

**Scrolling until Satisfaction: Exploring the Influence of Instagram Use and Reward
Sensitivity on Well-being among Young People**

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M12: BSc Thesis PSY

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January 15, 2024

Abstract

Instagram is indispensable in today's era of social media, as over 2.4 billion users, especially young ones, spend their time on this platform daily. They engage with Instagram for reasons such as communicating with others. Young people, who are the most vulnerable age group to negative effects, face risks from using Instagram in regards to their well-being. However, Instagram also has features that can enhance well-being, like getting positive feedback. Further, a body of literature revealed that well-being depends on factors, such as passive and active use, and reward sensitivity. To explore this dynamic, a study was conducted in which three hypotheses were made. Firstly, this study expected users, who are passively engaging on Instagram, to get negative effects on their well-being. Secondly, well-being is being positively impacted, if the user is active. And finally, high reward sensitivity negatively moderates the relationship between high passive use and well-being. For the study, a quantitative online survey was created in which 216 participants took part. The focus was on 18-34 year olds. Participants scored moderate to high on all four variables: passive use, active use, reward sensitivity and well-being. The results demonstrated a significant positive relationship between active use and well-being ($p = .005$). However, an insignificant relationship between passive use and well-being ($p = .348$). Also no significant moderation effect with high reward sensitivity ($p = .143$). The MHC-SF showed a few limitations, such as its broadness. Future research should focus more on other potential factors such as psychological traits.

Keywords: Instagram Use, Passive Use, Active Use, Well-being, Reward Sensitivity, Young People

Scrolling until Satisfaction: Exploring the Influence of Instagram Use and Reward Sensitivity on Well-being among Young People

Social media has become an integral part of most people's daily life. Over time, there has been a change in the demographic age group of users, namely that social media users are increasingly younger. Moreover, young people tend to use social media platforms such as Whatsapp, Instagram, and Snapchat for communication (Leggett-James & Laursen, 2023). Among these platforms, Instagram is considered the fastest-growing and leading platform, with over 2.4 billion users in 2023 (Instagram Statistics, 2023). Moreover, Instagram has various features implemented, such as Stories and Reels, that shape well-being through reward systems such as likes, comments, and posts (Sherman et al., 2018). Despite Instagram's positive effects, studies show that Instagram use potentially harms well-being and is detrimental to life satisfaction and self-confidence (Birkjær et al., 2019). Research suggests that these effects on well-being depend on the type of Instagram usage, namely passive and active (Escobar-Viera et al., 2018).

Additionally, studies showed that reward sensitivity correlates positively and negatively with the relationship between Instagram use and well-being (Umegaki & Higuchi, 2022). Nevertheless, the extent to which high levels of reward sensitivity impact Instagram's effect on well-being is unclear. Therefore, this paper focuses on how reward sensitivity impacts the relationship between Instagram use and well-being.

Well-being

Well-being is a state of mental health, characterised by Lischetzke et al. (2005) as a personal subjective evaluation and perception of someone's life and the relationship between

pleasant and unpleasant experiences. Keyes (2005) defined well-being as the absence of mental illness and divided it into three dimensions: psychological, emotional, and social.

Psychological well-being focuses on personal growth and is how people develop and realise their potential (Ryff & Singer, 2008). Therefore, one can fulfil one's potential through autonomy (self-determination and independence from others), environmental mastery (ability to handle demands and challenges), positive relations with others (maintenance of empathetic and compassionate relationships), and recognition of one's life purpose and self-acceptance (positive assessment of oneself) (Ryff & Keyes, 1995).

Keyes (2003) defined the second dimension, emotional well-being, as the compound of positive versus negative feelings and life satisfaction (evaluating one's quality of life). Specifically, this view describes that individuals generally strive to maximise satisfaction, joy, and happiness in life and avoid pain and suffering (Westerhof, 2001).

Lastly, Keyes (2003) referred to social well-being as an individual's social engagement. Meaning how well they are integrated into society, what their contributions to the community look like, and their optimistic view about the future of society. Furthermore, social well-being promotes a sense of belonging that manifests in participating in social networks and fostering social connections (Kamangarpoor & Shahmoradi, 2017). Regarding social media, individuals often engage in various platforms to strengthen their social network with positive feedback in interaction, likes, and comments (Foley & Ferri, 2012). Considering these aspects helps to acknowledge the vital connection between well-being and its role in social media.

Instagram use

Instagram is amongst the other social media platforms that highlight the importance of social connections (Moreton & Greenfield, 2022). This platform was launched in 2010 and is

widely used for various reasons, as presented in a German study (Statista, 2020). Users reported that elements such as inspiration, staying up-to-date, communication, maintaining contact and a sense of belonging contributed to the excessive use. Furthermore, Instagram allows its users to engage with its implemented features in two types, namely active use and passive use (Valkenburg et al., 2022). Verduyn et al. (2017) describe active usage as posting content and interacting with others through comments and likes, whilst passive use refers to scrolling through their feed and reading posts without engaging with the content.

In regards to active use, a study showed that the dimension of social interaction plays a crucial role in improving the well-being of Instagram users. Furthermore, Wong et al. (2019) stated that active Instagram users boost their well-being due to heightened social support in the form of positive feedback from other users. Contrary to active users, passive users who excessively browse through profiles experience a decline in their well-being (De Vries & Kühne, 2015). De Vries et al. (2018) found that passive Instagram use leads to social comparisons, which refers to how users compare themselves to others regarding physical appearance, social status, and achievements. Thus, users risk diminishing their self-esteem when evaluating their lives based on an idealised version presented on Instagram by others (Stapleton et al., 2017).

Besides, posts displaying social settings such as attending festivals and meetups evoke feelings of loneliness, resentment, and envy among users who were excluded or not present on the occasion (Hughes et al., 2004).

Thus, taking Instagram's consequences into account aids in understanding its influence on well-being (Trifiro, 2018). Nevertheless, Instagram users differ in their impact on their well-being, which often depends on their reward sensitivity.

Reward sensitivity

Rewards can be characterised as positive reinforcements and benefits such as personal growth, financial incentives or social recognition essential to shaping human behaviour throughout a person's life (Byron et al., 2012). Schultz (2000) states that rewards have two primary purposes: motivation, which is the regulation of behaviour to achieve a goal, and the induction of positive emotions such as satisfaction and gratitude when obtaining rewards. Moreover, people's reward sensitivity varies from person to person and indicates that the higher a person's sensitivity, the more responsive they are towards rewards. Corr and McNaughton (2012) describe this trait as the degree to which a person's behaviour is motivated by reward-relevant stimuli.

This trait is further explained by Gray's (1987) reinforcement sensitivity model called the Behavioural Activation System (BAS), which describes that individuals seek to regulate their behaviour to attain positive incentives, motivating them to repeat the behaviour in the future to obtain the same outcome. Besides, it is essential to note that the sensitivity to rewards changes among individuals based on factors such as context and cues of rewards (Gerson et al., 2016). For instance, findings demonstrated that young adults displayed heightened reward sensitivity towards social rewards, emphasising their motivation to obtain praise from their peers (Kilford et al., 2023).

Those low in sensitivity display decreased motivation to engage in social interactions and are susceptible to major depressive disorder and anhedonia, referring to the inability to feel pleasure (Setterfield et al., 2016). This negative outcome is due to the possibility of social withdrawal through the prevention of obtaining positive social feedback (Rubin et al., 2009). Research has shown that reward accomplishment among individuals high in reward sensitivity shows heightened well-being levels (Taubitz et al., 2015). However, failing to attain positive

incentives demonstrates increased feelings of sadness, anxiety and depression and, thus, decreases their well-being (Carver, 2004).

Furthermore, these differences in reward sensitivity can be explained by a psychological theory, Uses and Gratifications Theory (UGT), which describes how individuals select and use media to satisfy their needs and attain gratification (Phua et al., 2017). Whiting and Williams (2013) present various elements serving as mediums to explain the motives of media use, including social interaction, information seeking, entertainment, and expression of opinion. Based on this theoretical framework, users engaging in media are seen as active recipients rather than passive (Ha & Fang, 2012). Thus, regarding reward sensitivity, individuals with high reward sensitivity are more driven to engage in behaviours ensuring gratification, such as gaining social approval through social connection (Quan-Haase & Young, 2010). Furthermore, one commonly used media, Instagram, has been shown to satisfy one's needs and gratifications regarding reward sensitivity (Apaolaza et al., 2014).

Instagram use and reward sensitivity

Concerning the UGT, users high in reward sensitivity seek to fulfil their social needs through direct messages and positive comments (Coelho & Duarte, 2016). Engagement in these social interactions leads to gains of social acceptance and, thus, improves their well-being (Kilford et al., 2023). As shown by Kusuma and Yuniardi (2019), amusing content on Instagram elicits pleasure and enjoyment among users, with high reward sensitivity contributing to overall satisfaction. These examples underline the importance of UGT elements and their role in reward sensitivity among Instagram users (Whiting & Williams, 2013).

Furthermore, Instagram encourages user engagement through various features that promote positive reinforcement (Sherman et al., 2016). With its implementation of the Like

button, which originated from Facebook, individuals are inclined to interact with other users online by evaluating their posts positively (Heaven, 2018). Therefore, these users experience joy, satisfaction, and excitement when receiving likes (Wohn et al., 2016). As explained by Gray's BAS, obtaining positive feedback serves as positive reinforcement, which fosters social recognition and empowers users to share more content (Umegaki & Higuchi, 2022).

In contrast, users with low sensitivity present preservation of their well-being when using Instagram both actively and passively, as they are not affected by positive social incentives or exposure to others' posts (Dziura et al., 2023). However, passive Instagram use becomes a challenge for users high in reward sensitivity as it restricts them from attaining positive feedback through social interactions, thus eliciting feelings of loneliness and social dissatisfaction (Taylor et al., 2023).

Based on these findings, it has been apparent that the type of Instagram use, active and passive, can lead to differences in levels of well-being.

Target group

The effects of Instagram use on well-being, mainly when moderated by higher reward sensitivity, become evident among young people. Young adults aged 18 to 34 are the age group that uses Instagram the most and show a strong preference for active use (FH Nordwestschweiz, 2022). Statistics have shown that individuals aged between 18 and 34 widely report the most feelings of loneliness compared to other age groups (AXA, 2023). These negative feelings highlight the critical role of young people seeking social interaction when engaging with Instagram (Tang et al., 2014). Ko and Kuo (2009) demonstrate that young individuals experience a sense of social integration by actively posting stories. At the same time, this age group displays

less satisfaction with themselves and their lives and experiences lower self-confidence than people above 35 (AXA, 2023).

Another study shows that social media harms emotional and mental well-being, especially eliciting anxiety and fear of missing out (Muckenhuber & Scaria-Braunstein, 2022). In addition, Burnell et al. (2020) surveyed emerging adults regarding Instagram use and self-confidence, revealing that it induces envy and dissatisfaction regarding their self-images. This result was influenced by the social comparison that arose from frequent scrolling of the Instagram feed, i.e. passive use (De Vries et al., 2018). These findings conclude that young people between 18 and 34 years are susceptible to several adverse effects of social media on well-being. For this reason, the present study investigated young people as the target group.

This Study

Since the social media platform Instagram has been ranked as the most popular but at the same time also most negative platform among young people, it is important to follow this track more and find out more about its connection to well-being (Royal Society for Public Health, 2017). Going into this, findings suggested that the effect on well-being among users depends on the type of Instagram usage, namely active and passive (Taylor et al., 2023). Statistics demonstrated a high tendency towards active use among young Instagram users, underlining their preference for communicating with others rather than scrolling (FH Nordwestschweiz, 2022). As stated by Wong et al. (2019), users who engage with Instagram actively tend to positively influence their well-being, while passive users demonstrate potential harm to their well-being. With insufficient findings and Instagram's unpopularity of passive use among its users, focusing on the higher levels of passive use becomes essential.

Additionally, the role of reward sensitivity contributes to the effect of Instagram use and well-being, as studies have shown that users seek social rewards (Kilford et al., 2023). Furthermore, this behaviour has been explained by the theoretical framework UGT and Gray's BAS, highlighting the importance of users' motives to satisfy their needs and attain rewards (Coelho & Duarte, 2016). However, it is still unclear how heightened levels of passive use influence well-being among users with increased reward sensitivity, as they would usually prefer using Instagram more actively. Thus, the high reward sensitivity moderates the association between high passive Instagram use and well-being.

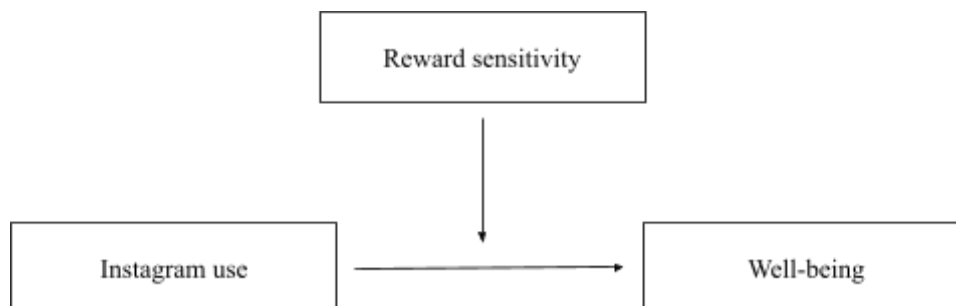
The following research question become central to this study: *‘How does the level of reward sensitivity influence the relationship between Instagram use and well-being?’* Based on this research question, three hypotheses have been formulated:

- Hypothesis 1: Passive Instagram use has a negative effect on well-being
- Hypothesis 2: Active Instagram use has a positive effect on well-being
- Hypothesis 3: High reward sensitivity negatively moderates the relationship between high passive Instagram use and well-being

The research design can be schematically demonstrated in Figure 1.

Figure 1

The relationship between instagram use (IV) and well-being (DV), with reward sensitivity as moderating variable



Method

Study design

To investigate if high reward sensitivity negatively impacts the relationship between Instagram use and well-being, an online survey was conducted on individuals aged 18-34. This study measures Instagram use, which can be divided into active and passive use (independent variables) and reward sensitivity (moderating variable) on well-being (dependent variable).

Participants

This study examined the links between Instagram use and reward sensitivity and the well-being of young people. The sample consisted of 216 test subjects between 18 and 34. These participants were recruited using snowball sampling and convenience sampling. Regarding recruitment, the survey was published on the Test Subject Pool System (SONA) of the University of Twente, rewarding students with participation credits. Furthermore, the online survey was posted on several social media platforms and forwarded to friends and family.

Additionally, those who received the survey link were encouraged to share it in their social circle. Moreover, this study had two inclusion criteria: participants must be (1) between 18 and 34, and (2) Instagram users. Participants who did not meet the inclusion criteria were removed, and participants who withdrew from the survey and thus did not complete it were excluded.

Table 1 displays a detailed insight into the demographic distribution, consisting of age, gender, nationality and level of education. Most participants were between 18 and 23 (75.9%), with an average age of 22.2 (SD = 3.4). The majority of the sample consisted female respondents (78.2%), and half of the respondents had a nationality other than Dutch and German (55.1%),

such as Tunisian and French. Furthermore, half of the respondents are high school graduates (50.9%).

Table 1

Frequency Table for Age, Gender, Nationality and Education Level

Demographic variables	<i>n</i>	%
Age (<i>M</i> = 22.2)		
18-23	164	75.9
24-28	37	17.13
29-34	15	6.94
Gender		
Male	45	20.8
Female	169	78.2
Non-Binary / Third gender	1	0.5
Prefer not to say	1	0.5
Nationality		
Dutch	36	16.7
German	61	28.2
Other	119	55.1
Education level		
High school diploma that qualifies for university (Abitur / VWO)	110	50.9
Bachelor	63	29.2
Master	29	13.43
Other	14	6.5

Note. N=216

Materials

An online survey was designed for this study using the Qualtrics program, allowing the questionnaire to be completed on mobile phones and computers. The survey encompassed the following elements: informed consent, demographic questions (age, gender, nationality, and education level), questionnaires about Instagram usage, reward sensitivity, well-being, and a debriefing. Furthermore, the survey comprised 61 items and took 12 minutes to complete.

Instagram use

The Passive Active Use Measure (PAUM) was used to measure Instagram use. The questionnaire includes three subscales: Active social (5 items), Active non-social (4 items) and Passive (4 items), consisting of a total of 13 items (Gerson et al., 2017). Furthermore, the scale initially involved questions about Facebook usage, but all items were successfully adapted in the context of Instagram due to their similarity in features. Furthermore, a five-point Likert scale was used with scores ranging from 1 'Never' to 5 'Very Often'.

Regarding the first dimension, questions regarding active engagement with Instagram were posed, such as '*How often do you contact friends / other users via DM (direct message) when using Instagram?*'. Active non-social items involved creating content without direct interaction. An example of this factor is '*How often do you post videos when using Instagram?*'. Lastly, items of the dimension Passive use asked about the frequency of viewing pictures when engaging with Instagram.

Furthermore, the PAUM scores were calculated by summing the elements together. This results in a minimum value of 13, ranging to a maximum of 65. The dimensions of Active social and Active non-social form one factor together: Active use. High values indicate frequent, active Instagram engagement with a minimum score of 9 and a maximum score of 45. Passive consists

of minimum values from 4 to the maximum value of 20, of which frequent passive use is manifested through high values. In contrast, low values indicate weaker passive use of Instagram. There has been demonstrated sufficient internal reliability among all three dimensions (Active social $\alpha=.80$; Active non-social $\alpha=.78$; Passive $\alpha=.70$) (Gerson et al., 2017).

Reward Sensitivity

The BAS scale (Behavioural Approach System scale) was used to measure reward sensitivity and has a total of 17 items (Carver & White, 1994). This questionnaire consists of three subscales that focus on different aspects of the BAS. The BAS Drive scale uses four items to record the persistent pursuit of desired goals, such as *'I go out of my way to get things I want'*. The second dimension, BAS Fun-Seeking, is the desire for new rewards and the willingness to search for potentially rewarding stimuli or events spontaneously. It consists of 4 items, including *'I am always willing to try something new if I think it will be fun'*.

Moreover, the 5-item subscale, BAS Reward Responsiveness, measures the positive reactions that occur from receiving or in anticipation of a reward. This dimension includes items such as *'When I get something I want, I feel excited and energized'*, thus, focusing specifically on reward sensitivity. The remaining four items are fillers and can be removed from the dataset. Regarding the values from the BAS Scale, the original four-point Likert scale was converted to a five-point Likert scale. Furthermore, it included response options ranging from 1 *'Strongly Disagree'* to 5 *'Strongly Agree'*. Besides, all 17 items of the BAS scale varied between a minimum score of 17 and a maximum score of 85. Especially for the factor 'BAS Reward Responsiveness', a minimum value of 5 demonstrates a low reward sensitivity, while a maximum value of 25 demonstrates a high response towards rewards. In addition, all BAS items were reverse-scored.

Reliability analysis demonstrated good internal consistency for the BAS scale ($\alpha=.81$) and .73 for the BAS Reward Responsiveness (Carver & White, 1994).

Well-being

The Mental Health Continuum-Short Form (MHC-SF) was developed by Corey Keyes in 2002 and can be used to measure overall well-being. The participants' indication of the questionnaire was based on the past month, including three dimensions with 14 items. The dimensions consisted of emotional well-being with three items (e.g. *'How often in the last month did you have the feeling that you were interested in life?'*), psychological well-being with six items (e.g. *'How often in the last month did you have the feeling that your life has direction or meaning?'*) and social well-being with five items (e.g. *'How often in the last month did you feel that you understand how our society works?'*).

The items were answered using a 5-point Likert scale, derived initially from the 6-point Likert scale. Furthermore, the item responses consisted of 0 *'Never'* to 5 *'Everyday'* and were converted to 1 *'Never'* to 5 *'Very Often'*. Total scores ranged from a minimum of 14 to a maximum of 70. Someone scoring high on the MHC-SF, which only answers with *'Very Often'* or *'Often'*, shows high levels of well-being and is flourishing (Keyes, 2009). According to Seligman (2011), flourishing is a mental health state and can be described as a successful development in which the person achieves valuable achievements, builds relationships with people, functions well and experiences positive emotions. The opposite of flourishing is floundering, indicating that an individual shows high mental illness symptoms combined with low well-being, manifested by low scores with *'Never'* or *'Rarely'* on the MHC-SF. Respondents were

moderately mentally healthy when scoring moderate scores other than indications for high (flourishing) or low (languishing) scores.

The MHC-SF presents good internal consistency ($\alpha=.91$) in all three dimensions: emotional well-being .80, social well-being .81, and psychological well-being .83 (Luijten et al., 2019).

Procedure

An online survey was conducted using Qualtrics to provide an answer to the research question. Before the publication of the survey, the study received approval from the BMS ethics committee on 10-23-2023 (request code: 230567). Once approved, the study was shared via WhatsApp, Instagram, and Facebook with survey links. The survey was available on Qualtrics from the 6th of November to the 10th of December. When opening the link, participants received information about the aim of the study, the voluntary nature of participation, and legal information such as the right to withdraw from the study. Once participants gave consent, questions about their demographics were posed. These included questions about their age, gender, nationality and education level. Participants also had the opportunity to enter their Sona ID if they have a SONA account to receive credits when completing the survey. Next, questionnaires measuring the variables of Instagram use, reward sensitivity and well-being were presented. When completing all questionnaires, participants were thanked for participating in the study. Furthermore, this debriefing involved a text field to leave remarks and the researcher's contact information to clarify remaining questions about the study.

Data analysis

The statistical evaluations were assessed using the statistical software RStudio 2023.09.1+494 and included the variables Instagram use, well-being and reward sensitivity. The

dataset was cleaned before analysis by eliminating all missing and irrelevant information. For example, missing data comprised incomplete responses due to participants withdrawing from the survey, while unnecessary data did not meet the inclusion criteria, such as participants below 18 or over 34 years old. In addition, some data was not processed correctly, displaying blank spaces, and was therefore removed. Thus, the number of participants was reduced to 216.

To determine the necessary sample size for this research, a statistical power analysis using the software G*Power v3.1.9.7 was conducted (Kang, 2021). The significance level was set as $\alpha=.05$, with a power of .8 and an indication of a medium effect size ($f= .15$). The analysis recommended a minimum of 77 participants, while the sample size of this research has reached 216 participants and thus ensures significant results.

Furthermore, in variable Instagram use, the active social and non-social subdimensions were merged and formed active use. Passive use was used as a variable and formed a distinct group called high passive use, which considered respondents scoring high on passive use. The three elements, emotional, social, and psychological well-being, were combined, resulting in the variable well-being. Lastly, only the subcategory BAS Reward Responsiveness was considered, demonstrating the variable reward sensitivity, in which items 4, 7, 14, 18, and 23 were reverse coded. In addition, this variable received a grouping of 'high reward sensitivity' for participants scoring high on reward sensitivity. All four variables were originally character variables converted into numeric ones. Then, a descriptive analysis encompassing the four variables was carried out to obtain the means (M), standard deviations (SD), and the minimum and maximum scores of the participants.

The further step was to check for violation of the variables' assumptions of linearity, normality, equal variance (homoscedasticity), and independence. Linearity was tested using a

linear regression analysis demonstrating standardized and unstandardized values, representing apparent linearity. Furthermore, a QQ plot and Shapiro-Wilk test were used to check the normality of the variables. Results showed that a representation of residuals and a straight line followed a linear distribution. The third assumption was the equal variance, which was checked through a Breusch-Pagan test and demonstrated no deviation. Lastly, independence, tested with the Durbin-Watson test, showed no violation.

After assumptions being fulfilled, a Pearson's correlation was carried out to measure the strength between the variables. An inferential regression analysis was then conducted to answer the first two hypotheses. A multiple regression analysis was used for the last hypothesis, including the two groups' high passive use' and 'high reward sensitivity' to obtain an interaction effect.

Results

Descriptives

First, a descriptive analysis was conducted, consisting of average scores and standard deviations regarding well-being, active use, passive use, and reward sensitivity, which can be found in Table 2. Results of the MHC-SF indicate that participants scored, on average, a moderate level of well-being ($M = 45.8$, $SD = 8.5$). From the PAUM, respondents demonstrated a moderate mean score for active use ($M = 21.2$, $SD = 8.5$) and a high mean for passive use ($M = 15.7$, $SD = 2.6$), referring to their preference towards passive use of Instagram. Lastly, for the reward sensitivity, participants showed on average high scores ($M = 20.9$, $SD = 2.4$).

Table 2

Descriptives Data of Well-being, Active use, Passive use and Reward Sensitivity

Variable	<i>M</i>	<i>SD</i>
Well-being	45.8	8.45
Active use	21.2	5.9
Passive use	15.7	2.63
Reward Sensitivity	20.9	2.39

Note. N = 216

Correlations

Pearson's correlation was used to indicate the strength of the correlation between the variables, presented in Table 3. Passive use demonstrated a weak positive correlation on well-being ($r = .06, p = .349$), implying a statistically insignificant correlation. A weak positive significant correlation existed between active use and well-being ($r = .19, p = .005$).

Furthermore, Pearson's correlation showed a weak to moderate positive significant correlation between passive and active ($r = .32, p = .001$). The relationship between passive use and reward sensitivity exhibited a weak positive but insignificant correlation ($r = .32, p = .568$). A Pearson correlation of .07 presented a very weak positive correlation between active use and reward sensitivity and was not significant ($p = .285$). Finally, the analysis revealed a weak positive correlation between reward sensitivity and well-being ($r = .17, p = .013$).

Table 3*Pearson's Correlations of Well-being, Active use, Passive use and Reward Sensitivity*

Variable	1	2	3	4
1. Well-being	.	0.064	0.191**	0.169*
2. Passive use	0.064	.	0.315***	0.039
3. Active use	0.191**	0.315***	.	0.073
4. Reward Sensitivity	0.169*	0.039	0.073	.

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

***. Correlation is significant at the 0.001 level (2-tailed).

Inferential analyses

A regression analysis was conducted to answer the hypotheses 1 and 2. The results of the independent variables' passive use, active use and dependent variable well-being are illustrated in Table 4 with Confidence intervals of 95%. The analysis findings showed that passive use has a non-significant effect on well-being ($R^2 = .00$, $F(1, 214) = 0.88$, $p = .348$). Therefore, hypothesis 1: 'Passive Instagram use has a negative effect on well-being' can be rejected. However, the hypothesis 2: 'Active Instagram use positively affects well-being' can be accepted, as results show a significant positive effect of active use ($b = .27$) on well-being ($R^2 = .04$, $F(1, 225) = 8.09$, $p = .005$). This result indicates that the more a user engages with Instagram actively, the higher the level of well-being.

Table 4

Regression Analysis of the Relationship Between Passive Use (IV), Active Use (IV) and Well-being (DV)

	<i>b</i>	<i>r</i>	<i>R</i> ²	<i>F</i>	<i>p</i>	95% Confidence Interval	
						Lower bound	Upper bound
Passive use	.21	.06	.00	.88	.348	-.230	.642
Active use	.27	.19	.04	8.09	.005	.084	.463

Note. Dependent variable: Mental well-being

Moderation effect

A multiple regression analysis was conducted to answer the third hypothesis involving the sub-variables high passive use and high reward sensitivity and the dependent variable well-being. High reward sensitivity was expected to moderate the relationship between high passive use and well-being. The results of this model can be found in Table 5.

The findings of this analysis demonstrated that the overall model is not significant ($R^2 = .03$, $F(3, 210) = 1.83$, $p = .143$). This implies that high reward sensitivity does not moderate the relationship between high passive Instagram use and well-being. Additionally, it was found that high passive use solely had a non-significant effect on well-being, as it shows insignificance ($b = -11.48$, $p = .291$). Lastly, the effect of high reward sensitivity revealed that it was not a significant predictor for well-being ($b = .11$, $p = .283$). Therefore, hypothesis 3: 'High reward sensitivity negatively moderates the relationship between high passive Instagram use and well-being' can be rejected.

Table 5*Multiple Regression Analysis with High Passive Use, High Reward Sensitivity, and Well-being*

	b	se	t	p
Intercept	43.02			
High passive use	-11.48	10.85	-1.1	.291
High reward sensitivity	.11	.40	.28	.777
High passive use * High reward Sensitivity	.59	.51	1.14	.143

Note. Dependent variable: Mental well-being

Discussion

This paper investigated the moderation effect of reward sensitivity on the relationship between Instagram use and well-being. This study aimed to answer the research question: How does the level of reward sensitivity influence the relationship between Instagram use and well-being?. A quantitative research design was applied to conduct an online survey of 216 participants aged between 18 and 34. Since this age group is considered to be using Instagram the most, and is highly susceptible to negative consequences, it was selected as a target group. With Instagram being ranked as the most detrimental social media platform for well-being, the focus lies on this platform. Moreover, reward sensitivity is an important personality trait for well-being, especially for young people. As findings showed, increased reward sensitivity is strongly driven by a person's need for external validation, which can be achieved through Instagram, thus enhancing well-being (Sherman et al., 2016).

The first two hypotheses related to passive and active Instagram use and whether these influence well-being. The third hypothesis included the moderator, high reward sensitivity, and

its impact on the relationship between high passive use and well-being. Results of the data analysis showed that only the second hypothesis can be accepted, namely that active use significantly affects well-being. Meanwhile, there was no support for Hypothesis 1 and Hypothesis 3, as they showed insignificant effects.

Implications

When looking at the results of the descriptives, it was astounding to see that most participants were both high in reward sensitivity and passive use. This suggests that there may be underlying factors that require further investigation. However, one factor that could explain this occurrence is global self-esteem (Meier & Krause, 2023). This means that individuals on social media highly value rewards, praise, and attention but due to their low global self-esteem, they tend to remain passive on the platform. This behaviour can be explained by a study on reward sensitivity and global self-esteem, which suggests that people with lower self-esteem feel that those around them do not provide enough positive feedback (Ogasawara et al., 2020).

Furthermore, the frequent passive use among respondents, on average, indicates that young people are strongly willing to scroll through their feeds without engaging with others on Instagram. Interestingly, participants show a stronger tendency towards passive use since active use presented, on average, moderate scores, indicating lower results. An explanation for young people's preference for passive use could be shyness (Appel & Gnambs, 2019). Research described that shy people tend to avoid social interactions and spend more time passively on Instagram. Therefore, respondents exhibiting high scores of passive use could potentially possess shyness. Furthermore, individuals differ in their intentions when utilising Instagram. For instance, people could use it to stay updated with their social contacts, such as watching their friends' stories (Statista, 2020). Lastly, well-being was found to be, on average, moderate among

young people, which is in line with research suggesting that the use of social media, especially Instagram, influences the user's well-being positively (Foley & Ferri, 2012).

Regarding the first hypothesis, it was expected that passive Instagram use negatively affects young people's well-being. This prediction was based on studies that found the role of passive use to be detrimental to one's well-being, affecting aspects such as life satisfaction and self-esteem (Birkjær et al., 2019). However, no significant effect could be found here. Despite this outcome, other factors could play a role in passive use and well-being. A potential factor in influencing a user's well-being could be the Instagram algorithm, which is formed based on the user's interests with which they engaged in the past. For instance, users who admire art might have liked or commented on posts involving paintings (Anter & Kümpel, 2023). Thus, the next time they use Instagram, their feed shows personalised content, which encourages enhancing well-being. Research has shown that the passive use of Instagram can lead to entertainment, manifested by watching enjoyable videos. Finally, Meier et al. (2020) describe young people who strive for personal growth and fulfilment of their potential are driven to search for inspiring posts. Therefore, browsing through uplifting content can help users to attain their goals and reach satisfaction.

The second hypothesis proposed that active use would positively affect well-being. This hypothesis was found to be supported by the significant results. Therefore, this study shows that the more a user engages with Instagram actively, the higher the level of well-being. This outcome was confirmed by previous findings suggesting that active Instagram use encourages user connectivity and fosters positive relationships (Tang et al., 2016). Additionally, in line with the outcome of the majority scoring high on reward sensitivity, their active use was potentially motivated by external rewards, such as receiving likes from others. Such rewards elicit feelings

of satisfaction and a sense of belongingness as they fulfil their social needs, which positively impacts their well-being (Sherman et al., 2016).

Furthermore, the third hypothesis demonstrated that high reward sensitivity could not be a significant moderator for the relationship between high passive use and well-being. This outcome could be due to individual differences (e.g. personality traits), which may influence participants' responses to passive use. Considering that most respondents are high in reward sensitivity and using Instagram more passively, one could draw back to the UGT. This can be emphasised with someone who is high in reward sensitivity and is driven to use Instagram passively to attain gratification. This means that this user could potentially attain a sense of connectedness by viewing content posted by others presenting their achievements and experiences. Thus, watching their friends attain their goals on Instagram can elicit feelings of joy and a sense of belongingness, resulting in positively enhancing well-being (Kircaburun et al., 2020). In addition, passive social media users can find a sense of connection through wishful identification (Hu et al., 2020). Wishful identification involves their desire to be like someone else, such as their favourite influencer. As a result, they browse through the comment section of their favourite influencer's post to direct the positive comments to themselves, thus eliciting feelings of praise.

However, as the sensitivity towards reward varies among individuals, it does not necessarily imply that someone high in reward sensitivity is only responsive towards positive social feedback. Research showed that highly reward-sensitive individuals are motivated by novelty, such as seeking information on other users' lifestyles (Chen et al., 2022). As a result of attaining their gratification, their well-being would be improved.

Strengths and limitations

This research demonstrates a variety of strengths and limitations. Firstly, the study was important because it focused on Instagram, the fastest-growing social media platform among young people, which is detrimental to their well-being. This study bridges the existing research gap between the variables of passive and active use and the concept of well-being, specifically when it comes to the Instagram platform. This aligns with the importance of the chosen target group, representing young people ranging from 18 to 34 years, which is identified as the most used age group for Instagram, while also being highly susceptible towards particularly adverse effects.

Another strength is the sufficiently large sample size of 216 participants, which surpassed the required number of 77 for the power analysis, ensuring validity and overall reliability. In addition, reliability and validity have been found among the scales, PAUM, BAS, and the MHC-SF that were applied for this study, suggesting appropriateness for assessing passive use, active use, reward sensitivity and well-being.

Another strong point of this research is the ethnic diversity, as demonstrated in the demographic data, showcasing various nationalities among respondents. This is a strength because it enables the representativeness of different ethnic backgrounds among respondents and is widely applicable to a larger population.

However, some limitations need to be considered for this research. These include the self-reported nature of the survey and its accuracy about the MHC-SF. This could lead to respondents interpreting the questions differently due to a lack of understanding or vagueness of the presented questions. This was evident in the debriefing's remark section, where respondents stated that they experienced difficulty and uncertainty in indicating their happiness within the

past month on the scale. This can be explained by another participant who experienced a stressful incident (e.g. insufficiency of financial resources) while encountering positive events (e.g., getting a haircut) within that month. Another limitation is that the study used a single-point measurement for overall well-being. This depicts another drawback since the MHF-SC only assesses the overall well-being rather than the well-being during a singular event, namely during the engagement of Instagram. The respondents are likely to generalise their feelings of the past month and do not consider the one time when they, for example, socially compared themselves to others while scrolling through their feed.

Regarding measuring Instagram use in terms of passive and active use, there was uncertainty about the type of content respondents were engaging with, which could aid in recognising the potential effects of Instagram. Lastly, the BAS scale did not provide insight into the motivation among respondents with high reward sensitivity. This lack of information hinders understanding the participant's perception of rewards.

Implications for future research

Considering the previously mentioned limitations, some recommendations for further investigations should be indicated. First, as it was challenging to indicate overall well-being based solely on Instagram use with a single-point measurement, it would be crucial to consider a pre-post test design measured among respondents before and after using Instagram. This could aid in assessing the effect of Instagram and whether it showcases a difference in well-being and solves the issue of respondents' uncertainty towards their self-responses on overall well-being. This implies that participants can easily indicate their well-being based on a shorter duration. Regarding measuring passive and active use of Instagram, a scale, such as the Instagram Motives

Questionnaire (IMQ), could be applied that provides information about the user's motives on the content type they engage with (Romero Saletti et al., 2023).

Furthermore, as the results showed that the moderation effect was insignificant, it is essential to consider other factors. As stated before, most respondents were high in reward sensitivity, so it could be valuable to consider these people's motives and reward preferences. This can be accomplished by using an appropriate scale to measure these elements or by conducting qualitative research to allow respondents to elaborate further on their answers. Thus, identifying which rewards motivate individuals with high reward sensitivity provides transparency and a more straightforward overview of the results.

Moreover, further variables that could act as moderating variables for the relationship between high passive use and well-being should be considered to highlight individual differences. For instance, participants' personality traits could be a potential moderator that explains the variety of responses when using Instagram passively. This can be researched by using the Eysenck Personality Inventory (EPI), a scale that measures extraversion, among other things (Rocklin & Revelle, 1981). If high passive users ranked low on extraversion, it might have to do something with them being more reserved, namely introverted. This suggests that their introversion intensifies their passiveness. Furthermore, to have more of an overview of other personality traits, one could use the 16PF questionnaire by Cattell and Mead (2008).

Lastly, as individuals vary in their levels of well-being, it is essential to acknowledge potential factors. These factors could encompass adverse events that individuals experience, and therefore, aspects such as life conditions and mental resilience should be controlled for future experiments. Conducting an experimental study while considering potential factors can validate data and identify distinctions in well-being outcomes between groups.

Conclusion

Instagram is becoming increasingly important in many people's everyday lives – especially among young people. Their engagement with Instagram opens doors for potential impacts on well-being. This, in turn, is heavily connected with the user's type reward sensitivity. This research provided an overview of reward sensitivity as a possible moderator of the relationship between Instagram and well-being. It was proven that only one hypothesis was confirmed, namely that active use positively affects the well-being of young people. For the other two hypotheses, it was expected that passive Instagram use would have a negative impact on well-being and that high reward sensitivity negatively influences the relationship between high passive use and well-being. However, no statistical significance of the two hypotheses was found. The results of this study suggest that more resources should be invested in further investigations. By considering possible responsible factors, more profound insights can be obtained into the user's well-being, particularly with reward sensitivity as a moderator.

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Appendix A

Use of AI in Education at the University of Twente

During the preparation of this work the author used Chat GPT in order to formulate original text more formally and to solve problems regarding coding in RStudio. After using this tool/service, the author reviewed and edited the content as needed and takes full responsibility for the content of the work. Furthermore, the whole work has been re-written for the Green Light version, to remove any AI suggested sentences. The only AI tool (that was also recommended by the supervisor) was Grammarly, to correct grammatical errors, and give suggestions, without new generated text from that tool.