The Effects of Facebook and Instagram Use, Social Comparison, and Self-Esteem on Mental Well-Being in Young Adults: An Experience Sampling Study

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Bachelor Thesis

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1st of July, 2022

Abstract

Background. The use of social media within young adults has quickly increased over the past decade. Today, existing literature is inconclusive about its effects on mental well-being, making it vital to further research about its impacts. Further, there might be underlying factors which affect this relationship, making it important to investigate more. Especially the constructs of self-esteem and social comparison could have an influence on this relationship since self-esteem can be mood reactive and fluctuating when using social media. Furthermore, individuals are constantly exposed to self-relevant information which can increase social comparison behaviours. **Objective.** The aim of the current study is to explore and expand on existing literature regarding the association of Facebook and/or Instagram use and mental well-being in young adults. Moreover, the relationship will be further explored by examining what moderating roles (contingent) self-esteem and upward social comparison play in this relationship. **Method.** The current study made use of an Experience Sampling Method (ESM) design for eight consecutive days. The recruitment was based on convenience sampling and 33 participants were included in the analysis. The mean age of the participants was 21.13 years and 63.6% participants identified as female. Demographics and trait measurements were assessed one day before the study started and state measurements were assessed three times a day for the following eight days. **Results.** A Linear Mixed Model Analysis (LMM) revealed a significant negative relationship between Facebook and/or Instagram use on mental well-being in young adults (b= -.07, p< .001). Further, no significant effect was found when (contingent) self-esteem was added as a moderating variable to the analysis (b= -.03, p= .209). In addition, when upward social comparison was added as a moderator, no significant relationship was found either (b= -.03, p= .198). **Conclusion.** The current research extended on existing literature by applying an ESM study design in the context of social media use and mental well-being in young adults. It was found that Facebook and Instagram use is negatively affecting mental well-being in young adults. Upward social comparison and (contingent) self-esteem were not found to have moderating roles in this relationship in the current study. These findings contribute to existing literature with novel insights, however, there is still space for future research concerning what other psychological constructs might play a role in the relationship as well as to apply screentime measuring tools to get more objective and accurate data.

*Keywords***:** social media use, self-esteem, social comparison, mental well-being, young adults, experience sampling study, state measures

Introduction

During the past decade, social media sites have become increasingly popular and are now considered to be intertwined with individuals' daily lives (Weinstein, 2018). Social media is not only used to share information, but also to connect with friends online, to consume other people's content and to make observations about other people's lives (Jiang & Ngien, 2020; Vogel et al., 2014). Facebook and Instagram have become the most popular social media sites worldwide, with Facebook having 2.91 billion monthly users in 2021 and Instagram having 1.21 billion monthly users in 2021 (Facebook: Number of Monthly Active Users Worldwide 2008–2021, 2022; Number of Instagram Users Worldwide from 2019 to 2023, 2022). Due to the vast rise of social media use in young adults (Anderson & Jiang), it has become an important topic to research its, oftentimes reversed, effects on mental well-being and what psychological constructs may play a role in this relationship (Faelens et al., 2021). Therefore, this research aims to unravel how using Facebook and Instagram affects mental well-being in young adults and what moderating roles (contingent) self-esteem and upward social comparison play in that relationship. Consequently, the following sections will provide a detailed description of the social media sites Facebook and Instagram, as well as discuss the psychological concepts of (contingent) self-esteem, (upward) social comparison and mental well-being in greater detail. Additionally, existing research concerning the concepts in the context of social media use will be examined.

Facebook allows users to share moments and opinions of their lives in text form via postings. These postings can be accompanied by uploading pictures and/or videos if the user wishes to do so. All these functions make it easier to help people maintain relationships, as well as form new relationships online (Boyd & Ellison, 2007). In contrast, Instagram is an app on which individuals can share image-based content through uploading pictures and/or video material which can be complemented by a small caption in text form (Dion, 2016). Similar to Facebook, other users can like, comment, and share these posts. However, Instagram differs from Facebook as it is centred on image-based content. Moreover, Instagram users can make use of in-built filters which they can apply to their pictures before posting them. In addition to this, one cannot only follow friends and family but also celebrities, which increases individuals' social comparison group as opposed to Facebook in which the social comparison group is mostly made up of family and friends (Dion, 2016).

Social Comparison Theory is a psychological theory which was originally invented by Festinger (1954). It states that individuals try to gain an accurate self-evaluation by comparing themselves to other individuals around them. This is done by comparing one's own abilities

and opinions to those of other individuals, to not only compare oneself but also to define oneself as an individual (Festinger, 1954). Within this theory are two types of social comparison, one is known as upward social comparison and the other one is termed downward social comparison. Upward social comparison takes place when individuals are comparing themselves to someone who they believe to be superior to them. This can leave individuals with feelings of a lowered self-esteem and/or status in certain aspects of their lives. However, it can also lead to self-improvement or self-enhancement. Downward social comparison is the opposite. Individuals are comparing themselves to other individuals who they believe to be inferior in certain aspects or abilities which makes them feel better about themselves (Festinger, 1954; Wills 1981). Whether a person engages in downward or upward social comparison depends highly on that individual's level of self-esteem (Wills, 1981). An individual with a low or threatened self-esteem is more inclined to engage in downward social comparison in order to improve their own self-esteem (Wills, 1981).

Facebook and Instagram offer a great place for social comparisons to take place since social media allows individuals to create personal profiles and to present themselves on the internet, not only concerning appearance but also regarding achievements, living situation, family situation or other activities and/or opportunities in life (Vogel et al., 2015). Furthermore, it has been found that most users scroll through other profiles just to learn more about other people and to consciously compare themselves to them, without initiating any kind of social interaction (Joinson, 2008). Important here is that online social comparison differs from offline social comparison, since a lot of individuals present themselves in an idealized way on Facebook and Instagram, leading individuals to compare their realistic selves with idealized online selves (Nadkarni & Hofmann, 2012; Vogel et al., 2014). Simultaneously, individuals cannot only compare themselves to others regarding 'personal' attributes such as attractiveness and achievements but also obtain a form of 'social' comparison by seeking information through other people's activity on social media profiles. A person with an active social media page might receive more likes and comments and has more virtual friends (Vogel et al., 2014).

Hence, social comparison that takes place in an online environment is mostly based on biased information which will lead to upward social comparison. Even though upward social comparison can have positive effects like inspiring others and self-improvement (Marsh & Parker, 1984; Festinger, 1954), continuous upward social comparison on social media has been found to affect individuals in a negative way by lowering self-esteem, and mental well-being (Vogel et al., 2015). Both concepts of self-esteem and mental well-being will be discussed in greater detail in the upcoming paragraphs.

Self-esteem can be defined as an individual's acceptance towards themselves, which stems from personal evaluations based on attractiveness, abilities to achieve one's aspirations, competence, and self-worth (Robson, 1988). These evaluations can either be positive and lead to a higher self-esteem, or negative leading to a lower self-esteem. Using social media can also take effects on one's self-esteem in either a positive or negative way. As mentioned before, engaging in upward social comparison can lead to a lowered self-esteem, especially if people compare themselves to individuals who they do not know very well in person (Festinger, 1954; Wills 1981). They might believe that these people live a very happy life based on what they let other people see on social media. These assumptions can in turn lead to a lowered self-esteem in individuals, thinking that their lives are not as perfect (Jan et al., 2017; Chou & Edge, 2012). Central here might be how an individuals' level of self-esteem can fluctuate. This is especially important when looking at how Facebook and Instagram affect it since they have the potential of altering temporary states of self-esteem, meaning that self-esteem could be mood-reactive when using social media (Clasen et al., 2015; Vogel et al., 2014).

The construct of contingent self-esteem is of great importance when talking about fluctuations in self-esteem given that it describes how self-esteem depends on self-relevant standards (Kernis et al., 2008). Faelens et al. (2021) explain how contingent self-esteem might look like when using social media with an example of likes on social media platforms. If a person only feels worthy and attractive if a post reaches a certain number of likes, their self-esteem might suddenly decrease if that mark is not reached (Faelens et al., 2021). Further, for individuals who are constantly exposed to an infinite amount of self-relevant information like idealized pictures of others, likes, and comments, contingent self-esteem and its fluctuations are of great relevance in the context of social media (Faelens et al., 2021; Vogel et al., 2014). Interestingly, most body of research that has been conducted on self-esteem only focuses on one-time measurements (e.g., Faelens et al., 2019; Wang et al., 2017). Thus, global self-esteem has been assessed more than contingent self-esteem, leading to a literature gap. In addition, to the researcher's knowledge, no study has investigated the role of (contingent) self-esteem as a moderator in the association of social media use and mental well-being in young adults, leading to another gap in literature. Moreover, it is essential to understand the concept of mental well-being since self-esteem has been found to have an impact on individuals' mental health (Sowislo & Orth, 2013), with individuals having a lower self-esteem being commonly at risk for suffering from psychopathologies like anxiety, depression, and eating disorders (Heatherton & Wyland, 2003).

Mental well-being is a complex construct but can generally be defined as having a good psychological experience and functioning (Ryan & Deci, 2001). Further, the World Health Organization (WHO) (2018) defines mental health '[…] as a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community' (WHO, 2018, Mental health: strengthening our response section). When talking about mental well-being in the context of social media, frequently effects of psychological indicators are being examined which include life satisfaction, quality of life, stress, depression, and body image (Weinstein, 2018). However, which exact effect social media use has on mental well-being is inconclusive (Faelens et al., 2021). Some studies suggest that the use of Facebook and Instagram have a negative effect on mental well-being (Blachnio et al., 2016; Frison & Eggermont, 2017). Negative effects can include a lowered level of self-esteem and lower subjective well-being (Denti et al., 2012), as well as depression and anxiety (Koc & Gulyagci, 2013). Other studies suggest that there might be a positive association between social media usage and well-being, mostly due to the connectedness it offers people (Grieve et al., 2013). However, even though there are studies which suggest that heavy Facebook use can lead to depression and anxiety, one needs to be careful with this association since people who have a poorer mental health might tend to consume more social media or use it for different purposes than lighter users (Weinstein, 2018). So, correlation not always implies causation. Likewise, mental well-being and social media use also depend on what content individuals consume and whether that is more negative or positive in nature (Weinstein, 2018).

All in all, it can be stated that there is a lot of research that has already been done concerning social media use and its effects on mental well-being, (upward) social comparison and self-esteem. However, regarding the body of existing studies, a few limitations become apparent. First, only a few studies (e.g., Faelens et al., 2019; Faelens et al., 2021) include all three variables and their complex relations. The research of Faelens et al. (2019) did establish that passive Facebook use was not only linked with increased social comparison but also how this was linked with an individual's level of self-esteem and reduced well-being. This means that Facebook use increased social comparison behaviour of individuals based on interpersonal feedback which in turn affected fluctuations in self-esteem and, therefore, increases the risk of developing psychopathologies and reduced well-being (Faelens et al., 2019). Nevertheless, the study makes use of a cross-sectional design like most research in the social media domain, which is a second limitation in existing research as cross-sectional study designs do not account for temporal dynamics (Faelens et al., 2021). This is especially important when researching

how contingent self-esteem might be affected by social media use. Moreover, a focus will be put on the social media sites Facebook and Instagram not only because these are the apps with most users but also since many studies to date only focus on Facebook (e.g., Faelens et al., 2019; Vogel et al., 2014). Additionally, a different research design might be more helpful in establishing a deeper understanding of how social media use affects (upward) social comparison, (contingent) self-esteem and mental well-being. Therefore, making use of the experience sampling method (ESM) for this study seems to be a better approach, since ESM decreases recall bias which is often associated with retrospective reports and can better assess fluctuations throughout the day (Hektner et al., 2007). Moreover, the target group of this research will be young adults, since they are the most active users of Facebook and Instagram in 2021 (Instagram: Distribution of Global Audiences 2021, by Age and Gender, 2022; Facebook: Distribution of Global Audiences 2022, by Age and Gender, 2022).

Taken together, the aim of this study is to build up and extend on existing research by investigating the association between Facebook and/or Instagram use and mental well-being in young adults, as well as by using a research technique which accounts for fluctuations and, therefore, allows to analyse the dynamics of (upward) social comparison, (contingent) self-esteem and mental well-being. This aim results in two research questions, which are also visualized in Figures 6 and 7.

RQ1: To what extent are Facebook and/or Instagram use in young adults related to mental well-being?

The second research question has been added to build up on the first if a significant relationship between Facebook and/or Instagram use and mental well-being in young adults was found. A significant relationship opts for further exploration of why there is a significant relationship and what variables might affect this relationship. Based on the aforementioned literature, (contingent) self-esteem and (upward) social comparison can play an important role in this relationship, which is why the second research question has been established.

RQ2: How do upward social comparison and (contingent) self-esteem moderate the effect of Facebook and/or Instagram use in young adults on mental well-being?

Verduyn et al. (2020) suggest that social comparison on social media can cause increases in well-being, however, many people tend to engage in upward social comparison on social media, leading to adverse effects on mental well-being. Therefore, the following hypothesis has been established.

H1: Engaging in upward social comparison on Facebook and/or Instagram strengthens the negative relationship between Facebook and/or Instagram use and mental well-being.
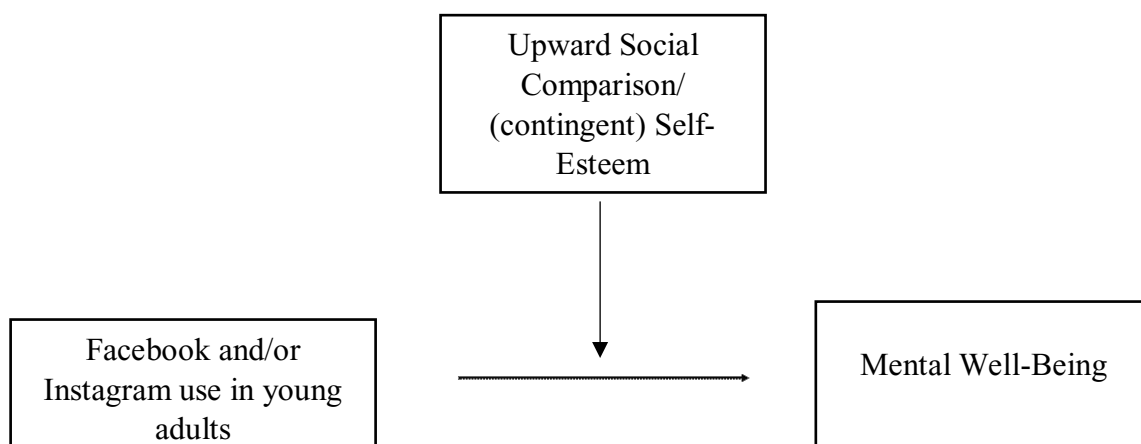
Figure 1

Visualization of the first Research Question

Facebook and/or Instagram use in young adults	························>	Mental Well-Being

Figure 2

Visualization of the second Research Question

Upward Social Comparison/ (contingent) Self-Esteem

Facebook and/or Instagram use in young adults	························>	Mental Well-Being

Methods

Research Design

The present study utilized an Experience Sampling Method (ESM) design, to assess momentary experiences of participants. Experience sampling is a method which makes use of a diary technique in which participants fill out a questionnaire at different times per day over a set number of days (Hektner et al., 2007). This method decreases recall bias, which is oftentimes correlated with retrospective report and, therefore, increases reliability and ecological validity (Hektner et al., 2007). Ecological validity can be described as whether, depending on high or low ecological validity, study results can predict real-life behaviours. Low ecological validity would mean that the results only apply within the study and not in real life settings (Hektner et al., 2007). Making use of ESM evades the aforementioned limitation of not being able to account for temporal dynamics, especially in regard to contingent self-

esteem in the context of social media usage (Franck & De Raedt, 2007; Vogel et al., 2014). Hence, this design facilitates to investigate fluctuations and momentary experiences (Hektner et al., 2007) of the participants' state of (contingent) self-esteem, mental well-being and (upward) social comparison.

Participants

Participants were recruited through convenience sampling using the Test Subject Pool System of the University of Twente (SONA) or by being directly approached by the researcher in-person or via social media. Participants who participated via SONA received a compensation of 0.5 points to increase participation through reward (Wiersma, 1992). This is rewarding for given that the students have to achieve a total of 15 SONA credits to graduate.

Ethical approval by the University of Twente was given before the recruitment process for participants started. Moreover, all participants had to actively give informed consent. Furthermore, there were certain inclusion criteria that participants had to fulfil to be eligible to take part in this research. Participants had to be between 18-29 years old, have sufficient English skills to be able to comprehend the content of the study, possess a smartphone that can be used to download the Ethica app, as well as having Instagram and/or Facebook accounts in use. Additionally, participants had to answer at least 50% of the state measurements to be included in the data analysis.

A total of 68 participants signed up for the study on Qualtrics, all giving informed consent. One participant did not indicate their age and had to be excluded based on that. There were 13 participants who discontinued the study by not signing up for the study in Ethica. 21 participants answered less than 50% of the measurements, thus, being excluded from the analysis. This resulted in a total of 33 participants (Figure 3). Even though there was a big loss in participants who could not be included in the analysis, this sample size is still representative according to van Berkel et al. (2017), who indicated that for ESM studies a sample size of at least 19 participants is representative.

Figure 3

Flow Chart of Recruited Participants
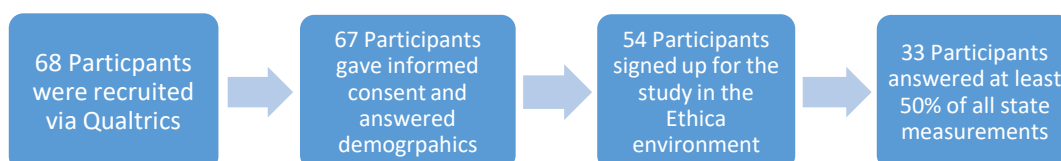
Materials

The study was conducted in accordance with another researcher, thus, included questionnaires about purpose of social media use. However, these measurements are not intended to be used for the current research study at hand and will, therefore, not be explained here.

The study is comprised of a few measurement materials. First, the online website Qualtrics which was used for recruitment purposes, as well as to inform participants about the study, and to give informed consent. Second, the Ethica application was used to create an online survey. This survey assessed demographics, trait measurements of mental well-being, self-esteem, and social comparison. Moreover, Ethica was used to assess participants social media consumption since the last questionnaire, and state measurements of their mental well-being, (contingent) self-esteem and upward social comparison.

Ethica

Ethica is an online application for web devices as well as Apple and/or Android smartphones, which can be used for Experience Sampling studies (Ethica Data, 2022). The researcher can create an ESM study and observe participants' responses on daily state levels via participants self-reports (Ethica Data, 2022). The questionnaires are being sent out on pre-determined time intervals that the researcher can adjust to their liking. Further, the researcher is able to set a time for the app to send out push notifications to ensure that the state levels are being measured in the set time interval (Ethica Data, 2022). Additionally, Ethica verifies and safely stores the collected data in the application. This is in line with regulations of Ethical/Institutional Review Boards (IRBs) (Ethica Data, 2022). Appendix A shows an outline of the application.

Trait Questionnaires

Demographics. Participants were asked to indicate their gender, age, nationality, and highest educational degree completed at the time. Moreover, participants were asked to indicate all social media platforms which they are using alongside the approximate screentime on one day. The researchers gave instructions on how to find the screentime on their smartphones for apple and android devices.

Mental Well-Being: Mental Health Continuum Short Form (MHC-SF). The MHC-SF is derived from the Mental Health Continuum Long Form (MHC-LF). It is a self-reported measure about an individual's mental well-being, consisting of 14 items which can be scored on a six-point Likert scale ranging from 0 'never' to 5 'everyday' (Lamers et al., 2010). Three

items measure emotional (hedonic) well-being (e.g., 'During the past month, how often did you feel satisfied with life?'), five items measure social well-being (e.g., 'During the past month, how often did you feel that you had something important to contribute to society'), and six items measure psychological well-being (e.g., 'During the past month, how often did you feel that you had experiences that challenged you to grow and become a better person?') (Lamers et al., 2010). All items are being summed, yielding a total score between 0 and 70. The subscale scores range from 0 to 15 for emotional (hedonic) well-being, from 0 to 25 for social well-being, and from 0 to 30 for psychological well-being. Higher scores are indicating a higher level of mental well-being (Lamers et al., 2010). The psychometric properties are very good with a high internal reliability of $\alpha= 0.89$. Moreover, convergent and discriminant validity are both indicated as good (Lamers et al., 2010). These psychometric properties were yielded in a sample of 1.662 Dutch participants between the ages of 18-87 years with a mean age of 47.6 and 49.8% of participants identifying as male. The MHC-SF was translated into Dutch for the study. Moreover, no specific group was used for this research but randomly selected households. However, there was an under representation of elderly, single, never married individuals, widowers, and immigrants (Lamers et al., 2010).

Self-Esteem: Rosenberg Self-Esteem Scale (RSE). The RSE is a self-reported measure of an individual's level of self-esteem, consisting of 10 items (Rosenberg, 1979). This global self-esteem scale is most commonly used and, therefore, serves as a sufficient trait measurement of self-esteem (Demo, 1985). Items number 1, 2, 4, 6, and 7 are scored from 3 'Strongly Agree' to 0 'Strongly Disagree' (e.g., 'I feel that I am a person of worth, at least on an equal plane with others') while items 3, 5, 8, 9, and 10 are scored reversely from 0 'Strongly Agree' to 3 'Strongly Disagree' (e.g., 'All in all, I am inclined to feel that I am a failure'). The score results from all items being summed, leading to a total score ranging between 0-30. Scores below 15 are considered as low self-esteem, scores between 15 and 25 are considered within normal range, and scores above 25 suggest a high level of self-esteem (Rosenberg, 1979). Significant stability was proven by a test-retest reliability which showed a correlation of 0.85 and 0.88 (Rosenberg, 1979). Further, Robins et al. (2001) showed that the RSE had significant concurrent, predictive and construct validity. The RSE scale was initially developed to measure the self-esteem of high school students but is now also being used to measure the self-esteem of various groups, including adults, with norms available to many of these groups (Rosenberg, 1979). Robins et al. (2001) yielded their results in two studies, one in a longitudinal study with 508 undergraduate college students of diverse ethnicities and 56% females in the sample, and the second one with 66 participants who were recruited from

community places like shopping malls or bus stops. That sample included 64% females and had an age range of 21 to 61 with a mean age of 44. In addition, there were several different ethnicities and various occupations represented in the sample (Robins et al., 2001).

Social Comparison: Social media social comparison (SMSC). The SMSC is an adapted version of the Iowa-Netherlands Comparison Orientation Measure (INCOM) consisting of nine items (Yang et al., 2018). It was adapted to fit social comparison activities on social media, which is measured with two subscales, SMSC-Ability and SMSC-Opinion. The first subscale is measured with five items (e.g., 'On social media, I compare what I have done with others as a way to find out how well I have done something') and the latter subscale with four items (e.g., 'On social media, I try to know what others in a similar situation would do.') (Yang et al., 2018). Besides item five, all items are being scored on a five-point Likert scale ranging from 1 'Not at all' to 5 'Very well'. Item five is reversely scored. The scores can be summed, ranging between 5-45. Higher scores indicate higher social comparison on social media (Yang et al., 2018). Both subscales show a good reliability (SMSC-Ability with 5 items: $\alpha T1 = .84$, $\alpha T2 = .84$ and SMSC-Opinion with 4 items: $\alpha T1 = .87$, $\alpha T2 = .86$) and were tested in a population of students (Yang et al., 2018), making the scale a good fit for the current research.

State measures

Since the current research made use of an Experience Sampling Method, state measures were assessed three times a day, therefore, it is important to keep participants' burden as low as possible (Van Berkel et al., 2017) by keeping the scales of the state questionnaires short.

Mental Well-Being: Short Warwick-Edinburgh Mental Well-Being Scale (SWEMWBS). The SWEMWBS is a self-report measure to assess an individual's level of mental well-being (Stewart-Brown et al., 2009) and was used to assess the participants momentary level of mental well-being for the current research. The scale consists of seven items which can be scored on a five-point Likert scale, ranging from 1 'None of the time' to 5 'All of the time'. The wording of the items has been adjusted to fit the experience sampling method (e.g., 'At the moment, I feel optimistic about the future' instead of 'I've been feeling optimistic about the future'). The scores are being summed, ranging from 7-35. The Warwick Medical School (n.d.) indicated cut off points at > 28 for high well-being, 21-27 for average well-being, 18-20 for possible depression, and < 17 for probable depression. Even though the scale is more brief than other well-being scales, it assesses a complete picture of respondents' well-being since both the hedonic (emotional) and the eudemonic (psychological) aspect of well-being are included in the items (Haver et al., 2015; Stewart-Brown et al., 2009). Moreover,

the SWEMWBS has a high correlation to the original, long version of the scale with a spearman's correlation of $\rho= .954$ (Stewart-Brown et al., 2009). Further, the scale possesses a high internal consistency and reliability ($\alpha= .89$) (Vaingankar et al., 2017), and has good construct, criterion-related, and discriminant validity (Haver et al., 2015).

Self-Esteem. To measure the state level of self-esteem of the participant the scale developed by Faelens et al. (2021) was used, which relied on items from the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1979) and the Contingent Self-Esteem Scale (CSS; Paradise & Kernis, 1999). This scale consists of two items, one measuring self-esteem ('Since the previous signal I have felt insecure') and the other one measuring contingent self-esteem ('Since the previous signal the feeling I had about myself depended heavily on what others thought of me'). The wording of the items has been adjusted to fit the other items used in this research more. In the research of Faelens et al. (2021) the items were scored by entering a value between 0 'Not at all' and 100 'Very much'. This was also adapted for the current research to fit more to the scoring of the other items, so the items were scored on a five-point Likert scale ranging from 1 'Strongly disagree' to 5 'Strongly agree'.

Upward Social Comparison. The state measure of upward social comparison was measured with a scale which was used by Wang et al. (2017) who used two items from the negative upward social comparison affect scale (Buunk et al., 1990). This scale was chosen because it used social media use and since it showed a good reliability coefficient with 0.80 (Wang, et al., 2017). The wording of the two items was adjusted to fit the Experience Sampling Method (e.g., 'At the moment, it gives me an unpleasant feeling when I see that the people I follow on social media live better lives than myself' instead of 'How often does it give you an unpleasant feeling when you see that SNS friends live better lives than you do yourself?'). The items are being scored on a five-point Likert scale ranging from 1 'Never' to 5 'Very often' (Wang et al., 2017).

Procedure

The data was collected in April 2022, using the Ethica application app on the participants' smartphones. However, the recruitment of the participants started before the actual start of the Experience Sampling Study. Participants were able to sign up for the study via SONA or via a link provided by the researcher that directed participants to the online website Qualtrics. On that website participants were provided with information about the purpose of the current study, its aims, duration, and their right to withdraw from the study at any given moment without indicating a reason. After reading the information, participants had to actively give informed consent by pressing 'Agree' or 'Disagree'. After that, participants

were instructed on how to download the Ethica app from the iOS or the Google Play Store. Moreover, they were asked to state their email address to receive further information on when the study will start.

The study was pilot tested for two days by the two researchers to see if the general functionality, the timing of the questionnaire and the timing of the notifications were working well. After the pilot test, modifications were applied if needed to alleviate unintended mistakes. As soon as the aimed number of 68 participants was recruited via Qualtrics, emails to all participants who gave informed consent were sent out. This email contained information on how to download the app, to create an account and the code to add the study in the Ethica environment. Moreover, participants received information on what will be the first step in the study and what they must expect, as well as how to activate push notifications. According to Palmier-Claus et al. (2010) this is essential in ESM studies since the researcher will not be present during the study to answer questions. Additionally, participants were asked to direct emails to the researchers in case of any questions that arise during the study. After participants added the study to the Ethica environment they were immediately able to fill out demographics, as well as the three trait measures of mental well-being, self-esteem, and social comparison.

For the ensuing eight days, participants had to fill out an identical questionnaire three times a day resulting in 24 state measures per participant. A fixed time-sampling was used to assess these state measures. These measures were predetermined for daily time intervals in which participants were able to answer the questionnaire. Time intervals were used to enable participants to have more time to answer the questionnaires and, therefore, minimise data loss. The questionnaires were available between 8.30 am and 13.00pm, 14.45pm and 18.30pm, and 20.00pm and 24.00pm. The state questionnaires include 13 items in total, which, depending on reading time, took the participants around three to four minutes to complete. It is important to keep items concise to keep the burden of the participants as low as possible (Van Berkel et al., 2017). To minimize data loss, participants had to answer each question before being able to go to the next one. In addition to this, participants received a push notification as soon as the next questionnaire was available to fill out. Further, participants received two reminder push notifications after one and two hours when they did not finish the questionnaire yet.

Data Analysis

In a first step both datasets, the trait questionnaire and the ESM questionnaire were exported from Ethica to the statistical program IBM SPSS statistics version 25. Next, the datasets were prepared for statistical analysis. Participants who had a response rate below 50% were excluded from the analysis, variables were renamed, values assigned as well as new

variables created. In the daily measurement dataset, a time variable was created for each participant which showed the difference between the start date of the study and the date the questionnaire was issued. Further, mean scores of each scale were computed to use for the analysis. Moreover, items with reversed coding were recoded, and the dataset from the ESM questionnaires was transformed into long format.

After the preparation of both datasets were completed, descriptive statistics were assessed to get information about participants' trait measure and state measurements by calculating minimum, maximum, mean scores, and standard deviations. In addition, all trait and state measurements were standardised, resulting in z-scores which were used for the analysis and because of the standardized estimates able to be used for comparisons. To account for the clustered data of the ESM data, Linear Mixed Models (LMM) were run (Gueorguieva, 2001). For the first research question a LMM was run in which the score of the SWEMWBS variable was used as a dependent variable (DV) and the score of the participants' social media use since the last questionnaire variable as a covariate. To account for the nested structure of the data, the participant variable was included as subject, and the time variable was included as repeated effects.

To assess the second research question two further LMM analyses were run. For both analyses the score of the SWEMWBS was used as a dependent variable (DV) and the score of the participants social media use since the last questionnaire as a covariate. Then for the first analysis, the score of the (contingent) self-esteem scale was used as another covariate to serve as a moderator. Again, the participant variable was included as subject, and the time variable was included as repeated effects. This stayed the same for the second analysis, however, the score of the upward social comparison scale was used as another covariate to serve as a moderator variable instead of (contingent) self-esteem.

Before each analysis was run, the assumptions of normality, linearity, and equal variance were checked, as well as the reliability of each scale.

Results

Sample Characteristics

The age range of participants was between 18-27 years (M = 21.13, SD = 1.833). 63.6% identified as female, and 36.4% identified as male. Most participants were German (78.8%), 3% were Dutch, and five indicated another nationality (18.2%) such as Swiss (3.03%), Malaysian (3.03%), Turkish (6.06%) and Argentinian (3.03%) and one person who did not further specify which other nationality (3.03%). At the time of the study taking place, most participants had the highest degree completed with their High School graduate/ Fachhochschulreife/Abitur/A-level (81.8%), 15.2% had completed a bachelor's degree and 3% had completed a master's degree at that time.

In addition, most participants had a screentime of more than 120 minutes per day (84.4%), 9.1% of participants indicated to have a screentime of between 90-120 minutes per day, and 6.1% indicated to have a screentime between 60 and 90 minutes per day. Moreover, participants answered in the state questionnaire how often they used social media since the last questionnaire. Of a total of 612 times, the participants indicated that they used social media none of the time 127 times, 186 times it was indicated that participants used it rarely since the last questionnaire, some of the time was selected 143 times, 103 times the option 'often' was selected, and 53 times the participants indicated that they used social media all the time since the last questionnaire. This shows that most participants never or only rarely used social media since the last questionnaire (313 times selected), compared to 299 times in which it was indicated that social media was used, at least to some extent.

Descriptive Statistics

Overall, 33 trait measurement and 729 state measurements were completed by the participants. Descriptive statistics of all scales are displayed in Table 1.

The MHC-SF can be scored from 0-70, with higher scores indicating better mental well-being (Lamers et al., 2010). The mean score of the participants in this sample was 42.12 which can be interpreted as a moderate mental well-being. In addition, even though the minimum score a person was bale to yield was 0, the actual minimum scored in this sample was 12, suggesting that even though 12 is a rather low score representing low mental well-being, it is not the lowest one could score. Further, the maximum which was scored is 62 which is a quite high mental well-being (Table 1).

The RSE can be scored from 0-30, with scores below 15 being indicated as low self-esteem, scores between 15 and 25 being considered within normal range, and scores above 25

suggesting a high level of self-esteem (Rosenberg, 1979). The mean of this sample is 19.84, which suggests a normal self-esteem. The minimum of the score is 0 and the minimum score of the sample is 7, indicating a low self-esteem. However, the maximum that can be scored and which was also scored in this sample is 30, which indicates a high level of self-esteem (Rosenberg, 1979) (Table 1).

The SMSC can be scored from 5-45, with higher scores indicating higher social comparison on social media (Yang et al., 2018). Therefore, the mean of 25.93 is a moderate to high social comparison behaviour on social media. The minimum score of 5 has not been recorded, indicating that the whole sample engages in social comparison on social media, however, not to an excessive extent, with a minimum score of 14. Moreover, the highest score of 45 has not been recorded, showing no signs of excessive social comparison behaviour on social media (Table 1).

The SWEMWBS can be scored from 7-35, with scores above 28 suggesting high well-being, scores between 21 and 27 indicating average well-being, 18-20 for possible depression, and lower than 17 for probable depression (Warwick Medical School, n.d.). The mean score of this sample was 26.65, which suggests average mental well-being. In addition, the minimum score yielded in this sample was 8, signalling to a probable depression, and the highest score with 35 high mental well-being (Table 1).

Both state scales were scored between 2-10, with higher scores indicating higher (contingent) self-esteem and higher upward social comparison. The mean score of the (contingent) self-esteem scale was 4.43, which suggest a lower (contingent) self-esteem, and the upward social comparison had a mean score of 4.79, also indicating lower upward social comparison behaviour. The minimum score of 2 was yielded on both scales, whereas the maximum of the self-esteem score was reached with 10, and a maximum of the upward social comparison scale was generated with 9 (Table 1).

Table 1

Minimum, maximum, means, and standard deviations (SD) for the trait and state measures in the final sample (N=33).

Variable	Minimum (minimum scale score)	Maximum (maximum scale score)	Mean (SD)
Trait Mental Well-Being (MHC-SF)	12 (0)	62 (70)	42.12 (13.80)
Trait Self-Esteem (RSE).	7 (0)	30 (30)	19.84 (5.44)
Trait Social Comparison (SMSC)	14 (5)	35 (45)	25.93 (5.3)
State Mental Well-Being (SWEMWBS)	8 (7)	35 (35)	26.65 (4.72)
State Self-Esteem	2 (2)	10 (10)	4.43 (1.7)
State Upward Social Comparison	2 (2)	9 (10)	4.79 (1.37)

Reliability

The reliability for all scales was calculated with Cronbach's alpha. The MHC-SF showed excellent reliability with an α= 0.94. Likewise, the RSE also displayed excellent reliability with α= 0.9. The SMSC showed a lower reliability with an α= 0.7 which can be interpreted as acceptable reliability.

For the state measurements, the SWEMWBS showed a good reliability with an α= 0.88. The scale which was used for the state (contingent) self-esteem measurement did not yield a great reliability with α= 0.53, which can be interpreted as poor reliability. In addition, the state upward social comparison scale did not display a good reliability either with α= 0.29, which can be interpreted as unacceptable reliability.
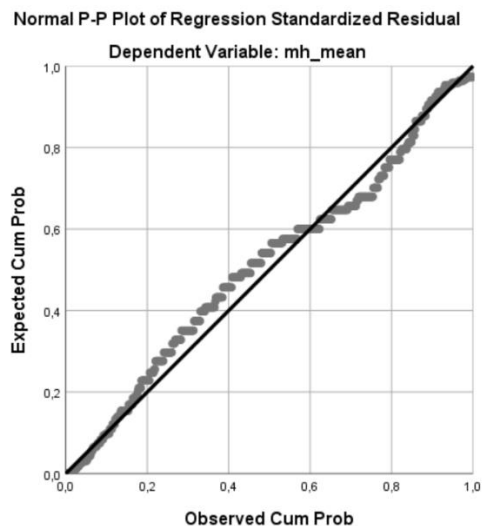
Assumption Check

Before the LMM analysis could be conducted, the assumptions of normality, equal variance, and linearity needed to be checked (Maas & Hox, 2004). To check the assumption of normality a P-P plot was used, which is displayed in Figure 4. The graph is not perfectly in line

and somewhat tilted. However, this still counts as sufficient and, therefore, the criterion of normality is met (Figure 2).

Figure 4

Distribution of residuals

To check the assumptions of equal variance and linearity a scatterplot was created. Since there is no indication of a curve, the assumption of linearity was met. Moreover, the points in the scatterplot did not indicate signs of a triangular shape, indicating that the assumption of equal variance was also met (Figure 5).

Figure 5

Scatterplot for Linearity and Equal Variance
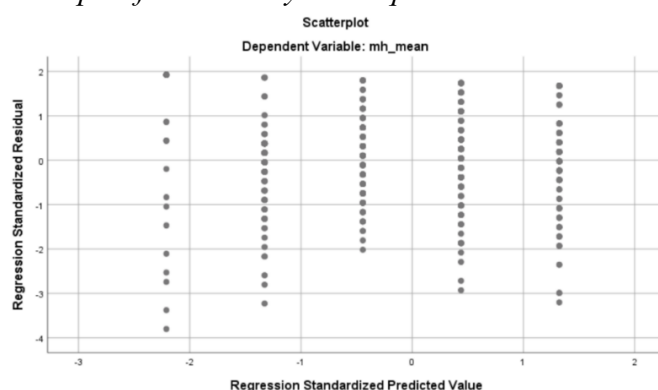

LMM Analyses

RQ1: Facebook and/or Instagram use and mental well-being in young adults.

To test the first RQ a LMM was run to assess whether Facebook and/or Instagram use affect mental well-being in young adults and if it affects mental well-being in a positive or negative way. Facebook and/or Instagram use was used as an independent variable in the

analysis, and mental well-being was used as a dependent variable. It was found that the association between Facebook and/or Instagram use, and mental well-being is statistically significant ($b = -.07$, $p < .001$). The standardized scores of this analysis were ($\beta = -.12$, $p < .001$), meaning that this is a weak, negative relationship. These results imply that Facebook and/or Instagram use negatively affect mental well-being in young adults in this sample. A visual representation of the result is displayed in Figure 6 and an overview of all estimates can be found in Table 2.

Figure 6

Visualization of the standardized Result of the first Research Question
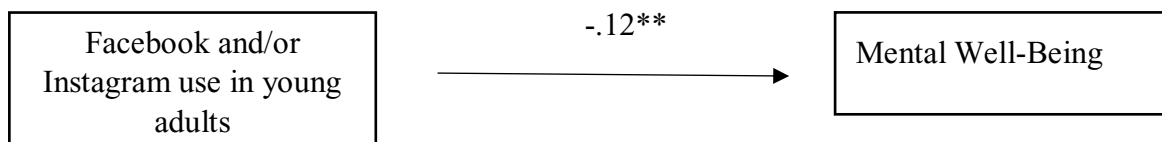
*Note. * = p < .05, ** = p < .01.*

Table 2

Table of unstandardized and standardized Estimates for Facebook and/or Instagram use on Mental Well-Being

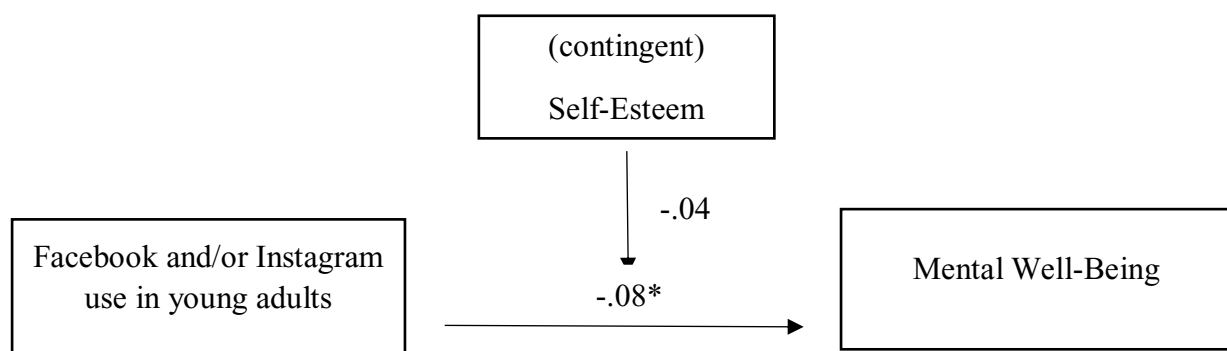|						95% CI	
Parameter	*Estimate*	*Std. error*	*df*	*t*	*Sig.*	*Lower*	*Higher*
Intercept	4.0	.08	222.96	52.4	.000	3.84	4.14
Facebook and/or Instagram use	-.07	.02	533.22	-3.5	<.001	-.11	-.03
Intercept*	.01	.08	78.69	.13	.89	-.15	.17
Facebook and/or Instagram use*	-.12	.03	533.22	-3.5	<.001	-.18	-.05

*=Standardized Estimates

RQ2: The moderating roles of upward social comparison and self-esteem on the relationship between Facebook and/or Instagram and mental well-being in young adults.

To test the second RQ two LMM were run, the independent and dependent variables stayed the same, whereas a moderator variable was added. The first moderator that was added to the LMM as another covariate was (contingent) self-esteem. It was found that there is a statistically non-significant relationship (b= -.03, p= .209). The standardized scores of this analysis were (β = -.04, p= .209). These results are visually represented in Figure 7 and shown in Table 3. This indicates that (contingent) self-esteem does not moderate the relationship between Facebook and/or Instagram use and mental well-being in young adults in this study.

As for the second moderation analysis the independent and dependent variable stayed the same and upward social comparison was added as a covariate to serve as a moderator, instead of (contingent) self-esteem. Again, no statistically significant relationship was found (b= -.03, p= .198). The standardized scores for this analysis are (β = -.04, p= .198). The results are visually presented in Figure 8 and in Table 4. Therefore, H1, engaging in upward social comparison on Facebook and/or Instagram strengthens the negative relationship between Facebook and/or Instagram use and mental well-being, can be rejected. This result shows that upward social comparison does not moderate the relationship between Facebook and/or Instagram use and mental well-being in young adults in this study.

Figure 7

Visualization of the Results of second Research Question
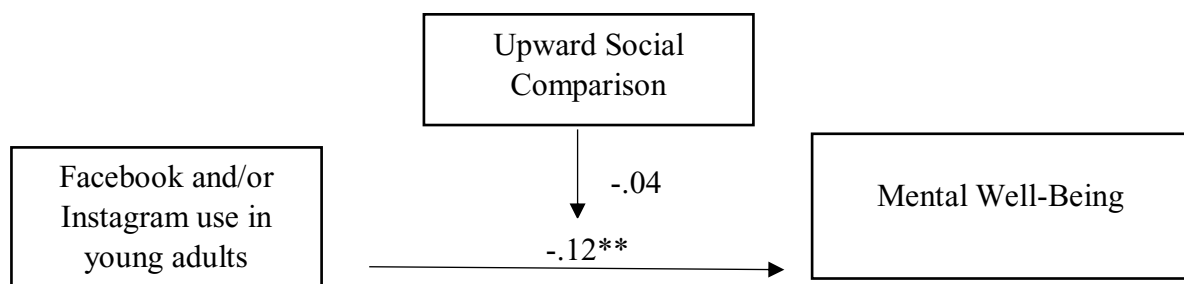

*Note. * = p < .05, ** = p < .01*

Table 3

Table of unstandardized and standardized Estimates for Facebook and/or Instagram use on Mental Well-Being with Self-Esteem as a moderator variable

Parameter	Estimate	Std. error	df	t	Sig.	95% CI Lower	95% CI Higher
Intercept	4.4	.16	570.5	27.8	.000	4.1	4.72
Facebook and/or Instagram use	.01	.05	540.31	.25	.806	-.09	.11
Self-Esteem	-.21	.07	567.66	-3.22	<.001	-.34	-.08
Facebook and/or Instagram use* Self-Esteem	-.03	.02	535.0	-1.26	.209	-.07	.02
Intercept*	.02	.07	84.81	.32	.749	-.11	.16
Facebook and/or Instagram use*	-.08	.03	551.44	-2.43	.015	-.14	-.02
Self-Esteem*	-.35	.041	539.81	-8.5	.000	-.43	-.27
Facebook and/or Instagram use* Self-Esteem*	-.04	.03	535.03	-1.25	.209	-.09	.02

*=Standardized Estimates

Figure 8

Visualization of the Results of the second Research Question

Note. * = p < .05, ** = p < .01.

Table 4

Table of unstandardized and standardized Estimates for Facebook and/or Instagram use on Mental Well-Being with Upward Social Comparison as a moderator variable

						95% CI	
Parameter	*Estimate*	*Std. error*	*df*	*t*	*Sig.*	*Lower*	*Higher*
Intercept	3.7	.21	567.33	17.27	.000	3.29	4.13
Facebook and/or Instagram use	.01	.07	541.25	.17	.862	-.12	.14
Upward Social Comparison	.12	.08	571	1.42	.15	-.05	.29
Facebook and/or Instagram use* Upward Social Comparison	-.03	.02	536.75	-1.28	.198	-.09	.02
Intercept*	.01	.08	76.42	.18	.855	-.15	.18
Facebook and/or Instagram use*	-.12	.03	530.11	-3.49	<.001	-.19	-.05
Upward Social Comparison*	.03	.05	442.87	.66	.508	-.07	.14
Facebook and/or Instagram use* Upward Social Comparison*	-.04	.03	536.75	-1.29	.198	-.09	.02

*=Standardized Estimates

Discussion

The current research aimed to assess the relationship between Facebook and/or Instagram use and mental well-being in young adults. Moreover, further exploration was needed to get insights into the relationship by investigating possible moderating variables like (contingent) self-esteem and upward social comparison. Three main findings were established with the current research. Firstly, supporting evidence was found regarding a significant negative relationship between Facebook and/or Instagram use and mental well-being in young adults (Blachnio et al., 2016; Frison & Eggermont, 2017). Secondly, it was found that (contingent) self-esteem did not influence the relationship between Facebook and/or Instagram use and mental well-being in young adults. Thirdly, against the expectation of finding a stronger negative relationship between Facebook and/or Instagram use and mental well-being in young adults when upward social comparison is used as a moderator, no support has been found for this hypothesis.

Interpretation of Results and Theoretical Reflection

There is a large extent of existing literature which focuses on one-time retrospective report measures concerning the relationship between social media usage and mental well-being (e.g., Faelens et al., 2019; Wang et al., 2017). However, these studies oftentimes yield inconclusive results, with some studies finding a negative effect on mental well-being (e.g., Blachnio et al., 2016; Frison & Eggermont, 2017) and other studies finding positive effects on mental well-being (e.g., Grieve et al., 2013). Therefore, the current research explored the relationship between Facebook and/or Instagram use on mental well-being in young adults with the use of an ESM technique. The current research found a statistically significant, weak, negative relationship, which aligns with findings of Blachnio et al. (2016), with Frison and Eggermont (2017) and with and Faelens et al. (2019), who also found negative effects of social media use on mental well-being in young adults or teenagers. This means that Facebook and/or Instagram use affects the mental well-being of young adults in a negative way.

In this sample a total of 84.4% indicated that they have a daily screentime of more than 120 minutes, indicating that this might be too much screentime which affects mental well-being in a negative way. This aligns with findings of Weinstein (2018) who stated that heavy Facebook use predicts lower mental well-being, which is also in line with findings of Faelens et al., (2019) and Blachnio et al. (2016) who found that individuals who are addicted to Facebook have a lower life satisfaction. However, the state measurements of this study revealed that over half of the state measurements participants indicated that they did not use social media

or only rarely used social media when filling out the state measurements. This could indicate that the self-report about social media usage since the last questionnaire might be biased. Boase and Ling (2013) found that most of the time self-reported estimates of duration of smartphone usage differ to phone operator data.

Nevertheless, one can imply that Facebook and/or Instagram use might not be the only thing that could have been affecting mental well-being in this sample. Notably, when making use of an ESM study design various daily influences can alter responses of participants. There could be other daily life factors influencing a lower mental well-being in the sample than what has been measured in the responses. Influencing factors could be the ongoing Covid-19 pandemic, the war between Russia and the Ukraine, which only started shortly before the study in February 2022, or other daily stressors like work and study load, or even self-esteem and social comparison. This is also why the second research question has been established.

It has been hypothesized that upward social comparison as moderator would strengthen the negative relationship between Facebook and/or Instagram use on mental well-being in young adults based on the findings of Verduyn et al. (2020) who revealed that upward social comparison leads to adverse effects on mental well-being. However, no significant relationship has been found, implying that upward social comparison does not seem to have any impact on this relationship in this study. This goes against the expectation of hypothesis one which can, therefore, be rejected.

This is also reflected in the mean score of the upward social comparison scale of the state measurements. Individuals in this sample did not seem to engage in much upward social comparison on Facebook and/or Instagram. However, the scale of upward social comparison showed an unacceptable reliability (α= 0.29), implying that the same results might not be yielded every time the scale is used. Therefore, this can also have an influence on why these results were produced. Another explanation might be the finding of Vogel et al. (2015) who discovered that continuous upward social comparison is affecting mental well-being in a negative way. In this sample it might be the case that individuals sometimes do engage in upward social comparison, however, not in a continuous way which in turn would affect mental well-being. Further, Lup et al. (2015) found that viewing friends' profiles is related to more upward social comparison than viewing a stranger's profile. So, it might be the case that participants in this sample were more often viewing strangers' profiles than that of their friends which does not affect them as much.

As for the second part of the second research question, (contingent) self-esteem was included as a moderator, however, the current research did not find a significant moderation

effect of (contingent) self-esteem on the relationship between Facebook and/or Instagram use and mental well-being in young adults. The study by Jan et al. (2017) suggests that social media usage has a negative effect on (contingent) self-esteem. This is especially the case since engaging in upward social comparison on social media can lead to a lowered self-esteem because many people present themselves in an idealized way (Jan et al., 2017; Chou & Edge, 2012). However, (contingent) self-esteem does not seem to impact the relationship as a moderator in this study by strengthening the negative relationship. Moreover, there are also studies which are indicating that social media can also be a safe place for individuals with a low self-esteem (e.g., Forest & Wood, 2012). Nevertheless, no positive moderating effect of self-esteem in the direct relationship between Facebook and/or Instagram use and mental well-being in young adults was found. What is interesting is that Faelens et al. (2019) found that lower (contingent) self-esteem was linked to upward social comparison, rather than (contingent) self-esteem influencing the association between social media use and mental well-being on its own. Therefore, (contingent) self-esteem might play a role in the relationship in a different way, calling for further research into the topic.

Strengths and Limitations

This research has extended and built up on existing literature and research into the association of Facebook and/or Instagram use on mental well-being in young adults. Notably, there has not been a lot of research done concerning daily state measurements about social media use, mental well-being, (contingent) self-esteem and upward social comparison. Hence, this research approach provides interesting and novel insight into the association between Facebook and/or Instagram use on mental well-being in young adults in a daily context. Further, ESM allows for insights into naturally occurring experiences and processes in daily lives of participants (Csikszentmihalyi & Larson, 2014), this is especially important when investigating (contingent) self-esteem in the context of social media, as it can be fluctuating throughout the day (Faelens et al., 2021; Vogel et al., 2014). This can lead to more accurate results than one time trait measurements.

However, there are also various limitations to this research. One thing is the generalizability of the study to other populations. Due to only using convenience sampling, the majority of participants were of German nationality and identified as female. Moreover, most participants had the highest degree completed with their High School graduate/Fachhochschulreife/Abitur/A -level, and quite some who had completed a bachelor's degree, displaying a tendency of higher education in the sample. Therefore, implications for generalizability are hard to draw.

Another point is that the reliability of the state measurement scales of (contingent) self-esteem and upward social comparison is not good, meaning that the measurement of the construct is not consistent and different results could be yielded. This might be due to the fact that only two items for the two scales were used to keep participants' burden as low as possible. In addition, there were quite a few participants (21) who had to be excluded from the analysis because they did not answer enough state measurements (<50%). This might indicate that either the burden of the study was too high for participants or that there might have been technical issues for some participants which resulted in data loss.

Further, the reflective measurement of asking participants for an estimate duration of social media consumption could be inaccurate. Their own experiences might be biased and different from objective measurement tools (Boase & Ling, 2013).

Directions for Future Research

Based on the aforementioned limitations, there are several suggestions for further research. First, the construct of contingent self-esteem should be further researched in an ESM study design since most studies only focus on trait measurements (e.g., Faelens et al., 2019; Wang et al., 2017). Another aspect that can be of importance is that of using a more objective measurement tool to assess the time which participants spent social media. Capturing social media consumption through a screentime measuring tool/app can prevent bias and ensure more objective and accurate data. In addition, future research could put a focus on the content participants consume on social media and whether this is more positive or negative in nature and how this fluctuates during the day. Weinstein (2018) suggests that the content has important implications for mental well-being in consumers, making it important to research more and see if there is an association between consumed content and mental well-being.

In addition, based on the findings of Lup et al. (2015), focusing on whether individuals are more inclined to view strangers' profiles or that of friends can have an important effect on that person engaging in upward social comparison or not, making it important to investigate further. Lastly, even though upward social comparison and (contingent) self-esteem did not influence the relationship between Facebook and/or Instagram use as moderating variables, there might be other associations between the constructs that can call for further research, for example by researching how (contingent) self-esteem has an influence on whether a person is engaging in upward social comparison on social media and how that in turn affects mental well-being.

Conclusion

Existing literature which explores the association between social media use, (contingent) self-esteem, upward social comparison and mental well-being mostly focuses on one-time retrospect measurements, leading to a literature gap in which daily fluctuations are not taken into account. The current research filled this gap by exploring sate measures of mental well-being, (contingent) self-esteem, and upward social comparison. Results show that Facebook and/or Instagram use affect mental well-being in young adults in a negative way. Moreover, it was found that neither (contingent) self-esteem nor upward social comparison moderate the relationship in this study. These novel insights lay ground for further investigation of ESM studies in the context of social media, as well as to carry on exploring the constructs of (contingent) self-esteem and upward social comparison in different relationship than moderating variables.

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Appendices

Appendix A– Ethica Environment
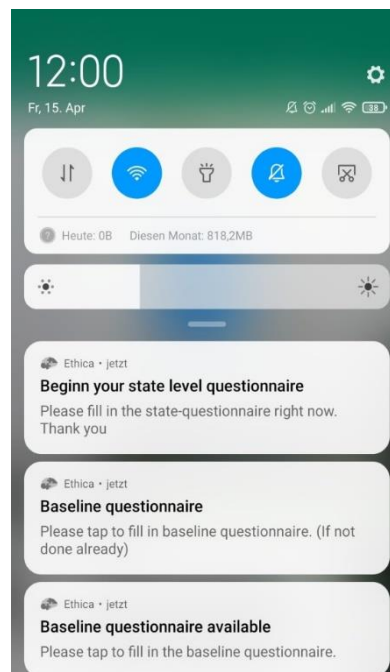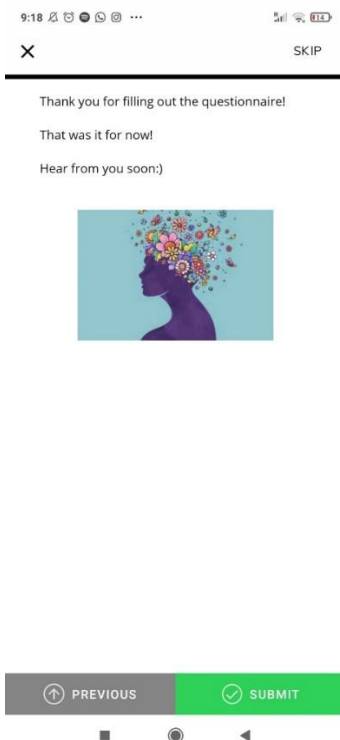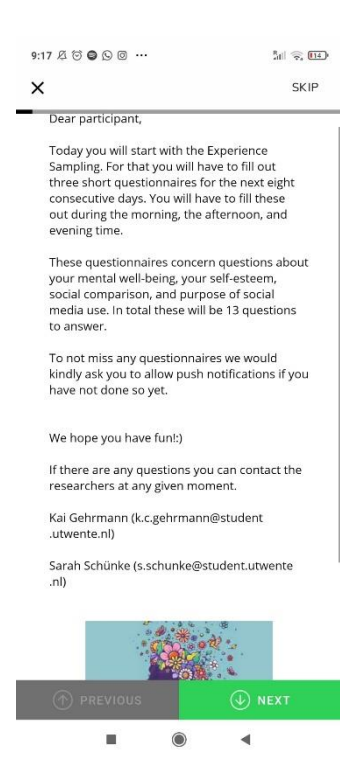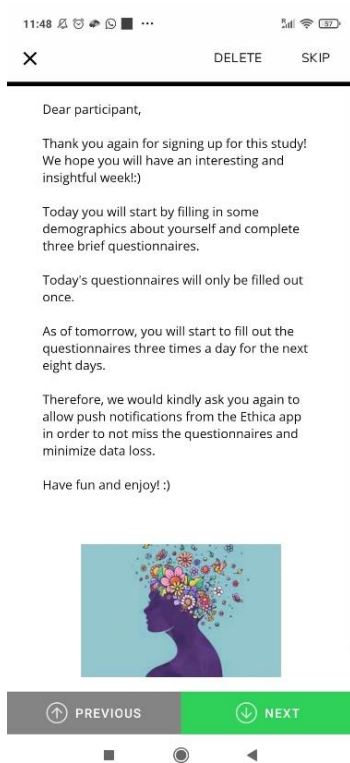
Appendix B- Rosenberg Self-Esteem Scale (RSE)

1. I feel that I am a person of worth, at least on an equal plane with others.

2. I feel that I have a number of good qualities.

3. All in all, I am inclined to feel that I am a failure.*

4. I am able to do things as well as most other people.

5. I feel I do not have much to be proud of.*

6. I take a positive attitude toward myself.

7. On the whole, I am satisfied with myself.

8. I wish I could have more respect for myself.*

9. I certainly feel useless at times.*

10. At times I think I am no good at all.*

* *Items with reversed scoring*

Appenidx C- Social media social comparison (SMSC)

1. When using social media, I compare how my loved ones (romantic partner, family members, etc.) are doing with how others are doing.

2. When using social media, I compare how I do things with how others do things.

3. On social media, I compare what I have done with others as a way to find out how well I have done something.

4. On social media, I compare how I am doing socially with other people.

5. I don't really use social media to compare with others to see how well I'm doing*

6. On social media, I talk with others about mutual opinions and experiences.

7. On social media, I try to find out what others think who face similar problems as I face.

8. On social media, I try to know what others in a similar situation would do.

9. When using social media, I try to find out what others think about something that I want to learn more about.

Item with reversed scoring

Appendix D- Short Warwick-Edinburgh Mental Well-Being Scale (SWEMWBS)

1.At the moment, I feel optimistic about the future.

2.At the moment, I feel useful.

3.At the moment, I feel relaxed.

4.At the moment, I have the feeling that I can deal well with problems.

5.At the moment, I have the feeling to think clearly.

6.At the moment, I feel close to other people.

7.At the moment, I am able to make up my own mind about things

Appendix E- Self-Esteem

1.At the moment, I feel insecure (self-esteem).

2.At the moment, the feeling I have about myself depends heavily on what others think of me (contingent self-esteem).

Appendix F- Upward Social Comparison

1.At the moment, it gives me a pleasant feeling when I see that the people I follow on social media live better lives than myself*

2.At the moment, it gives me an unpleasant feeling when I see that the people I follow on social media live better lives than myself

Item with reversed scoring