behaviors, related to body-image concerns. This selfie-phenomenon had gained very little empirical attention at that moment in time, and her thesis also resulted in her first scientific journal article.

After graduating the drive to empirically study social media effects substantially grew. Therefore, to continue studying this topic, she and her supervisors submitted a PhD proposal for a NWO Research Talent Grant. In 2017, the NWO grant was honored and from there she was able to further unravel social media effects. Her project specifically focused on how variation in created and seen content can impact mental health and body image differently. Next to her research activities, she was also a lecturer at the department of Communication Science. During her PhD trajectory, she participated in various ancillary academic activities. Among others, she was a member and secretary of the Werkgroep Vrouwelijk Talent (WVT; Female Talent Committee) as well as an active member of the Graduate Council within the Faculty of Social Sciences. Moreover, she was asked to be part of the establishment of a VU-broad PhD council, and thereafter also took seat as a member.

Nadia currently works as a postdoctoral researcher at the Amsterdam School of Communication Research (ASCoR; University of Amsterdam). She is a member of team AWeSome (Adolescents, Well-being and Social media) and will continue to examine why social media use is beneficial for some, and in some cases more detrimental for others.