

The Relationship between Instagram use and Well-being: the role of Self-esteem

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Abstract

This research investigated the relationship between Instagram use and well-being and the effect of self-esteem on that relationship. The target group for the data gathering was young adults between 18 and 30 years old because this group uses Instagram the most. Also, research state that Instagram use could have potential negative effects on this groups well-being and that self-esteem could have an influence on this. The data was gathered with a questionnaire and the results of 99 participants were analysed. The analysis showed that no significant effect was found for Instagram use on well-being alone, but a significant effect was found when self-esteem was introduced. What was also found is that low self-esteem seems to increase well-being through more frequent Instagram use, while high self-esteem seems to decrease well-being through more frequent Instagram use. What the results could imply is that self-esteem could be a mediator instead of a moderator. The reason why low self-esteem could cause an increase in well-being could be due to the process of downward comparison. The strength of this research is the respondents consisted of individuals between 18 and 30, this group showed the highest prevalence of Instagram use, and therefore makes a relevant group to research. A limitation could be that on average the respondents scored above-average on well-being, self-esteem, and low on Instagram use, and are therefore not representative for the general group between 18 and 30 years old

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The relationship between Instagram and well-being and the effect of self-esteem on that relationship

As the world is increasingly developing into a digital society in the last decades, new ways of communicating with other individuals are continuously invented. What started with slow one-way communication methods, like the fax machine and later on e-mail, developed into a never-ending stream of sending and receiving information in the form of social media platforms. Davis (2016) defines social media (SM) as internet applications that facilitate the creation and sharing of user-generated content. It allows individuals to communicate with each other plays a prominent role in nowadays society. As suggested by research SM could have a negative influence on well-being because SM can negatively influence components of well-being like self-confidence (Limniou et al., 2022) and social distress (Przybylski, 2013). Furthermore, research suggests that self-esteem could be related to the relationship between Instagram use and well-being (Du & Chi, 2017). However, it is unclear what concrete effects high- or low self-esteem have on Instagram use and well-being. Therefore, this research focuses on first testing if there is indeed an effect of Instagram use and well-being and eventually assesses the effect of self-esteem on that relationship.

Social media

That social media is interwoven with present-day society can be seen in the prevalence of usage of social media platforms. In the Netherlands, more than 95% of persons between 12 and 45 years actively used social media. According to Pew Research Center (2021), social media use is particularly high in the group between 18 and 29. Several platforms are widely used among individuals, like Facebook, Instagram, and WhatsApp. From the group between 18 and 30 years old, 73% say they visit Instagram daily, and 53% report they use Instagram several times a day. Of Facebook users, 70% admit they regularly visit the website. These platforms differ in their way of usage and functions.

Whereas WhatsApp is a platform mostly used to chat with others and send one particular individual information, Facebook and Instagram integrate the aspect of sending information to an almost unlimited amount of people. Besides this, Facebook and Instagram allow users to quickly build a large social following, in contrast to WhatsApp, which is not based on so-called followers (Rozgonjuk et al., 2021). Limniou et al. (2022) claim that Instagram leads to higher problematic social media use than Facebook because they suggest that because Instagram is more image-based than Facebook, it could have a more negative influence on well-being. Because of the potential negative effects on well-being and the high prevalence among young people, Instagram is a relevant social media platform the study.

Well-being

Pressman et al. (2013) state that well-being is indeed a broad term that encompasses how a healthy person should function, across various domains. These domains are psychological well-being, social well-being, and physical well-being.

Psychological well-being contains three coherent domains, the first one being emotional experience, which can be defined as the relationship between an objective situation, and how this situation is experienced by an individual (Nogueira, 2014). Secondly, human flourishing, which means experiencing no troubles with mental health and experiencing high levels of well-being (Keyes, 2002). Lastly, cognitive evaluation of life satisfaction, which can be defined as the subjective evaluation of one's life, and the judgement of how satisfied someone is with this evaluation (Mehlsen, 2005).

Social well-being contains domains like feelings of belongingness and quality of social ties. Oleskiewicz et al. (2022) state that having a social network is related to well-being. Social networks can be defined as the social circle someone has, not necessarily only the online social media platforms, but still, the link between social media and well-being is emphasized in this research. Good social contact relieves stress, provides companionship, and

discourages health-damaging behaviour. The lack of social contacts can negatively influence well-being (Oleskiewicz et al., 2022).

Physical well-being is more concrete and focuses on the absence of disease when measuring well-being. The concept of well-being and its three dimensions are supported by Ninivaggi (2020). What Ninivaggi (2020) also address is that emotional stability, which can be defined as the ability to control emotions, especially when encountering difficulties (Ellis et al., 2018), is such an important measure of mental health, that it can be seen as a fourth domain.

Instagram use and well-being

A possible negative effect of Instagram on well-being is stated by Hattingh et al. (2022), who claim that Instagram induces the feeling of fear of missing out (FOMO) among users. FOMO can be defined as a fear of social media users in which other social media users experience fulfilling experiences that they are missing out on because they are not at that place. This feeling of FOMO could have a negative influence on well-being (Przybylski, 2013).

Another negative effect of Instagram is that it overloads the user with information, which if users are sensitive to this, influences the compulsive use of Instagram (Hattingh et al., 2022). This effect is in line with the theory of compensatory internet use. This theory states that people go online to escape problems in real life or escape distressed moods, which leads to a negative influence on well-being (Kardefelt-Winther, D, 2014). Besides the frequency of use, the context of usage also seems to have an effect on well-being (Olufadi, 2016). Additional to the potential negative influence of social networks on well-being, more aspects could influence well-being, like self-esteem. Self-esteem plays a role in social interactions, of which healthy social interactions and relationships benefit self-esteem and self-esteem benefits social interactions (Harris & Orth, 2019).

Self-esteem

Studies suggest that there are certain concrete indicators of psychological and social well-being, one of these factors is self-esteem (Du & Chi, 2017). Self-esteem can be defined as the overall subjective evaluation of one's self-worth. It reflects a continuum ranging from 'low' to 'high' self-esteem to which individuals perceive themselves positively or negatively in the degree of (dis)liking themselves and their worth as an individual (Jordan et al., 2017). Du & Chi (2017) state that self-esteem can be maintained and enhanced through personal traits, like self-acceptance, for example acknowledging one's strengths and weaknesses. Self-esteem can also be maintained and enhanced through relationships with significant others, for example, surrounding oneself with supportive others, which could increase the sense of belonging, and also by relationships with larger groups, which can increase the sense of purpose, when someone, for example, contributes their knowledge in interaction with these large groups.

Du & Chi (2017) also state that when someone scores high on self-esteem, they experience greater life satisfaction and greater meaning in life. Vilca-Pareja et al. (2022) elaborate on this by stating that individuals with high self-esteem are less sensitive to the stressful situations. The reason for this could be rooted in social comparison, according to Buunk & Dijkstra (2017). They state that depending on your level of self-esteem, one deals with social comparison, which is a crucial indicator in experiencing negative effects from Instagram use, in two different ways, upward- and downward social comparison. Social comparison can be defined as the process in which individuals compare their own attributes, abilities, or any other self-aspect to those of others (Guyer & Vaughan-Johnston, 2018).

In social situations, people are tempted to compare themselves with others. This can be an upward comparison, which means comparing oneself with others who are doing better, or a downward comparison, which means comparing oneself with others worse off (Guyer &

Vaughan-Johnston, 2018). Buunk, & Gibbons (2007) state that people with low self-esteem are more tempted to practice social comparison than people with high self-esteem. They state that social comparison could have a negative effect on well-being, because by comparing oneself to another person, an individual could see themselves inferior to the other person, which could lead to a distressed mood. In comparison according to Wang et al., (2017), both individuals with low- and high self-esteem are tempted to practice social comparison in social situations, although they suggest that only people with high self-esteem experience an increase in well-being. However, there is also research that suggests that people with low self-esteem are more inclined to execute downward comparison (Wills, 1981, as cited in Pomery et al., 2012). When comparing oneself with others who are worse off one can try to increase their level of self-esteem by this process of downward comparison, which could lead to an increase in well-being, because they feel more satisfied about themselves. In conclusion, it seems that self-esteem influences potential negative effects on well-being gained from social situations. Only it remains unclear if this relationship is also true for social network sites like Instagram. Besides this there are contradicting views on the impact low- and high self-esteem have on the relationship between Instagram use and well-being. Some studies suggest that having low self-esteem in combination with social comparison leads to lower well-being because of low perceived life satisfaction, while other studies suggest that low self-esteem and downward comparison can lead to an increase in well-being. Self-esteem could moderate the effect of Instagram use on well-being, where people with high self-esteem suffer less from Instagram use compared to people with low self-esteem (Buunk, & Gibbons, 2007) and Wang et al., (2017). What also could be the case is that people with high self-esteem see an increase in their well-being when using Instagram through the process of downward comparison (Wills, 1981, as cited in Pomery et al., 2012). The reason why it could be a moderation effect is that it is assumed that more frequent Instagram use itself influences well-being, but that

Instagram use alone already has an influence of well-being. Besides, research suggests that there could be an interaction between social interactions i.e. Instagram use and self-esteem. Also, studies suggest that there could be an effect of self-esteem on well-being. Only it remains unclear how self-esteem and its levels (low and high) could strengthen, weaken, or even reverse the effect of Instagram use on well-being (Buunk, & Gibbons, 2007).

Target group

As stated before, individuals from the age group 18 to 29 are the group where social media use is particularly high (Pew Research Center, 2021). Statista (2023) also states that the group young adults, between 18 to 30 are the group where Instagram use is the highest. Also, it seems that young adults, so the group between 18 to 30 are a vulnerable group to the potential harm of Instagram use. Shannon et al. (2022) claim that there is a significant relationship between problematic social media use and harm to mental health in young adults, specifically depression, anxiety, and stress. Ivie et al. (2020) affirm this by claiming that there is a positive correlation between social media use and depression. So, there seems to be a combination of the high prevalence of social media/Instagram use and possible damage to well-being among young adults. For this reason, this research investigates young adults as the target group.

Study aim

Because of high prevalence among young people, and the potential of being harmful to well-being, Instagram is chosen as the platform for this research. Instagram is one of the most used platforms and also the platform which studies suggest is harmful to well-being, also compared to Facebook. Besides this, current findings of studies suggest well-being could be negatively influenced by Instagram use. Also besides the frequency of Instagram use, it seems that the context in which Instagram is used is relevant to determine the potential harm to wellbeing. Studies suggest that through the process of social comparison, self-esteem could influence the

effect of Instagram use on well-being. Although studies are contradicting in whether having low- or high self-esteem benefits or harms well-being. Therefore, the goal of this research is to determine if Instagram influences well-being while keeping self-esteem as a moderator variable. To close the research gap, the research question that needs to be answered is “What influence does Instagram have on well-being and what is the effect of self-esteem on that relationship”. To answer this research question two hypotheses are determined. Instagram use has a negative effect on well-being (H1). Self-esteem moderates the relationship between Instagram use and well-being (H2). High self-esteem and Instagram use increases the level of well-being (H2a). Low self-esteem and Instagram use decreases the level of well-being (H3b).

Methods

Study design

To test the hypotheses and answer the research question, a cross-sectional survey design was chosen. The independent variable was Instagram usage, and the dependent variable was well-being, self-esteem was chosen as the moderating variable. Ethical approval was obtained by the researcher before the survey was distributed among the participants (approval number: 230490).

Participants

A total of 155 participants took part in the study. Almost all participants had either finished or are currently pursuing a bachelor's or master's education. The participants were recruited through non-probability sampling, specifically convenience sampling. A major part of the participants was recruited through the SONA system of the University of Twente (UT). This system is designed for psychology students from UT to take part in studies in exchange for points that they eventually need to finish their degree. The rest of the participants were recruited via social media, personal contacts, and flyers with QR codes which were distributed at the University.

The inclusion criteria were that respondents are in the age range of 18 to 30, the criteria were that the participants had finished or were currently working on a bachelor's or master's degree or had finished high school. Also, the ability to understand the English language was a criteria. Participants who did not complete the survey were removed from the data set. Which resulted in the removal of 56 participants from the dataset. This left us with 99 participants for the data analysis. Table 1 presents the demographic data of these 99 participants.

Table 1*Table Demographic Data*

Demographic variables	<i>n</i>	%
Age (<i>M</i> = 22.9)		
18-21	35	35.35
22-25	55	55.56
26-30	9	9.09
Gender		
Male	34	34.34
Female	65	65.66
Nationality		
Dutch	68	68.69
German	21	21.21
Other	10	10.1
Education		
Currently Bachelor	64	64.65
Currently Master	10	10.1
Finished Bachelor	18	18.18
Finished Master	6	6.06
Finished high school	1	1.01

Note. N=99

Materials

Qualtrics, which is a website that allows users to create surveys, was used to create a survey for this research. The survey contained informed consent, a few demographic questions, scales about the participants' Instagram use, level of well-being, level of self-esteem, and a debriefing. In total 53 items were presented, and it took about 15 minutes to complete. Participants needed a phone or laptop and a stable internet connection.

Procedure

At the beginning of the survey, participants were given a short introduction about the aim of the research. Also, participants were made aware of the fact that taking part in the research was voluntary and that the data would be handled anonymously. After this participants gave informed consent (Appendix A). When a participant did not want to give consent, they were directly taken to the end of the survey, and the data was not included in the research anymore. After the informed consent the survey started with demographic questions about the respondent's age, gender, nationality, and educational level. Then the items of the MHC-SF-40 were asked, followed by the items from the SONTUS. Next, the items on the self-esteem scale were presented. Lastly, participants were thanked for their participation in the study and were made aware of the fact that if they had questions, they could contact the researcher and the supervisor on the attached contact details.

MHC-SF-40

To assess the level of well-being, the MHC-SF-40 was used (Appendix B). The MHC-SF-40 is a questionnaire, which includes 14 items and is used to measure the level of well-being of the respondent (Lamers et al., 2011). Overall, for the MHC-SF-40 high internal reliability was reported ($\alpha=.89$) (Lamers et al., 2011). The questionnaire is divided into three subscales. The first subscale is based on emotional well-being and is included 3 times. An example item is "During the past month, how often did you feel happy?". This subscale had a Cronbach's Alpha value of $\alpha=.83$ (Lamers et al., 2011). The second subscale contained 5 items and was focused on social well-being. An example item is "During the past month, how often did you feel that you had something important to contribute to society?". This subscale reports a Cronbach's Alpha value of $\alpha=.74$ (Lamers et al., 2011). The third scale contained 6 items to measure psychological well-being. The Cronbach's Alpha value for this scale is $\alpha=.83$. An example item for this scale is "During the past month, how often did you feel that you have experiences that challenge you to grow and become a better person?" (Lamers et

al., 2011).

The respondents could rate the items on a 6-point Likert scale, ranging from 0 = never to 6 = every day. To calculate a score the items were summed with a range from 0 to 70. The subscales range from 0 to 15 on the emotional well-being scale, 0 to 25 on the social well-being scale, and 0 to 30 on the psychological well-being scale. Someone has flourishing mental health when they report > 1 of 3 emotional well-being signs and > 6 of 11 eudaimonic signs (combination of psychological and social subscales) as something they experience ‘‘every day’’ or ‘‘5-6 times a week’’ (Lamers et al., 2011). The higher the score, the higher the level of positive well-being. Flourishing can be defined as having high levels of well-being and being filled with positive emotions and functioning well on a psychological and social level (Keyes, 2002).

SONTUS

To assess the context in which the respondents used Instagram and how much time they spent on the platform, the SONTUS was used (Appendix C). SONTUS is a questionnaire that contains 29 items that measure five subscales. The first three subscales measure the context where Instagram is used (for ex. while in class, or while lying in bed), and scale four and five represent motives for use (i.e., when stressed) (Olufadi, 2016). Overall, the SONTUS reports high internal reliability ($\alpha=.92$).

The first subscale is based on relaxation and free periods, it included 9 items. An example item was ‘‘Indicate how often you use Instagram during the past week when you are watching TV, news, football, films, sports, etc.’’. This subscale reports a Cronbach’s Alpha of $\alpha=.91$ (Olufadi, 2016). The second subscale, which measured Instagram use during academic-related periods included 6 items. An example item was ‘‘Indicate how often you use Instagram during the past week when you are in the class receiving lecture’’. This subscale reports a Cronbach’s Alpha of $\alpha=.89$. The third subscale is based on public-places-related use and included 5 items. An example item was ‘‘Indicate how often you use Instagram during

the past week when you go to the cinema house to watch movie(s)’. This subscale reports a Cronbach’s Alpha of $\alpha=.85$. The fourth subscale is based on Instagram use during stress-related periods and contained 5 items. An example item was ‘Indicate how often you use Instagram during the past week when you need to reduce your mental stress’. This subscale reports a Cronbach’s Alpha of $\alpha=.86$. The fifth and last subscale is focused on motives for Instagram use and contained 4 items. An example item was ‘Indicate how often you use Instagram during the past week when you need to communicate with your families and friends’. This subscale reports a Cronbach’s Alpha of $\alpha=.83$.

The respondents rate the items on an 11-point Likert scale, which is based on the frequency of Instagram usage, ranging from 1 = not applicable to me during the past week to 11 = I used it more than 3 times during the past week but spent more than 30 minutes each time. For the scoring of SONTUS, five different components are derived: relaxation and free periods, academic-related periods, public-places-related use, stress-related periods, and motives for use. The respondents get assigned points based on how they score the items, where selecting the Likert scale 1 - 3 results in 1 point, 4 - 6 in 2 points, 7 - 9 in 3 points, and 10 - 11 in 4 points. Then the scores of each item belonging to corresponding scales are summed up and result in a new points allocation (for ex. scoring between 17-20 on the ‘relaxation and free periods’ component results in 3 points). The points of the five components are then summed up again and result in the final score of a respondent. Where scoring between 5 - 9 is regarded as a low user of Instagram, 10 - 14 as an average user of Instagram, 15 - 19 as a high user of Instagram, and more than 19 as an extremely high user of Instagram.

Rosenberg self-esteem scale

To assess the level of self-esteem the Rosenberg self-esteem scale was used (Appendix D). The Rosenberg self-esteem scale is a questionnaire with 10 items that intends to measure someone's self-esteem by measuring positive and negative feelings about oneself (Rosenberg, 1965). The Rosenberg self-esteem scale as a whole reports high internal reliability with a Gutmann scale coefficient of .92 (Rosenberg, 1965). The items are answered on a 4-point Likert scale ranging from "Strongly agree" to "Strongly disagree". An example of an item was "Indicate how strongly you agree or disagree with the statement *on the whole, I am satisfied with myself*". The scoring scale ranges from 0 – 30, where higher scores indicate higher self-esteem.

Data analysis

The data that was obtained was analysed with R-studio version 2023.03.0+386. Before the analysis could be done the data set was prepared. To prepare the data set, all the incomplete responses were removed. Next, the columns that contained demographic data were assigned a label that corresponded with their data, such as "gender". Next, the descriptive statistics of age, gender, nationality, and education were computed. After this, because the variables well-being and self-esteem were character variables, they had to be transformed into numeric variables. Then the scores of the three variables were computed to end scores based on their corresponding coding scheme. These end scores indicate per participant how they scored on the three variables.

Next, the assumptions of linearity, normality, equal variance, and independence were tested. To test for linearity, scatterplots were created with the independent, dependent, and moderation variables. For normality a Shapiro-Wilk test was used, both well-being and self-esteem show normal distribution. To test the assumption of independence boxplots were created. To test for equal variance a var test was conducted. The correlation values were

expressed in Pearson's correlation. To find an potential interaction effect between the variables a moderation analysis was conducted. A significance level of .05 was set.

Results

Descriptives

First, an analysis was conducted to unveil the descriptive results of the respondent's scores on Instagram use, well-being, and self-esteem. These results are presented in Table 2. The results show that the respondents on average are low users of Instagram ($M = 9.3$, $SD = 3.2$). For well-being, the respondents score average to high ($M = 45.3$, $SD = 9.7$), 40 respondents were flourishing and to 59 respondents the status 'moderately well-being' can be applied to, also zero respondents were floundering. For self-esteem, it can be seen that on average people have high self-esteem ($M = 29.8$, $SD = 4.2$).

Descriptive Data Instagram Use, Well-being, and Self-esteem

Variables	<i>M</i>	<i>SD</i>
Instagram use	9.3	3.2
Well-being	45.3	9.7
Self-esteem	29.8	4.2

Note. N=99

Correlations

The correlation analysis showed a very weak positive correlation between Instagram use and well-being and was found to be not significant ($r = .06$, $p = .57$). Therefore the first hypothesis 'Instagram use has a negative effect on well-being' can be rejected. The analysis between self-esteem and well-being showed a moderate positive correlation and was significant ($r = .58$, $p = < .05$). The correlation between Instagram use and self-esteem showed a very weak negative correlation which was not significant ($r = -.04$, $p = .69$) These correlations are presented in table 2.

Table 2*Correlations for Instagram Use, Well-being, and Self-esteem*

Variables	Instagram use	Well-being	Self-esteem
Instagram use	1	.06	-.04
Well-being	.06	1	.58*
Self-esteem	-.04	.58*	1

Note. * Correlation is significant with $p = <.05$

Moderation effect

For the second hypothesis ‘Self-esteem moderates the relationship between Instagram use and well-being’ a multiple regression analysis was conducted to test the moderation effect. From the regression analysis it can be reported that there is overall the model is significant ($R^2 = .42$, $F(3, 95) = 22.61$, $p < .001$, these results are presented in Table 3.

Table 3*Regression Analysis with Instagram Use, Self-esteem, and Well-being*

	R^2	$Adj. R^2$	F	p
Multiple regression model	.42	.40	22.61	< .001

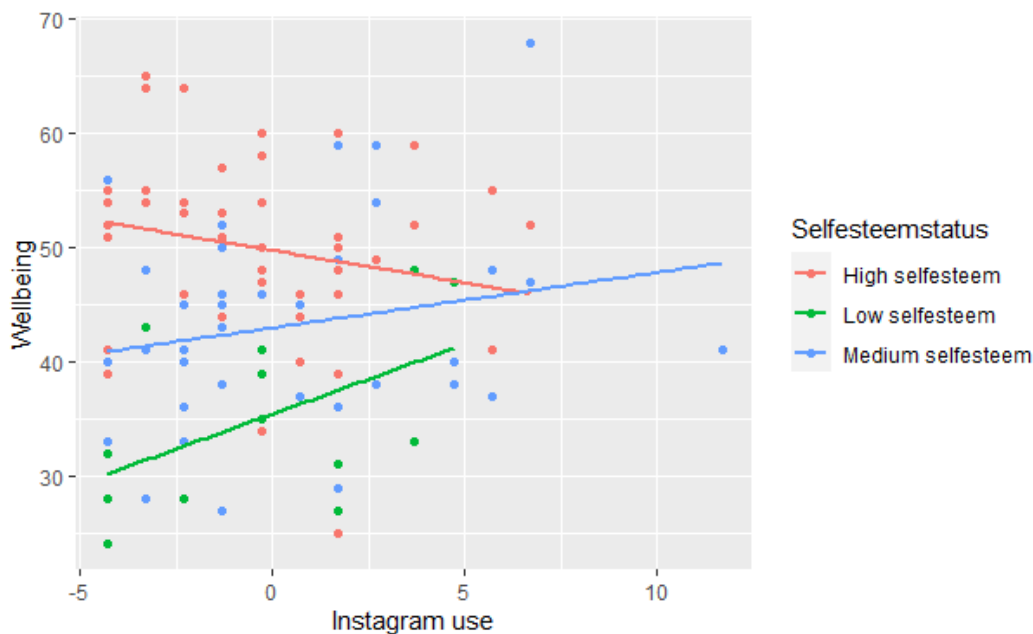
This means that there is a relationship between both the independent variables and the dependent variable. However, the effect between Instagram use and well-being alone is not significant ($p = .54$). Although there was a positive effect found between self-esteem and well-being which is significant ($p < .001$). There is no effect of Instagram use on well-being, but there is an interaction when self-esteem is introduced. Because there is no effect of

Instagram use on well-being without self-esteem, the second hypothesis “Self-esteem moderates the relationship between Instagram use and well-being” can be rejected.

To reveal the differences in the influence of low- and high self-esteem in combination with Instagram use on well-being the data with the three levels of self-esteem was plotted and is presented in figure 1.

Figure 1

Influence of low-, medium-, and high self-esteem in combination with Instagram use on well-being



Note. A higher score on well-being indicates a higher level of well-being. Higher scores on Instagram use indicate a higher level of Instagram usage.

What can be seen is that for high self-esteem, an increase in Instagram use leads to lower well-being. Therefore the second (H2a) hypothesis “high self-esteem and Instagram use increases the level of well-being” can be rejected. For low self-esteem, the opposite occurs. It seems that when someone has low self-esteem, more Instagram use leads to high

levels of well-being, therefore the second (H2b) hypothesis ‘low self-esteem and Instagram use decreases the level of well-being’ can be rejected as well.

Discussion

This study aimed to investigate the influence of Instagram use on well-being with self-esteem as a moderating variable. Each year more people use social media, while literature keeps suggesting that social media can be damaging to well-being, Instagram is suggested to be the platform that causes the most damage to well-being and was therefore chosen as the platform to focus on in this study. Because the prevalence of social media usage is the highest among young adults, this group was chosen to be the target group (Pew Research Center, 2021). Self-esteem was assumed, based on previous research, to play a moderating role in the influence of Instagram use on well-being.

Although the results from the data analysis suggest that there was no significant relationship between Instagram use on well-being, when self-esteem was introduced, there was a significant effect measured between Instagram and self-esteem on well-being, therefore self-esteem could be a mediator instead of a moderator, but this cannot be taken as a fact, because no mediation analysis was conducted. Besides this, low self-esteem with the combination of frequent Instagram use seems to increase well-being. The opposite is the case for high self-esteem which in combination with Instagram use seems to decrease well-being.

Interpretations

The first hypothesis ‘Instagram use has a negative effect on well-being’ could be rejected because no significant effect of Instagram use on well-being was found. The second hypothesis ‘Self-esteem moderates the relationship between Instagram use and well-being’ could be rejected. This is because there seems to be no relationship between Instagram use and well-being alone. Only when adding self-esteem as a third variable, there is a significant effect of Instagram use and well-being. So, it seems like self-esteem has a mediation effect instead of a moderation effect, because a mediator is defined as a variable that is in between a causal sequence of two other variables, and without the mediator there is no effect between

the independent and dependent variable (MacKinnon et al., 2007).

Regarding the second (H2a) hypothesis “high self-esteem and frequent Instagram use increases the level of well-being” and the hypothesis (H2b) “low self-esteem and frequent Instagram use decreases the level of well-being”, the studies from the literature review contradict which influence low- and high self-esteem had on the relationship between Instagram use and well-being. Buunk & Dijkstra (2017) suggested that Instagram use for individuals with low self-esteem was more damaging to well-being in comparison to individuals with high self-esteem because individuals with low self-esteem are more tempted to practice social comparison, which could negatively influence well-being. While Wang et al., (2017) suggested that both individuals with low- and high self-esteem practice social comparison, but that only people with high self-esteem benefit from it.

However, the results suggest that for individuals with low self-esteem, their well-being increases through frequent Instagram use in comparison with individuals with high self-esteem whose well-being decrease with frequent Instagram use. Why this happens could be explained by the study of Wills (1981), who suggested that people with low self-esteem are more inclined to execute downward comparison which could lead to an increase in well-being (Wills, 1981, as cited in Pomery et al., 2012). Why people with low self-esteem do this could be because they try to restore/increase their self-esteem by comparing themselves to less fortunate others. Downward comparison which at the moment of execution is flattering and helpful in the short-term, but it is not informative and is not helpful in the long-term. The comparison namely often occurs on a superficial level and normally avoids improving self-knowledge about an individual (Wills, 1981, as cited in Pomery et al., 2012). To conclude, both hypotheses (H2a) and (H2b) can be rejected.

Implications

When looking at the sample of this study it can be seen that according to the SONTUS scale the sample, on average, scores low on Instagram use (Olufadi, 2016). This contradicts

the statistics from Pew Research Center (2021) and Statista (2023), which both claim that the group between 18 and 30 are high Instagram users in comparison with the whole population. What this contradiction might suggest is that the sample from this study is not representative of the average 18 to 30-year-old.

Why these results matter is because it seems that contrary to the hypothesis people with low self-esteem seem to experience an increase in well-being when their frequency of Instagram use increases. This could be due to the process of downward comparison which according to some studies is a process where people with, in this case, low self-esteem, compare themselves with others who are worse off to increase their self-esteem and with that their level of well-being (Wills, 1981, as cited in Pomery et al., 2012).

Strengths

The strength of this research lies in the severity of the problem that it investigated. The rising prevalence of Instagram usage among young adults (Pew Research Center, 2021) and the associated problems like depression, anxiety, and stress that it brings to this group made it a relevant topic to investigate (Shannon et al., 2022). Also, the target group for this research consisted completely of young adults, which are, due to their high prevalence of Instagram use, a relevant group to research. Therefore, this study contributes to the growing body of research on the effect of Instagram use on mental health.

Besides this, the strength of this research also lay in the high reliability of the measurement scales that were used. The results of the used measurement scales (MHC-SF-40, SONTUS, and the Rosenberg self-esteem scale) all contributed to significant effects of the relationships between the variables and were therefore with this research proven to be usable for possible replication of this study.

Limitations

A limitation of this research could be that two-thirds of the sample group were females and only one-third were males. This could mean that the results of the study are mostly represented from the female perspective and less from the male perspective. Research suggests that males on average have a higher self-esteem than females (Bleidorn et al., 2016). This could mean that the outcome of this research is not representative of males.

Another limitation could be that the sample group on average can be classified as low users of Instagram. This means that although some respondents are classified as high Instagram users, on average the group scores low. This could mean that this sample is not representative of the whole population, and a conclusion could not be drawn about the effect of high Instagram usage on well-being. What could also be a limitation is that the tests were conducted at one point in time, therefore the responses of the participant only provided their level of Instagram use, well-being, and self-esteem at one particular point in time and therefore could vary when the questionnaire is filled in at another point in time. Because of this one-point-in-time measurement, it is difficult to extract causal relationships (Setia, 2016).

Recommendations for further research

This research focused on the relationship between Instagram use and well-being with self-esteem as a moderator variable. Although it provided useful insights the analysis in this research was focused on self-esteem as a moderator variable. Because from the results, it seems that self-esteem may not be a moderator but a mediator variable, future studies could do a mediation analysis of Instagram use, well-being, and self-esteem as the mediator. Also, further research could take a different distribution of demographic factors into account, to see if the results change when shifting for example to a more male-to-female ratio. Another recommendation is to conduct the questionnaires about Instagram use, well-being, and self-esteem at different points in time and then calculate a mean of this. Through this the reported

level of these variables from the respondents could better reflect the actual situation (Setia, 2016).

Conclusion

In the present society, there seems to be an increase in the prevalence of Instagram usage among young adults. This frequent use of Instagram could have a negative effect on well-being if self-esteem is considered a mediator. This research focused on investigating this relationship by studying the influence of Instagram use on well-being with self-esteem as a moderator variable. Although what seems is that self-esteem is more of a mediator than a moderator in this particular relationship because no significant effect was found between Instagram use and well-being alone. Self-esteem as a mediator could have a significant effect on the relationship between Instagram use and well-being, as when someone has high self-esteem and uses Instagram, their well-being decreases, and when someone with low self-esteem uses Instagram their well-being increases.

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Appendices

Appendix A – Informed consent

Informed Consent,

This study assesses factors influencing social media usage and well-being. The data will be obtained for the psychology bachelor thesis with the theme ‘Investigating the relation between social media use and Mental health. This survey will take approximately 15 minutes to complete. The participation for this survey is voluntary and you can withdraw at any time. For the data analysis, all personal data will be handled anonymously, and will only be used for research purposes. The data will remain confidential and will be only shared with the supervisor for this thesis.

For any questions, contact the following people:

Researcher: Mats Anneveldt, email: m.m.anneveldt@student.utwente.nl

First supervisor: Martha Kreuzberg, email: m.s.kreuzberg@utwente.nl

Clicking "I agree to participate in this study" indicates that:

- You have read and understood the information of this study.
- You consent voluntarily to be a participant and you know that you can withdraw at any point during this study.
- You understand that the information you provide will be used only for research purposes and that your participation will be completely anonymous.
- You understand that by taking part in this study requires you to answer the questions honestly.
- You understand that incomplete responses might be excluded during the analysis of the data.

- I agree to participate in this study
- I do not agree to participate in this study

Appendix B – MHC-SF-40

The following questions are about how you have been feeling during the past month. Place a check mark in the box that best represents how often you have experienced or felt the following:

Scale: 1 (never) 2 (one or twice) 3 (about once a week) 4 (about 2 or 3 times a week) 5 (almost every day) 6 (every day)

1. Happy
2. Interested in life
3. Satisfied with life
4. That you had something important to contribute to society
5. That you belonged to a community (like a social group, or your neighbourhood)
6. That our society is a good place, or is becoming a better place, for all people
7. That people are basically good
8. That the way our society works makes sense to you
9. That you liked most parts of your personality
10. Good at managing the responsibilities of your daily life
11. That you had warm and trusting relationships with others
12. That you had experiences that challenged you to grow and become a better person
13. Confident to think or express your own ideas and opinions
14. That your life has a sense of direction or meaning to it

Appendix C – SONTUS

Kindly use the scale below to indicate how often you use Instagram during the past week in the following situations and places:

- 1 = Not applicable to me during the past week.
 - 2 = I never used it during the past week.
 - 3 = I used it once during the past week but spend less than 10 min.
 - 4 = I used it once during the past week but spend between 10 and 30 min.
 - 5 = I used it once during the past week but spent more than 30 min.
 - 6 = I used it between 2 and 3 times during the past week but spend less than 10 min each time.
 - 7 = I used it between 2 and 3 times during the past week but spend between 10 and 30 min each time.
 - 8 = I used it between 2 and 3 times during the past week but spent more than 30 min each time.
 - 9 = I used it more than 3 times during the past week but spend less than 10 min each time.
 - 10 = I used it more than 3 times during the past week but spend between 10 and 30 min each time.
 - 11 = I used it more than 3 times during the past week but spent more than 30 min each time.
- 1 When you are at a seminar/workshop or training program
 - 2 When you are at home sitting idly
 - 3 When you need to reduce your mental stress
 - 4 When you go to the stadium to watch football, basketball etc.
 - 5 When you are doing school or job-related assignment at home
 - 6 When you are waiting for someone (e.g., friends) either in their house or at a pre-arranged place
 - 7 When you are listening to music, radio, religious lectures etc.
 - 8 When you have gone through a lot of stress
 - 9 When you are in a meeting
 - 10 When you are in the class receiving lecture
 - 11 When you need to maintain contact with existing friends
 - 12 When you are in bed about to sleep
 - 13 When you are reading in the library for academic purpose e.g., recommended text for class

- 14 When you are at a place to repair your car, house appliances, etc.
- 15 When you need to reduce your emotional stress
- 16 When you want to reduce the pressure of your daily routines
- 17 When you are at a social gathering like wedding ceremony, birthday party, reception etc.
- 18 When you need to communicate with your families and friends
- 19 When you are sitting in a religious place (e.g., church, mosque) and activities like sermon or prayer is yet to start
- 20 When you need to find out more about people you met offline
- 21 When you are in the company of friends/family/colleagues having fun
- 22 When you are watching TV, news, football, films, sports, etc.
- 23 When you go to the cinema house to watch movie(s)
- 24 When you are a passenger in a car/bus/train for at least 2 min
- 25 When you need to find people you haven't seen for a while
- 26 When you are waiting for your boss in her office for at least 2 min when she is not attending to you
- 27 When you are trying to forget your financial challenges
- 28 When you are online doing school or job-related works e.g., project, homework
- 29 Watching academic-related video lectures or those related to your job

Appendix D – Rosenberg self-esteem scale

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement:

Scale: Strongly Agree - Agree - Disagree - Strongly Disagree

1. On the whole, I am satisfied with myself.
2. At times I think I am no good at all.
3. I feel that I have a number of good qualities.
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 certainly feel useless at times.
7. I feel that I'm a person of worth, at least on an equal plane with others.
8. I wish I could have more respect for myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude toward myself.