The Relationship of Reward Sensitivity and BeReal Authenticity in Varying Degrees of Social Anxiety

Jana Krawinkel

Faculty of Behavioural, Management, & Social Sciences, University of Twente

First Supervisor: Erik Taal

Second Supervisor: Lieke Nijborg

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Abstract

To examine the dynamics of authenticity of online self-presentation, this study investigated authentic engagement on the social media BeReal and its relationship to reward sensitivity and social anxiety. A negative relationship between reward sensitivity and BeReal authenticity as well as between social anxiety and BeReal authenticity was expected. Furthermore, social anxiety was expected to act as a moderator to the extent that high social anxiety positively influences the negative relationship between the variables.

Utilizing a cross-sectional study design, 54 participants were studied that filled out the BeReal authenticity questionnaire, the Behavioural Activation Scales, which measured the reward sensitivity, and the Liebowitz Social Anxiety Scale. Correlation analysis of BeReal authenticity, reward sensitivity and social anxiety was conducted and PROCESS was employed for a regression analysis that explored social anxiety as the moderating factor.

Results showed a significant positive relationship between BeReal authenticity and reward sensitivity, but no significant relationship between social anxiety and BeReal authenticity. Furthermore, a significant positive moderation effect was found at low levels of social anxiety. As the significant findings were not in the direction expected, all hypotheses were rejected.

BeReal specifically strives for authenticity, therefore the results give rise to the suggestion that users view it as rewarding to engage authentically, leading to a satisfaction of their reward sensitivity. Individuals high on social anxiety are less likely to experience these rewarding effects, potentially due to a negatively biased judgement of their self-presentation that inhibits their authenticity. For those low on social anxiety, these influences are not present and they can feel rewarded in their authentic engagement on BeReal.

Keywords: authenticity, BeReal, reward sensitivity, social anxiety, social media

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Social Anxiety

In a world of influencers and sponsored content, authenticity is becoming more sought-after than ever. Especially those who have experienced the rise of social media are increasingly becoming aware of the meticulously curated performance that is often evident on many social media profiles (Maddox, 2023). As a self-proclaimed 'Anti-Instagram', BeReal has attempted to solve that issue. By sending users a notification every day and instructing them to take a picture of what they are currently doing, it strives to implement a more authentic approach to social media (Ortiz, 2024). However, questions have started to form whether users are actually authentic in their engagement with the app, giving rise to the phenomenon of the 'perfect BeRealer' (Snyder, 2023). Self-presentation has shown to be influenced by reward sensitivity which, regulated by the behavioral activation system, steers engagement on social media (Falk et al., 2012). Further, social anxiety is hypothesized to influence this relationship, as socially anxious individuals are more likely to engage in norm-conforming behavior and make an effort to mask their perceived lack of social skills in order to acquire social group membership (Bica, 2022). This study therefore investigates how reward sensitivity and authenticity of BeReal engagement are related and influenced by social anxiety. The aim of this research is to investigate the dynamics of the authenticity of self-portrayal on the social media BeReal and add to the already existing body of research on authenticity on social media.

BeReal

"Time to BeReal: 2 Min left to capture a BeReal and see what your friends are up to!" is the notification users of the social media app BeReal receive once a day. They are then given two minutes to take a photo using both their front- and rear- facing camera. Only once they have posted their picture do they gain access to their feed and can see what their friends are doing. First launched in 2020, the app is now especially popular among individuals of the generation Z (Ortiz, 2024). BeReal attempts to bring back the social media atmosphere where individuals post about miscellaneous things of their day-to-day life and has designed its features in a way that instructs the user to be authentic in their usage (Highfield, 2023).

As the name already suggests, BeReal instructs the user to be real. Presenting itself as an opposition to the usual dynamic of social media, the app wants to create a space where users do not feel pressured to post perfect pictures or present themselves in a certain light;

they want them to be authentic (Taylor, 2023). In order to encourage this behavior, BeReal has introduced a number of features. If users miss the notification or do not want to share what they are currently doing, they can post a BeReal at a later time, but the delay will be shown on their post. In addition, others can also see how many tries the user took for the final picture. BeReal integrates the use of 'friends' instead of 'followers', following is based on reciprocation and the number of individuals with whom the user is connected is not visible in the profile. Liking a BeReal is not possible, but other users can leave 'RealMojis', selfies that they can take in response to their friends' post (Ortiz, 2024). The user's feed consists only of the current day's posts and is updated every day with the older posts disappearing (Highfield, 2023). However, the user is able to access their older posts through the 'Memories' feature where all posts are displayed in a calendar-layout (Ortiz, 2024). Screenshots of BeReal's interface can be viewed in Appendix A. These features, including the display of delayed posting, the limited access to older posts, and the restricted information given about the user, aim to achieve BeReal's goal of authenticity.

Authenticity

The authenticity of self-presentation is continuously evaluated by oneself and others. If the individual is perceived to be authentic, others assume that their behaviour and external appearance are in line with their honest opinions. The judgement whether someone is authentic or not is not made based on factual evidence, but on the interpretation by the observer (Vanhoffelen et al., 2023).

Authenticity was further conceptualized by Gray in his Tripartite Model of Authenticity. Explained in detail by Lehman et al. (2019), it describes that authenticity is constructed of three distinct but related concepts that can also be perceived as types of judgements that individuals make in order to verify whether something or someone is authentic or not. As the first concept, 'Authenticity as Consistency' differentiates between the 'front-' and 'backstage'. This means that the observer investigates whether what is presented to them is consistent with the actual truth which is hidden 'backstage'. Since it is not possible for the observer to know of the internal processes of the object, the judgement is made based solely on the perceived legitimacy of external presentations. Online, Haimson et al. (2021) found that individuals have a general desire to present themselves as authentic to an audience. They constructed interviews with study subjects about what authenticity means to them, revealing that the overall consensus displays authenticity as being consistent and honest with one's self-presentation. The second concept is titled 'Authenticity as Conformity'. In today's

social world, every individual is placed within a certain category and perceived as a member of such. This is why, when referring to authenticity, the observer is concerned with deciding whether the individual presents themselves in a way that is aligned with the social norm. Their external presentation is then compared to the rules of said social category. Dennison et al. (2023) found that users of social media are prone to conforming to social standards online in order to be accepted and perceived as likable by others. The data they gathered showed that due to the fear of being excluded or judged by their peers, individuals pay substantial attention to others' opinions and conform their own behaviour accordingly. The final concept, 'Authenticity as Connection', is concerned with the actual truth of what the observer is presented with. The external presentation is then compared to factual evidence of the authenticity that the individual attempts to display. This comparison can also be found on social media where opportunities to portray a self-image that is different from reality are plenty. Najar and Shabir (2023) stated that social media users tend to present an at least moderately modified version of themselves in an attempt to find group membership. All three of the explained concepts combined result in the notion of authenticity and explain that the observer goes through a verification process by comparing the external presentation to three viewpoints in order to come to a final conclusion (Lehman et al., 2019).

Authenticity has gained much popularity in today's society and has become a concept covered in many self-help books as well as scientific research (Lehman et al., 2019). In interviews with their participants, Haimson et al (2021) found that while social media gives ample opportunity for displaying one's own self in favourable light, their subjects argued that authenticity entails a consistent representation, on- and offline. It was stressed that this display included posting not only about positive experiences, but being honest about the more negative ones as well. However, as Haimson et al. (2021) found, individuals also prefer the consumption of positive information and strive to present themselves in such a manner. On social media, as it has become evident, authenticity then becomes a difficult construct to integrate and measure. While users wish to embody authenticity, they feel restricted by the urge to only post about positive experiences at the expense of the more negative ones. This phenomena was coined by Haimson et al. (2021) as the 'Online Authenticity Paradox' and has shown to influence authentic self-presentation on BeReal, as discussed in the following.

Authenticity on BeReal

Investigations have started to show that, despite BeReal trying to prevent it, its call for authenticity is still contesting with individuals' desire to present themselves in a certain light. Snyder (2023) found that users might see the notification but deliberately decide to post late in order to show a more interesting activity than what they are doing in the moment. This urge to post a BeReal that is interesting rather than real is further influenced by the 'Memories' feature. As Snyder (2023) argues, the name alone calls for posts that are memorable and entertaining to look at. When browsing through their 'memories', users can observe their life through the BeReal's they have posted, and, similar to the dynamics of other social media, they desire this life to look entertaining and interesting (Snyder, 2023). Maddox (2023) shifts attention to the fact that the notification to take a BeReal comes at randomized times during the day, instilling an 'always on' mentality in the user. Even though the usage of the app is limited if the notification has not come, the individual is aware that it might come at any moment. In contrast to other social media platforms where performance is momentarily and more obviously curated, Maddox (2023) explains that when using BeReal, the user needs to always be ready to perform and be interesting, not only in the moment they decide for themselves to post on social media. Maddox (2023) further raises the question whether it is at all possible to be authentic on social media, stating that even an authentic portrayal of oneself is still a performed version.

Even though the app calls for an authentic portrayal of the user's life, many have found a way to work around it and have started to show their life in an idealized way. However, suspicions are already being raised and users are increasingly calling for a return to the app's original purpose. Some are stating that BeReal should work on further limiting the opportunities for inauthentic self-portrayal, others do not understand why anyone would even attempt to curate an idealized performance if followers only include friends in the first place (Snyder, 2023). Maddox (2023) further found that users are aware of their friends' inauthenticity whenever their friends post a late BeReal with an activity that looks suspiciously entertaining. Altogether, the question remains whether authenticity can actually be realized on BeReal or whether it simply follows the dynamic of other social media platforms. One factor possibly influencing the authenticity of self-presentation on BeReal is reward sensitivity which will be explained in the following.

Reward Sensitivity

Reward sensitivity is conceptualized as the degree to which behaviours and responses to stimuli are regulated by prospects of reward (Kim et al., 2015). In this regard, it is not of importance whether the reward is actually realized or not (Falk et al., 2012). Reward sensitivity is regulated by the Behavioural Activation System (BAS) which is one of the two neuropsychological systems that trigger human behaviour according to the reinforcement-sensitivity theory by Gray (Karjalainen et al., 2016). As explained by Karjalainen et al. (2016), Gray argues that, when presented with a stimulus, one of the two systems is activated and controls the behavioural response. The BAS is understood as controlling approach behaviour to rewarding stimuli. If an individual shows high sensitivity in the BAS, they also have a high reward sensitivity, are motivated to seek rewards and adjust their behaviour in a way that maximizes reward consumption (Karjalainen et al., 2016).

Individuals' reward sensitivity has shown to apply to social cues as well. In order to avoid social exclusion and gain social rewards, people adjust their behaviour in response to social norms. Foulkes et al. (2014) have shown that achieving social goals and maintaining social relationships activate the reward system in the brain and that the opposite, i.e. lack of social reward, enhances symptoms of depression. In their work, they stress that individuals differ in their desire to achieve social goals and that, depending on these differences, the positive influence of said rewards also differs. Lindström et al. (2021) investigated the influence of reward sensitivity in connection to the social media environment and argue that online engagement is driven by the individual's desire to increase acquisition of rewards in the forms of likes and positive comments. Users have reported an increase in happiness after receiving positive feedback on their posts, and this feedback has shown to influence their behavior as well. Authenticity on BeReal is likely influenced by the individual's degree of reward sensitivity, but social anxiety is another factor deemed important in this relationship.

Social Anxiety

Social anxiety is a heightened awareness of, and insecurity about, one's self-presentation in a social situation. An individual high on social anxiety pays more attention to how their behavior is perceived by others and believes this judgement to be primarily negative, even without any real indication (Jefferies & Ungar, 2020). Individuals who experience social anxiety engage in social comparison that results in a negative self-perception. They do not believe to be as good as others or deem themselves to be lacking in a quintessential way when it comes to engagement in social situations. This belief translates

into their behaviour and has shown to lead to social exclusion due to the individual preferring to avoid the social situations altogether (O'Day & Heimberg, 2021). Social media has shown to be a positive outlet for those struggling with social anxiety, as the online environment provides a platform where they can balance out the social skills that they presume to lack. In this way, the individual is able to create an environment where they can present themselves in ways they believe to be favourable (O'Day & Heimberg, 2021). According to the reinforcement sensitivity theory, the risk of social isolation is perceived as a punishment that the individual wishes to avoid (Falk et al., 2012). The use of social media has therefore provided a valuable tool for the socially anxious (O'Day & Heimberg, 2021). However, their social anxiety also influences the authenticity of their self-presentation on social media platforms, a relationship which will be discussed in the following.

Social Anxiety, Reward Sensitivity and Authenticity

According to Telzer et al. (2020), an adherence to social norms is driven by a person's wish to obtain social rewards which is ultimately substantiated by the degree of reward sensitivity of the individual. A high reward sensitivity dictates higher conformity to social and peer norms as positive feedback is more anticipated and acquires a higher value (Telzer et al., 2020). If a person is also socially anxious, this conformity might be increased, as the desire to gain approval from their peers is deemed to be simultaneously more important and harder to achieve due to the negative self-perception when engaging in social comparison. The individual is desperate to gain social acceptance but does not believe themselves to be naturally capable of achieving it. This is why they are more likely to conform to social norms and attempt to present themselves in a way they perceive to be socially desirable but less authentic to their true self (Bica, 2022). Pinto et al. (2011) investigated the relationship between authenticity and reward sensitivity, and found that individuals who are high on reward sensitivity also portray lower levels of authenticity, especially if they experience anxiety in their personal relationships and wish to avoid conflicts. Furthermore, anxiety in regards to being perceived negatively by others influences the authenticity of their self-presentation in a negative way. Additionally, Reinecke & Trepte (2014) argued that experiencing negative affect, such as social anxiety, leads to lower levels of authenticity in online environments.

The Present Study

Previous studies have shown that there is a discrepancy between the desire to be authentic on social media and the preference to display one's self in a positive manner at the expense of disclosing experiences that would be less positively perceived (Haimson et al., 2021). Even though the social media app BeReal was established as opposition to the curated performance found on social media, users have shown to display inauthentic behaviour (Snyder, 2023). Further, the connection between reward sensitivity and social media engagement has been established, showing that people strive to maximize the potential for rewards and engage in reward-seeking behaviour, no matter whether it is authentic or not. Although evident, this desire for rewards differs for each individual, leading to some caring more about receiving rewards on social media than others (Lindström et al., 2021). Social anxiety has shown to negatively influence the authenticity of one's self-presentation in online environments as the individual is driven by the desire to be accepted while believing themselves to lack the social skills required to actually be a part of a social group, and therefore increases their efforts to conform (Bica, 2022). The reward sensitivity of socially anxious individuals is thus compromised by their perceived inability to acquire these rewards (Lahat et al., 2018). Online, social feedback is usually received in the form of likes and followers, something that BeReal is deliberately missing. However, authenticity is still questioned and many users prefer to be inauthentic in order to portray their lives in a certain desirable way (Maddox, 2023). This study focused on authenticity of BeReal engagement and reward sensitivity in differing degrees of social anxiety. Next to the expected correlation of reward sensitivity and BeReal authenticity, the influence of social anxiety was investigated two-fold. Firstly, a direct effect of social anxiety on BeReal authenticity was explored. In addition to that, an interaction effect was investigated, as social anxiety has been shown to influence the satisfaction of reward sensitivity in socially anxious individuals. It is therefore expected that high levels of social anxiety strengthen the negative relationship of reward sensitivity and BeReal authenticity. The following research question was established *"What is the relationship between reward sensitivity and BeReal authenticity in varying degrees of social anxiety?"* Derived from this, the following hypotheses are obtained:

- Hypothesis 1: Reward sensitivity is negatively related to BeReal authenticity
- Hypothesis 2: Social anxiety is negatively related to BeReal authenticity
- Hypothesis 3: The degree of social anxiety positively moderates the negative relationship of reward sensitivity and BeReal authenticity

Figure 1 shows a schematic representation of the present study.

Figure 1

A Schematic Representation of the Expected Relationship Between Reward Sensitivity (IV),
BeReal Authenticity (DV), and Social Anxiety (Moderator).

Social Anxiety

| Reward Sensitivity | ⟶ | BeReal Authenticity |
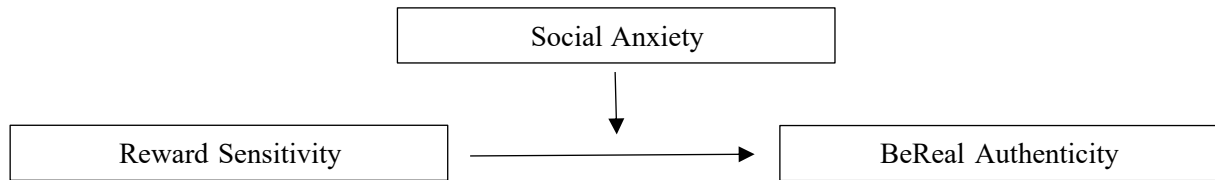
Note. IV = Independent Variable; DV = Dependent Variable.

Methods

Design

This study investigated reward sensitivity as the independent variable and BeReal authenticity as the dependent variable. As moderating factor, social anxiety was examined. Ethical approval for this research was given by the Ethics Committee of the Faculty of Behavioural, Management, and Social Sciences of the University of Twente (no. 240412).

Participants

In order to partake in this study, participants had to be active users of the social media BeReal or had to have used it within the past six months to assure a relatively recent engagement with the application. Further, they had to be between 18 and 27 years of age in order for the primary target group of BeReal to be represented, and come from a background of higher education. Since this study investigated social anxiety symptoms, but not Social Anxiety Disorder, participants with a diagnosis of said disorder were not eligible for this research, as it was expected that they might skew the results and make them less representative of the general population. Originally, 60 individuals participated in the study, but 6 did not respond to all questions and were excluded. An exhaustive summary of the final 54 participants can be found in Table 1. Overall, the majority was female and between 22 and 24 years old. Participants were either German or Dutch, with one participant as the exception.

Table 1

Demographics of the 54 Participants

Demographic Variables	*n*	*%*
Gender		
Female	44	81
Male	9	17
Prefer not to say	1	2
Age		
18-21	21	39
22-24	25	46
25-27	8	15
Nationality		
German	35	65
Dutch	18	33
French	1	2

Procedure

In order to respond to the survey, participants were given a link to a Qualtrics questionnaire. Some were invited to participate via the SONA system which granted them .25 credits for their participation. Further, respondents were recruited using the snowballing technique where friends and family of the researcher were informed about the intent of the study and asked to participate and pass it on to other suitable individuals. At first, respondents were given information about the research, the handling of their data and the possibility to terminate their participation at any point in time. They were instructed to give informed consent after which they were forwarded to the questionnaires. The form presented to the participants can be read in Appendix B. Participants filled out the BeReal Authenticity Questionnaire first, followed by the Behavioural Activation and Inhibition (BAI) Scales and concluded with the Liebowitz Social Anxiety Scale. After responding to all questionnaires, individuals were thanked for their participation and notified that their responses had been recorded.

Measures

BeReal Authenticity Questionnaire. Vanhoffelen et al. (2023) developed eight self-report items in order to measure the authenticity of self-presentation of BeReal users. These

items are divided into two sub-scales, one investigating the perceived authenticity of self-presentation (items 1, 4, 5 and 6) and the other the engagement in inauthentic actions when using BeReal (items 2, 3, 7 and 8). Appendix C lists all items. Scores are measured on a 5-point Likert scale ranging from *1* "Never" to *5* "Very often". For this research, only the sub-scale Perceived Authenticity of Self-presentation is considered as the variable BeReal Authenticity, as it describes the extent to which the user perceives their own engagement on the app as authentic. Since the present study centres on perceived authenticity, the second sub-scale, Engagement in Inauthentic Behaviours, was deemed to be less relevant. Responses were averaged for the items. Example items are "My posts on BeReal are sincere" and "I feel like my profile on BeReal shows who I really am". Reliability was measured by Vanhoffelen et al. (2023) using the McDonal's coefficient which showed reliable results, with $\omega = .83$ for the first scale. The present study yielded a reliable Cronbach's alpha ($\alpha = .88$) for the Perceived Authenticity of Self-presentation sub-scale.

BAI Scales. The Behavioural Inhibition and Activation (BAI) Scales are based on the reinforcement sensitivity theory which was first developed by Gray in 1982 and introduced earlier in this article. The questionnaire was constructed by Carver and White (1994) and consists of 20 items that are further divided into four sub-scales. To measure reward sensitivity, only the sub-scale Reward Responsiveness (items 3,5,11,14 and 19) was analysed as it explicitly focuses on the variable of interest. The specific content of these items can be found in Appendix C. The original questionnaire records the individual's answers on a 4-point Likert scale, however, for the purpose of cohesiveness and efficiency across all data for the analysis, the scales were adjusted to match the 5-point Likert scale used for the BeReal Questionnaire. Example items are "I go out of my way to get things I want" and "I am always willing to try something new if I think it will be fun". The scores for the sub-scale were calculated using the mean, with a high score in Reward Responsiveness indicating a high degree of reward sensitivity. An updated measurement of the psychometric properties was conducted by Khaliq et al. (2023) and showed a result of $\omega = .67$ for the scale Reward Responsiveness. The present study yielded a satisfactory Cronbach's alpha of $\alpha = .83$.

Liebowitz Social Anxiety Scale. As one of the most commonly administered measurement tools for the symptoms of social anxiety in both children and adults, the Liebowitz Social Anxiety scale was developed by Liebowitz in 1987. Respondents are presented with 24 items introducing 11 social and 13 performance actions. They are then instructed to rate their fear as well as their avoidance of these situations on a 5-point Likert scale. As the present research does not focus on avoidance behaviours, only the Fear sub-scale

was considered. The original measurement employs a 4-point scale, but following the reasoning already given during the description of the BAI scales, a 5-point Likert scale was applied. The response options ranged from *1* "Very low anxiety" to *5* "Very high anxiety". Examples of situations that the participants rated are "Using a telephone in public" and "Speaking up at a meeting". All items with the different situations are listed in Appendix C. The responses were averaged and a high score suggested a case of high social anxiety. Renewed reliability was computed by Leigh and Clark (2021) and showed a sufficient Cronbach's alpha varying from .97 to .87 across sub-scales, with the total score showing a result of $\alpha = .97$. Analysis of data collected for this study concluded similar results with a Cronbach's alpha of $\alpha = .95$ for the Fear sub-scale.

Data Analysis

Responses were all downloaded from the online platform Qualtrics after which analysis was done using RStudio. After checking for outliers and missing data, the individual responses were combined according to the sub-scales of the questionnaires. The data was then tested for the statistical assumptions of normality, linearity, independence and homoscedasticity. Results showed a violation of all four assumptions, indicating that the present study dealt with a non-parametric dataset. Afterwards, descriptive statistics were conducted, computing the median and interquartile range to account for the skewness of results. Spearman's correlation coefficient was used to assess the correlation of reward sensitivity and BeReal authenticity in order to answer the first hypothesis "Reward Sensitivity is negatively related to BeReal authenticity". The same measurement was used to assess the correlation of social anxiety and BeReal authenticity to respond to the second hypothesis "Social Anxiety is negatively related to BeReal authenticity". In order to investigate the third and last hypothesis regarding the moderating influence of social anxiety on the relationship between BeReal authenticity and reward sensitivity, the PROCESS macro analysis by Hayes (2022) was used. To avoid multicollinearity, the scores of the predictors were centred. Results of the regression were analysed with reward sensitivity as the predictor and BeReal authenticity as the dependent variable. Social anxiety was added to the regression model as a moderating factor. The conditional effects of different levels of the moderator on the relationship between the independent and dependent variable were assessed in more detail. Due to the statistical assumptions not being confirmed, bootstrapping was applied to achieve cohesive results. For all analyses, the significance level was determined to be $p < .05$.

Results

Statistical Assumptions

Firstly, the statistical assumptions were applied to the results. Analysis showed that none of the assumptions could fully be confirmed which is why non-parametric analyses and bootstrapping were applied in the moderation analysis to achieve cohesive results. One exception could be found in the variable of social anxiety for which the Shapiro-Wilk test revealed a normal distribution. However, the other two variables Reward Sensitivity and BeReal Authenticity were not confirmed to be normally distributed. In order to achieve cohesive and easily interpretable results, the descriptives of social anxiety were investigated using the same measurements as the other variables. A full overview and interpretation of the statistical assumptions can be found in Appendix D.

Descriptives

Due to the rejection of the statistical assumptions, the participant's responses were summarized using the median and interquartile range. Since they consider the middle values, they are known to be less influenced by the skewness of data and therefore preferred in this study. An overview of the descriptives can be found in Table 2. For BeReal authenticity, the responses were centred on 'most of the time' with an interquartile range of one Likert point. Reward sensitivity showed similar tendencies, with the median indicating that 50% of responses scored 'somewhat agree' or higher with a tight clustering, as the interquartile range is close to zero. Lastly, social anxiety resulted in a median of 'low anxiety'.

Table 2

Descriptives of BeReal Authenticity, Reward Sensitivity and Social Anxiety

Variable	Mdn	IQR
BeReal Authenticity	4	1
Reward Sensitivity	4	.187
Social Anxiety	2	1

Correlations

The guidelines of Cohen (1988) were used to assess the effect size of correlation. A relationship smaller than .30 was deemed small while an effect between .30 and .50 was perceived as moderate and a result equal to or higher than .50 as strong. BeReal authenticity and reward sensitivity showed a significant but weak positive correlation. The first hypothesis 'Reward sensitivity is negatively related to BeReal authenticity' was therefore rejected.

Further, BeReal authenticity and social anxiety as well as social anxiety and reward sensitivity proved to be negatively related. However, both correlations were very weak and not significant. The hypothesis 'Social anxiety is negatively related to BeReal authenticity' was rejected. Table 3 shows the detailed correlations between each of the variables.

Table 3

Spearman's Correlation Coefficients for the Relevant Variables

Variable	1	2	3
1. Reward Sensitivity			
2. BeReal Authenticity	.293*		
3. Social Anxiety	-.160	-.061	

*. Correlation is significant at $p < .05$

Moderation Analysis

An overview of the bootstrapped results of the moderated regression analysis can be found in Table 4. It became evident that while there is no direct effect of reward sensitivity or social anxiety on BeReal authenticity, there is a significant moderation. Since the 95% Confidence Interval of the interaction did not include zero, a significant effect can be concluded. Yet, the hypothesis 'The degree of social anxiety positively moderates the negative relationship of reward sensitivity and BeReal authenticity' is to be rejected as it assumed a negative relationship between the predictor and independent variable and that social anxiety would positively influence this relationship. A closer exploration of the interaction effect at different levels of the moderator variable revealed that social anxiety significantly moderates the relationship of BeReal authenticity and reward sensitivity at low levels, but not at medium or high levels. Detailed results can be found in Table 5. For further insights, a regression plot of the interaction effect at different levels of the moderator variable can be seen in Figure 2. There, the effect of low social anxiety on the relationship between reward sensitivity and BeReal authenticity is visualized. As it shows a positive influence on the positive relationship, it becomes evident that the hypothesis is rejected.

Table 4

Bootstrapped Results of the PROCESS Moderation Analysis of BeReal Authenticity

	b	M	se	95% Confidence Interval	
				Lower Bound	Upper Bound
Reward Sensitivity	-.02	-.08	.35	-.8215	.4561
Social Anxiety	-.11	-.08	.17	-.4024	.2515
Interaction: Reward Sensitivity x Social Anxiety	-.79***	-.91	.39	-1.7697	-.2847

***. Regression is significant at $p < .001$

Table 5

Conditional Effects of Reward Sensitivity on Authenticity at Low, Medium and High Level of Social Anxiety

	b	se	t	p	95% Confidence Interval	
					Lower Bound	Upper Bound
Low level	.49*	.19	2.64	.011	.1193	.8760
Medium level	.09	.20	.45	.65	-.3147	.4967
High level	-.65	.34	-1.89	.065	-1.3390	.0412

*. Regression is significant at $p < .05$

Figure 2

Regression Slopes for the Relationship Between Reward Sensitivity and Authenticity for Low,

Medium and High Level of Social Anxiety
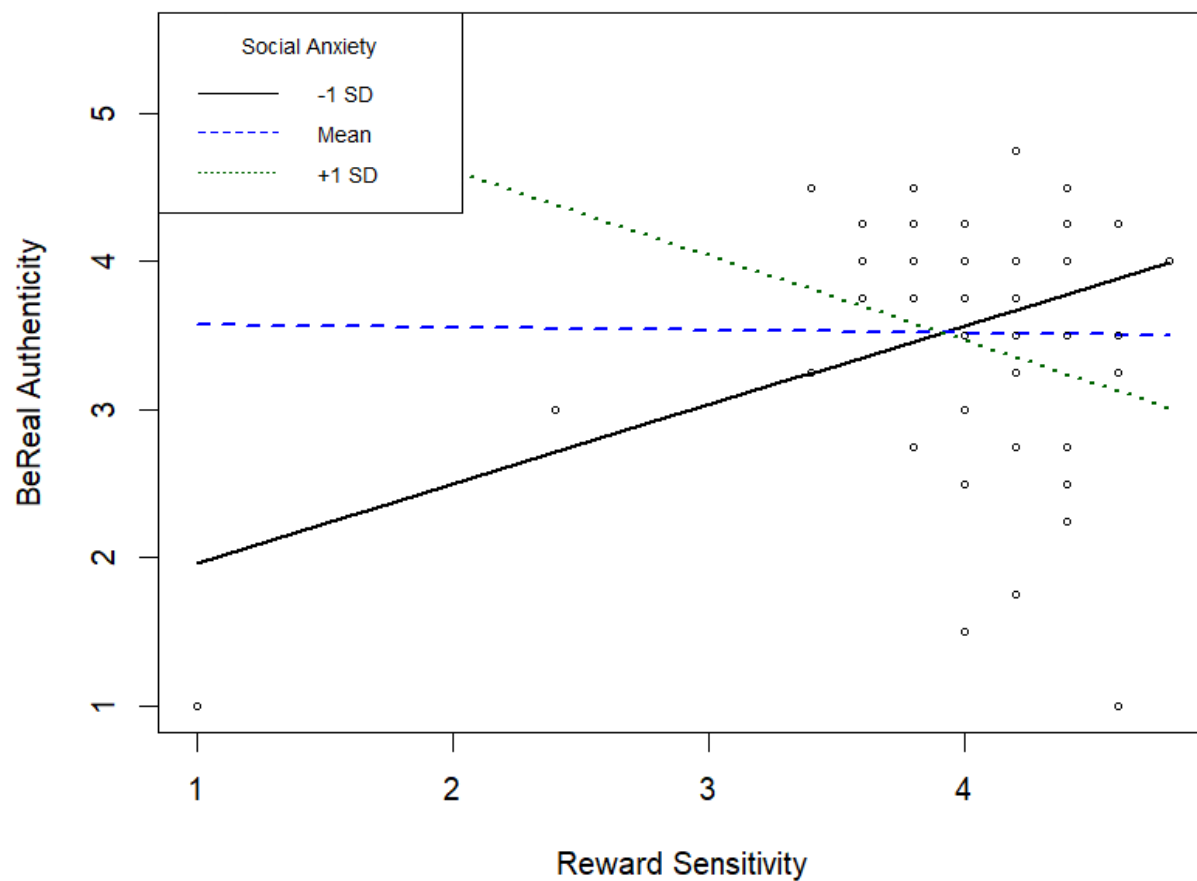
Discussion

This study examined the relationship between reward sensitivity and authenticity on the social media BeReal with the addition of social anxiety as a possible moderating factor. Having introduced multiple features to drive authenticity, BeReal opposes other social media sites, such as Instagram or Facebook. However, previous studies have shown that some users still curate and present a less authentic version of their lives on the app. By exploring the aforementioned variables, this study investigated possible underlying factors that may have had an influence on this development. Social anxiety was considered as an interacting factor, as individuals with high levels often foster a distorted image of themselves in social interactions, perceiving peer feedback to be more negative and hesitating or even avoiding to authentically engage in social interactions.

Reflection on the Results

Based on the inauthentic performance on many social medias, including BeReal, that was investigated by previous research (e.g., Highfield, 2023; Maddox, 2023; Snyder, 2023; Taylor, 2023; Vanhoffelen et al., 2023), the present study suspected a negative relationship between reward sensitivity and BeReal authenticity. Rewards, as were discussed in the introduction of this paper, were expected to be acquired through a curated performance, not through authentic posting. In addition to that, social anxiety was expected to moderate this negative relationship between reward sensitivity and BeReal authenticity in a way that it is strengthened in people that score high on social anxiety. However, analysis of the results leads to different conclusions, as a positive relationship between reward sensitivity and BeReal authenticity was established. Social anxiety did turn out to be a moderating factor, but significance was only found for low levels of the moderator which showed a positive moderation on the positive relationship. Therefore, for individuals low on social anxiety, reward sensitivity is more positively related to BeReal authenticity. In the following, these findings are further discussed in an attempt to come up with an explanation of the differences between the expectations and actual results.

As it was established by Maddox (2023), the 'perfect BeReal' is an on-time and honest insight into the life of the user. By encouraging sharing of private and mundane moments, BeReal seemingly offers the ability for the user to share their lives in a way that is different than the curated performance on other social media networks (Maddox, 2023). When looking at findings of the present study, participants might engage in authentic posting on BeReal in order to attain the reward of being a 'perfect BeRealer' and satisfy their reward

sensitivity that way. Because authenticity complies with the app's guidelines and is pursued in features integrated in the interface of the app, they deem it rewarding to comply and be authentic, possibly leading to the positive relationship between reward sensitivity and BeReal authenticity. Additionally, a significant finding by Reddy and Kumar (2024) showed that since users do not deem it possible to always post on time or to 'be real' everyday, they do not think it inauthentic to prefer sharing curated candid moments at the expense of posting on time. The participants of the present study might think similarly and might not see authenticity as following a routine of posting strictly on time but rather as sharing their lives and experiences with their friends. If correct, this suggests that authenticity on BeReal is not judged as strict and unattainable as initially expected but something that the user can feel rewarded for, giving an explanation for the positive relationship found in this study.

An interviewee in a study conducted by Reddy and Kumar (2024) voiced that they use BeReal as a form of digital diary where they are able to share insights into their lives with their friends and also see their own life develop through the 'Memories' feature. What Snyder (2023) criticized as driving inauthenticity by pressuring the user to make and portray good memories is found by Reddy and Kumar (2024) to be less influential and even enjoyable by some users. Their participants did not voice any guilt about posting late or seeing that their friends do so in order to share a more entertaining picture. Instead, they sympathized with wanting to share moments other than the mundane day-to-day life and thought it enjoyable to see what their friends are up to (Reddy & Kumar, 2024). While the opposite was initially expected, the present findings seem to support the claim of Reddy and Kumar (2024), as the positive relationship between reward sensitivity and BeReal authenticity suggests that participants view authenticity as rewarding and are therefore not as pressured by the 'Memories' feature as Snyder (2023) suggested.

In a set of student participants, Karelaia et al. (2021) showed that authenticity has positive implications for social relationships only when the individual genuinely perceives themselves to be a part of the group, finding common ground in shared opinions and norms. Then, the researchers argued, the individual feels accepted to be themselves and rewarded for showing their authentic self. As Highfield (2023) listed, the user's following on BeReal should be exclusive to one's friends, a group that one usually feels part of. Therefore, it may be assumed that on BeReal, users feel the positive influence of authenticity that Karelaia et al. (2021) found, induced by the close relationships and sense of belonging they have to the people following them.

Zillich and Riesmeyer (2021) established that behaviour on social media is highly influenced by the norms of the social groups that the individual engages in. The way of engagement and customs of the person's peer group ultimately guide the individual's behaviour. If they comply with these norms and are accepted in their peer group, this sense of acceptance acts as a rewarding force to the user, satisfying their reward sensitivity (Zillich & Riesmeyer, 2021). In today's times, authenticity is something that is becoming increasingly sought-after in the social media environment while the curated performances of many social media users is increasingly rejected (Tirocchi, 2024). In light of the present study, if the peer groups of the participants value similar norms and also act on them, participants might be compelled to follow along and be authentic in order to attain the social group membership. This leads to the conclusion that the 'Online Authenticity Paradox', introduced by Haimson et al. (2021) seems to be of less influence if the consumption of social media content, including BeReal, is increasingly inspired by authentic displays. The present findings show that a development in this direction is already happening and that users are perhaps becoming more aware and less accepting of the inauthenticity on social media. However, when social relationships are investigated, social anxiety also becomes a factor to be considered.

If an individual is high on social anxiety, their social interactions are evaluated in a more negative light. As they do not feel comfortable in social situations and are often hyper-focused on their self-presentation, they are not able to process the benefits of these interactions (Carruthers et al., 2019). Individuals who experience social anxiety often rehearse beforehand what they are going to say in conversations; a behaviour that ultimately leads to less authentic self-presentation. All these implications are not experienced by those low on social anxiety, indicating that they are more open to the benefits of social interactions and less hesitant to be authentic in their self-presentation (Carruthers et al., 2019). As the present findings have shown, social anxiety significantly moderates the positive relationship of reward sensitivity and BeReal authenticity at low levels of the moderator, supporting the findings of Carruthers et al. (2019). If the user is not inhibited in their engagement by social anxiety, they are more able to fully perceive the benefits of authenticity and feel rewarded for it, leading to the confirmed positive effect.

In another, earlier, round of interviews conducted by Reddy and Kumar (2023), it was revealed that the opinions about BeReal and its drive for authenticity differ. Some interviewees argue that they enjoy the daily glimpses into their friends' lives, while others criticize whether the extent to which BeReal urges the user to 'be real' is really something that should be openly shared online. Considering the findings of the present study as well as

the prior studies presented in this work, it has to be said that the concept of authenticity might be perceived differently across BeReal's users. If posting late or re-taking a BeReal is not perceived as inauthentic, the user does not experience their behaviour as inauthentic, even though other users might deem it so (Reddy & Kumar, 2024). How the participants of this study experience and live authenticity might therefore show dissimilarities if analysed, a notion that should be considered when interpreting the findings.

Strengths and Limitations

The findings of the present study are to be interpreted in the light of multiple limitations and strengths. Firstly, the participant number of 54 is quite limited. Due to the strict inclusion criteria of being an active user or having used the app in the past six months, many people were not suitable for participation. A limited number of participants makes the results less reliable and generalizable to the wider population even when relying on statistical methods to outweigh the disadvantages. One reason for the limited participant pool could be that while BeReal has 23 million active users, over 40% of them are located in the U.S., with the Netherlands and Germany, the primary home countries of the participants, only contributing a small fraction to the total number of users (Sheperd, 2024). In addition, most of the participants were recruited through snowball sampling or direct request of the researcher. The SONA system only reached a small number of participants. Henceforth, the findings of the present study might not be fully applicable to the wider population of BeReal users and need to be considered in regard to their limited sampling pool.

Another limitation evident in this study is the usage of self-report measurements. Even though users have claimed their BeReal engagement as authentic, it is not possible to prove that it actually is. As Maddox (2023) states in the limitations of her study, working with focus groups or conducting interviews might be a suitable alternative to establishing the authenticity of online engagement. Brenner and DeLamater (2016) have shown that even in anonymous self-reporting measures, participants tend to choose the answer that is most socially desirable and most likely to portray an idealized self-presentation. In case of the present study, participants might have rated their authenticity differently because they did not wish to confess the opposite.

The cross-sectional study design employed for this study measures a person's state or opinion at only one point in time. Therefore, it does not offer insight into any longtime developments or changes. As Chirico (2023) argues, this prevents the researcher from making any deductions about the causality of the findings, as not enough information is available to

make definite conclusions about the direction of the relationship that was investigated. This characteristic of one-time measurement is another limitation that needs to be considered when interpreting the findings of this study.

A strength that can be named in favour of this study's methodology is the usage of well-established and reliable scales. As stated prior in this article, the researcher's own analysis as well as other sources show good scores for Cronbach's alpha. A reliable study design has shown to deliver results that are more likely to remain similar over time, therefore contributing to a more constructive interpretation of the results (Sürücü & Maslakci, 2020).

Conclusion

This study contributes to the relatively novel research into the social media BeReal. Existent studies have investigated the prominent aspect of authenticity of BeReal but the connection to reward sensitivity as well as social anxiety has not been made previously. Future studies could benefit from working with a bigger and more inclusive sample in order to validate the findings' connections between the variables and make them more generalizable to the wider population of BeReal users. In addition, using a longitudinal study design would enable testing of causality. This might reveal more concrete findings and show the direction of the established relationship as well as give more insight into the users' actual posting habits and their authenticity. The significant moderation effect has not only shown the influence of low social anxiety on BeReal authenticity, but also suggests that high social anxiety might prevent the individual not only from interacting authentically in social interactions, but also from experiencing their benefits and rewards that could satisfy the individual's reward sensitivity. In conclusion, the present study has shown how social anxiety can influence one's BeReal engagement and reward sensitivity, delineating specifically how individuals experiencing low social anxiety can feel rewarded in their authenticity, thereby giving insights into the much-discussed dynamics of authenticity on the social media BeReal.

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Appendix A

Figure A1

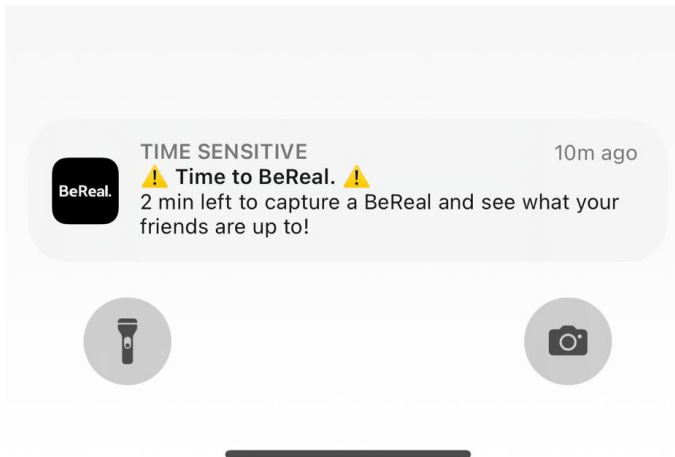*The Daily Notification of BeReal Users*

Figure A2
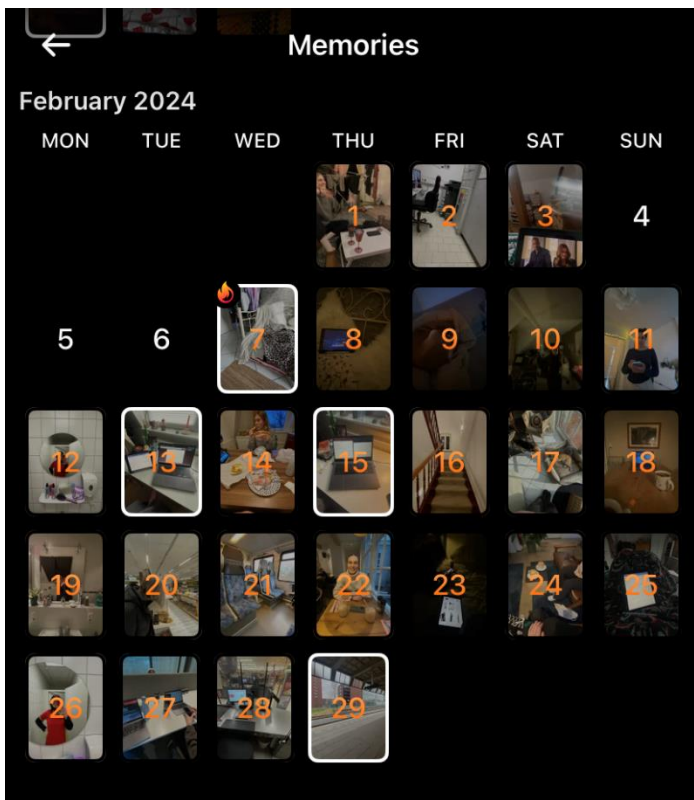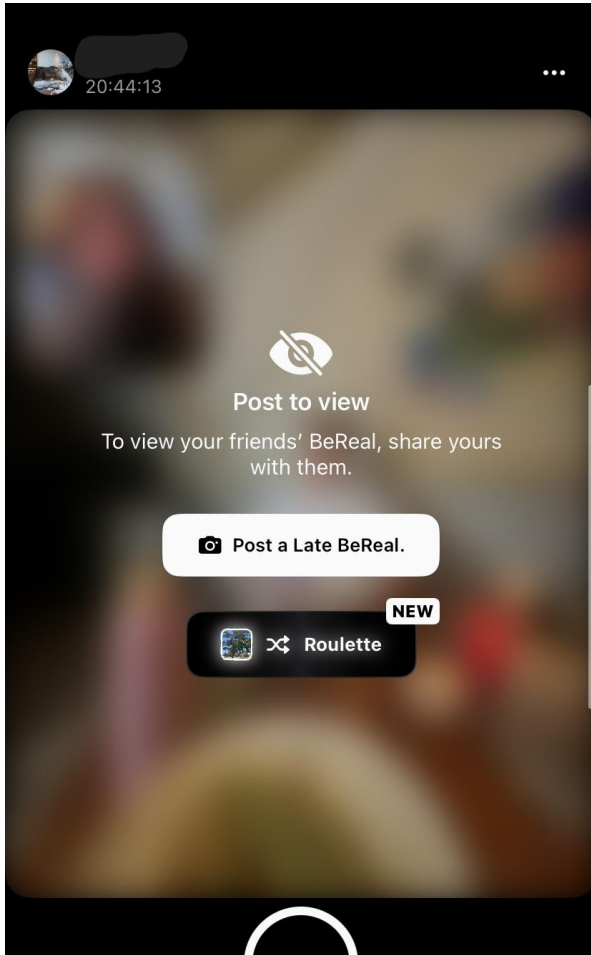
Example of the Memories Feature

Figure A3

Example of the User's Feed Before Posting a Late BeReal

Appendix B

Informed Consent and Information Given to the Participant

Welcome!

This is a research study on authentic self-presentation on the social media BeReal. The collected data will be used for a bachelor's thesis investigating the relationship between reward sensitivity, authenticity on BeReal and social anxiety.

Please refrain from participation if you have been diagnosed with a social anxiety disorder. By participating in this study, you consent to giving information on the listed topics of this research. All data will be anonymized and cannot be tracked back to your identity. The anonymized data might be used for future research and is therefore stored in the survey database. Participation in this study is voluntary and takes approximately 10 minutes. If you experience any discomfort while taking part in this survey, you are able to withdraw at any time without further consequences.

For further questions or information, please contact the researcher Jana Krawinkel (j.s.krawinkel@student.utwente.nl) or the supervisor Martha Kreuzberg (m.s.kreuzberg@utwente.nl).

Appendix C

Items of the BeReal Authenticity Scale

Please indicate how often you engage in the following behaviours when using BeReal.

1. My posts on BeReal are sincere.

2. When I receive a notification to post on BeReal, I check if I am looking fine before I take a picture.

3. I retake a picture before I post it on BeReal.

4. I feel like my profile on BeReal is a good representation of my real life.

5. I feel like my profile on BeReal is a good representation of who I really am.

6. I feel like I can better show who I really am on BeReal than other social media

7. When I receive a notification to post on BeReal, I try to look like I am doing something interesting.

8. When I receive a notification to post on BeReal, I wait until another event later in the day to take a picture.

Items of the BAI Scales

Please indicate how much you agree or disagree with the following statements.

1. Even if something bad is about to happen to me, I rarely experience fear or nervousness.

2. I go out of my way to get things I want.

3. When I am doing well at something, I love to keep at it.

4. I am always willing to try something new if I think it will be fun.

5. When I get something I want, I feel excited and energized.

6. Criticism or scolding hurts me quite a bit.

7. When I want something, I usually go all-out to get it.

8. I will often do things for no other reason than that they might be fun.

9. If I see a chance to get something I want, I move on it right away.

10. I feel pretty worried or upset when I think or know somebody is angry at me.

11. When I see an opportunity for something I like, I get excited right away.

12. I often act on the spur of the moment.

13. If I think something unpleasant is going to happen, I usually get pretty "worked up".

14. When good things happen to me, it affects me strongly.

15. I feel worried when I think I have done poorly at something.

16. I crave excitement and new sensations.

17. When I go after something, I use a "no holds barred" approach.

18. I have very few fears compared to my friends.

19. It would excite me to win a contest.

20. I worry about making mistakes.

Items of the Liebowitz Social Anxiety Scale

Please indicate your experience with the following situations over the past week.

1. Using a telephone in public

2. Participating in a small group activity

3. Eating in public

4. Drinking with others

5. Talking to someone in authority

6. Acting, performing or speaking in front of an audience

7. Going to a party

8. Working while being observed

9. Calling someone you don't know very well

10. Talking face to face with someone you don't know very well

11. Meeting strangers

12. Urinating in a public bathroom

13. Entering a room when others are already seated

14. Being the center of attention

15. Speaking up at a meeting

16. Taking a test of your ability, skill or knowledge

17. Expressing disagreement or disapproval to someone you don't know very well

18. Looking someone who you don't know very well straight in the eyes

19. Giving a prepared oral talk to a group

20. Trying to make someone's acquaintance for the purpose of a romantic/sexual relationship

21. Returning goods to a store for a refund

22. Giving a party

23. Resisting a high pressure sales person

Appendix D

Statistical Assumptions

      Firstly, the assumption of normality was investigated using the Shapiro-Wilk normality test. Testing the normality of the reward sensitivity data revealed a rejection of the null-hypothesis ($W=.72$, $p= 7.609e-09$), indicating that the values are likely not normally distributed. The same conclusion can be drawn when investigating BeReal authenticity ($W=.89$, $p= .000$). However, Social Anxiety showed to be normally distributed ($W=.96$, $p=.171$) and is therefore the only variable that does not reject the assumption of normality. In order to investigate the assumption of linearity and homoscedasticity, a residual plot was conducted which can also be seen in Figure D1. Judging from this distribution, it can be clearly concluded that the residuals are neither linear nor constant across different levels of the independent variable. Lastly, the assumption of independence was investigated using the Durbin-Watson test. The results rejected the null-hypothesis ($DW=1.46$, $p=.021$), and therefore accepting the alternative hypothesis stating that correlation is possible. Therefore, the assumption of independence was violated.

Figure D1

Residual Plot of Reward Sensitivity, BeReal Authenticity and Social Anxiety