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BeReal, Be Happy? Examining the Relationships Between Authentic Self-Presentations on BeReal and Adolescents' Self-Esteem

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Abstract

Unlike most social media, the new platform BeReal encourages users to present an authentic self. Since such self-presentations are assumed to have positive effects, this study examined whether adolescents' authentic self-presentations on BeReal relate to a higher self-esteem and whether self-concept clarity plays a role in that relationship. The relationships between *exposure* to perceived authentic self-presentations of others, social comparison on BeReal, and self-esteem were also explored. Of the 367 adolescents who participated in our cross-sectional survey, a total of 148 (40.33%, M_{age}=16.23, SD_{age}=1.46; 82.4% girls) had an account on BeReal. Using SEM, we found that these adolescents' authentic self-presentations were not significantly related to their self-concept clarity nor indirectly to their self-esteem. Self-esteem and self-concept clarity were, however, positively correlated. Regarding exposure to others' content on BeReal, only upward and downward social comparisons on these platforms were significantly related to a lower and higher self-esteem, respectively.

Keywords: authentic self-presentation, self-esteem, social comparison processes, self-concept clarity, BeReal, structural equation modeling, cross-sectional survey, affordances

BeReal, Be Happy? Examining the Relationships Between Authentic Self-Presentations on BeReal and Adolescents' Self-Esteem

The BeReal-app, although already created in 2020, has been growing exponentially in popularity among adolescents since the beginning of 2022 (Imec, 2022). Every day at a different time, the app simultaneously prompts its users to make a post, using both their smartphones' front and back camera. The designers of the BeReal-application describe this new type of social media posting as "uncontrollable media sharing" (Perreau, n.d.), intended to convey authentic self-presentations of one's life (Perreau, n.d.).

Presenting oneself authentically on BeReal is facilitated by the specific affordances of this new application. With affordances we refer to the mutual interplay of actions that emerge between the features of a certain technology and its users (Treem and Leonardi, 2013). Through this perspective, there are a number of ways in which BeReal can be distinguished from other platforms. First, in terms of visibility, the BeReal app does not allow followers but only friends with reciprocal acceptance (Mileva, 2022). Most users thus carefully select who they add as friends on the app and, consequently, who can see their shared pictures. Moreover, BeReal posts are only visible to friends on the condition that they also post a picture. These features therefore not only yield a reduction in the visibility of content, but may concurrently motivate others to take more spontaneous, authentic pictures in order to see their friends' posts. This latter tendency taps into a second central affordance of BeReal, namely its limited editability. Specifically, the absence of editing tools and the randomized timing of the notification to post a picture restricts users' possibilities to present themselves in an idealized way. Although BeReal users can engage in practices that decrease the level of authenticity (e.g., users can make multiple attempts or delay their posting time to get the "best" photo; Perreau, 2022), the platform will flag these actions, making friends aware of the number of attempts or time of delay. Nevertheless, BeReal generally distinguishes itself from

other social networking sites ("SNS") by the lack of the ability to pre-curate and edit content, facilitating transparency and authenticity. Third, pictures posted on BeReal are ephemeral, meaning that each picture disappears when the new BeReal-notification arrives. A picture posted on BeReal therefore has a maximum display duration of a day - affording only limited persistence (Mileva, 2022). Finally, there are no such things as likes within the app, instead there is a feature called "RealMoji", i.e., a selfie of a user's facial expression used to react to someone else's BeReal-picture (Mileva, 2022). Thus, although BeReal offers the possibility to give and receive social feedback on posts, this feedback is less visibly present in comparison to other social media apps[1].

In sum, these specific affordances prompt users to present themselves more authentically on BeReal than on other platforms. Given this focus on authentic rather than idealized content, BeReal presents an interesting case to deepen our understanding of how (authentic) social media use is related to adolescents' well-being. To date, however, no research exists on the uses and consequences of this new platform among adolescents. Moreover, since prior work has shown that both self- and exposure effects are critical to our understanding of social media practices (Vogel and Rose, 2016), we will include both aspects in our study. As such, the current paper will examine if authentic self-presentations on BeReal are related to greater self-concept clarity and subsequent higher self-esteem among adolescents. In addition, we will explore BeReal users' tendency to engage in social comparison (i.e., upward, downward and/or lateral) with others' authentic content in relation to their self-esteem. The current study thereby aims to shed further light on the ways in which social media platforms may be related to users' self-esteem, and on the mechanisms underlying these processes.

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[1] Features are described based on their state at the time the study was conducted (i.e., Summer 2022). The subsequent updates of the platform were thus not taken into account this study. For instance, in April 2023 the platform added the feature of taking multiple photos if the first one was taken within the two-minute time window, which might also influence the level of authenticity on BeReal.

Authentic Self-Presentation

Previous research has identified self-presentation as a fundamental social process that is central to our understanding of the effects of using SNS (e.g., Vogel and Rose, 2016). Self-presentation can be defined as "the process of communicating one's own image to others" (Yang et al., 2017, p. 212) and thereby plays an important role in the way individuals construct their self-concept (Goffman, 1959). Recent years have seen social media become increasingly important platforms for self-presentation practices (Meeus et al., 2019). Traditionally, these online platforms have been well-suited for *strategic* forms of self-presentation where users can not only carefully select the self-aspects they want others to see, but can also edit this content with the use of filters or other editing tools (Schreurs and Vandenbosch, 2022). Studies have shown that this increased selective attention to the articulation of one's own self-image online can incite identity-related changes as individuals come to view the self in line with the presented traits (Carr et al., 2021). According to this body of work, the heightened selectivity within online self-presentation takes up greater cognitive resources, concurrently exposing individuals to their own self-content (e.g., Carr et al., 2021). Through these observations of one's own representations, then, a change may occur in (the salience of) the beliefs or attitudes one holds towards the self (Gonzales and Hancock, 2011).

As a result of the idealized scope that is often present on social media (commonly referred to as the "positivity bias" in social media; Schreurs and Vandenbosch, 2022), online self-presentation practices tend to remind users mostly about their own favorable features, which can result in an increased self-esteem (Gonzales and Hancock, 2011; Vogel and Rose, 2016). Confirmatory social feedback, often highly visible and quantifiable in the form of cues such as likes and comments, further validate the presented positive traits, thereby reinforcing

their integration into individuals' self-concept (Carr and Hayes, 2019; Meeus et al., 2019; Vogel and Rose, 2016).

Studies do suggest, however, that self-presentations should be authentic for these transformative processes to occur. Self-presentations only become integrated into one's self-concept when the individual feels connected to their self-presentation (Carr et al., 2021). Authentic self-presentation encompasses elements that are perceived to be true to oneself and represent the "real me" (Reinecke and Trepte, 2014). In this sense, BeReal could provide a particularly valuable platform for SNS users to engage in authentic self-presentation. Given that authentic self-presentation is consistently associated with increased self-esteem (Twomey and O'Reilly, 2017), we expect authentic self-presentation practices on BeReal to positively relate to users' self-esteem:

H1.a: The extent to which adolescents present themselves authentically on BeReal is positively associated with their self-esteem.

At the same time, online self-presentation can also constitute a tool to explore different self-aspects and gauge others' feedback to these representations (Fullwood et al., 2016). In this way, social media use may lead to a more clearly defined self-concept as different identity elements are being constructed and presented to the online audience (Subrahmanyam and Šmahel, 2011). Self-concept clarity, or "the extent to which self-beliefs are clearly and confidently defined, internally consistent, and stable" (Campbell et al., 1996, p. 141) has in turn been linked to greater psychological well-being and a higher self-esteem (Wong et al., 2016). Indeed, those with a lower self-concept clarity typically hold self-beliefs that are more inconsistent and instable whereas positive, clearly-articulated views about the self are associated with a higher self-esteem (Campbell et al., 1996). We therefore expect authentic self-presentation on BeReal to positively relate to users' self-concept clarity, and subsequently, their self-esteem:

H1.b: The extent to which adolescents present themselves authentically on BeReal is positively associated with their self-concept clarity.

H1.c: The extent to which adolescents have a clearer self-concept is positively associated with their self-esteem.

Finally, this study aims to examine the role of social feedback in these dynamics. BeReal provides the option to leave positive feedback in the form of comments or RealMoji's to individual posts. Although there is always the possibility that people misuse these forms of feedback, prior content analyses revealed that most feedback on adolescents' SNS is primarily positive, with only a small fraction receiving occasional instances of negative feedback (Koutamanis et al., 2015). Hence, in accordance with the outlined rationale, we predict that feedback on BeReal will strengthen the association between self-presentation and self-esteem:

H1.d: The positive association between adolescents' authentic self-presentations on BeReal and self-esteem is stronger when they receive confirmatory feedback on their self-presentations.

Exposure to Others' Authentic Self-Presentations

Adolescents do not only post authentic self-presentations on BeReal, they also get exposed to authentic fragments of their peers' lives. A substantial amount of studies has researched whether and how exposure to peers' social media self-presentations impacts well-being and self-esteem (e.g., Alfasi, 2019; Sherlock and Wagstaff, 2019). Here, the main reasoning is that seeing others excel in a wide variety of life domains such as appearance, hobbies, school, and social life triggers harmful comparison processes (e.g., Schreurs and Vandenbosch, 2022). This reasoning seems to hold for social media apps such as Instagram that elicit very strategically and meticulously created self-presentations, in which users foreground idealized aspects of their lives (Sherlock and Wagstaff, 2019). Empirical research

has indeed found that exposure to such idealized social media content may result in negative outcomes such as lowered body satisfaction, lower self-esteem and worse mood (e.g., Kleemans et al., 2018; Midgley et al., 2021).

However, the affordances of the BeReal app explicitly try to combat idealized self-presentation practices (Mileva, 2022). Therefore, peers' posted content should represent more authentic aspects of their life. Following the tenets of social comparison theory (Festinger, 1954), exposure to authentic content of others may likewise trigger comparison processes. Social comparison theory postulates that people have a fundamental drive to self-evaluate, and do so by engaging in upward (i.e., comparing oneself with someone who seems better off), downward (i.e., comparing oneself with someone who seems worse off) or lateral social comparisons (i.e., comparing oneself with someone who is essentially doing the same). As peers' posts on social media are ideal resources to retrieve self-evaluative information, social comparisons are very likely when being exposed to such posts to determine one's own social and personal worth (Sherlock and Wagstaff, 2019). While idealized social media content of peers mainly triggers upward social comparisons in this respect, authentic content can take many forms and therefore trigger all three different comparison types.

First, upward social comparisons can take place when being exposed to authentic posts on BeReal since positive forms of authenticity are often favored in social media self-presentations (Reinecke and Trepte, 2014). That is, posting content on BeReal can still be experienced as a self-presentation act whereby users may aim to convey a best, yet authentic, version of the self (e.g., by retaking a picture several times before posting it on BeReal). Compared to other social media platforms such as Instagram, such strategic self-presentation efforts are limited on BeReal, yet still possible to a certain extent. Upward comparisons on social media have been considered for a long time as harmful for self-esteem and well-being through feelings of envy (Meier and Johnson, 2022). Yet, more recent research found that

such comparisons can also be positive through feelings of inspiration (Meier and Schäfer, 2018). It is unclear though how upward comparisons with authentic content on platforms like BeReal relate to adolescents' self-esteem.

Conversely, it is also possible that users perceive others, through their online self-presentations, to score lower than themselves on a certain criterium (e.g., life in general, popularity, appearance). This situation is most likely to occur when the authentic content posted on BeReal is negatively valenced. On BeReal, users predominantly have a private account and only add a selective group of friends or peers to share their posts with. Among exclusively friends, users are potentially less inclined to engage in positive impression management and may even be vulnerable in their posts to seek social support (Xiao et al., 2020). Such use of BeReal would be similar to the use of Finstagram, which is a less mainstream use of the Instagram app in which adolescents create a second account to share content with a group of friends only (Venema, 2018). Content shared on this second account is typically unstaged, more intimate and thus more "real", and might therefore also represent negative forms of authenticity, such as posts in which the adolescent looks sad, silly, ugly, vulnerable or experiences difficulties (Venema, 2018; Xiao et al., 2020).

Since the seemingly similar comparison target may seem worse off than the self in such negatively valenced authentic content on BeReal, downward social comparisons could potentially be triggered (Smith, 2000). Such comparisons can be positive for self-esteem as the comparison may result in superiority feelings, yet it can also evoke the belief that one can end up in a similar unfortunate situation or experience a similar vulnerable state (Smith, 2000). This may pose a threat to one's self-concept and thus affect adolescents' self-esteem (Lockwood, 2002). While such downward comparisons have indeed been found to occur on Instagram (Noon et al., 2022), most research efforts have been directed toward upward

comparisons, which are believed to occur more frequently due to the positivity bias on social media apps (Verduyn et al., 2020).

Finally, users can also perceive others to be equally successful, popular or pretty on BeReal and therefore engage in lateral social comparison processes. That is, since users are nudged to post a picture within the randomly determined two minute window, the content posted on BeReal can also represent a very neutral and mundane form of authenticity (e.g., watching TV or being at school). Accordingly, most posted pictures probably do not broadcast a very noteworthy or interesting event, in contrast to other social media content characterized by the positivity bias (e.g., Schreurs and Vandenbosch, 2022). Many individuals can recognize themselves in such neutral content, which makes the comparison target neither better nor worse off than the self, and instead triggers lateral social comparison processes (Buunk and Gibbons, 2007). It remains, however, still unclear how this comparison process relates to the self and no research has, to the best of our knowledge, examined the occurrence of this comparison type within the context of authentic social media content specifically.

Taken together, existing literature on social comparisons on social media may not hold for the relatively new BeReal platform, as its design explicitly aims to challenge the arguably dominant social media trend of presenting the best possible self to others (Verduyn et al., 2020). The current study will therefore investigate the following research questions:

RQ1: How is adolescents' perceived exposure to authentic self-presentations of others on BeReal related to their self-esteem?

RQ2: How is adolescents' perceived exposure to authentic self-presentations of others on BeReal related to upward, downward and lateral social comparison processes?

RQ3: How are upward, downward and lateral social comparison processes related to adolescents' self-esteem?

Methods

Participants and Procedure

The current cross-sectional study is part of a larger European project[2] for which ethical approval was received from [blinded]. Active and passive parental consent was obtained for participants younger than 16 years old and participants who were 16 or older, respectively. A total of 367 adolescents of seven [blinded] schools completed the online survey during the period of July – September 2022. Every participant who fully completed the survey received a gift voucher of €15. Participants who reported that they did not have an account on BeReal (n=216) or failed the survey's attention check (n=3) were excluded from the main analyses. As such, the final sample of BeReal users included 148 adolescents (82.4% girls) aged between 13 and 20 years old (M=16.23, SD=1.46). Note that only 2 respondents were above 18 years old. Adolescents used BeReal on average more than three to four times a week, and had on average 30 friends (M=29.80, SD=22.67) from whom they considered only three to four persons as close friends in real life (M=3.46, SD=1.21). The majority of BeReal-users received a general education (91.9%) and had a West-European ethnical background (92.6%). Almost half (45.5%) of the fathers and 43.4% of the mothers of these adolescents had a university degree.

Next, it was explored if the missing data were random. Little's MCAR test indicated that the data are completely at random y ($\chi^2(77)=77.05$, $p>.05$). Full Information Maximum Likelihood (FIML) estimator was used to account for the missing data.

Measures

[2] The larger project focuses on the interrelations between adolescents' (social) media use and their well-being. Since a multitude of research objectives are addressed in this project, a diverse range of methods are being used. This study was part of the three-wave intercultural longitudinal panel study with a four month time interval targeted at a population of [nationalities blinded] adolescents (12 to 18 years old). The current study only involves the data of the third survey among [country blinded] adolescents as only the adolescents of this country were asked about their BeReal use. It has thus a cross-sectional research design.

Socio-Demographics. Age (2022–birth year) and gender (=boy, 2=girl, 3=other) were included as control variables.

Authentic Self-Presentations on BeReal. Eight self-developed items assessed the extent to which adolescents present themselves authentically on BeReal (see Appendix A). Respondents were asked to indicate (from 1=never to 5=very often) how often these statements applied to their BeReal use. A principal component analysis (PCA) with oblimin rotation (*KMO*=.73, $p<.001$) indicated the existence of a two-factor solution. The first factor included four items measuring participants' perceived authenticity of their self-presentations on BeReal (initial eigenvalue=2.93, explained variance=36.61%, ω=.83) which were averaged into a new variable. The second factor included the other four items measuring participants' engagement in unauthentic practices when posting on BeReal (initial eigenvalue=1.88, explained variance=23.53%, ω=.68), which were also averaged into a new variable.

Perceived Exposure to Authentic Self-Presentations of Others on BeReal. Five self-developed items assessed the extent (from 1=never to 5=very often) to which adolescents perceive to be exposed to authentic self-presentations of others on BeReal (see Appendix A). A PCA with oblimin rotation (*KMO*=.73, $p<.001$) indicated the existence of a two-factor solution. The first factor included four items measuring participants' perceived exposure to authentic self-presentations of others (initial eigenvalue=2.60, explained variance=51.95%, ω=.82) which were averaged into a new variable. Only one item (i.e., item 2: "My friends/connections take a new picture (retake) before they post it on BeReal") did not load on the first factor and was removed. This feature is slightly hidden on BeReal, so most participants had potentially not seen this before and could not answer the question correctly.

Self-Concept Clarity. The item assessing self-concept clarity was based on the single-item measure of Schwartz and colleagues (2011) and asked respondents to indicate the

extent to which they agree or disagree with the statement "I have a clear picture of who and what I am". Answer options ranged on a 5-point Likert scale (from 1=strongly disagree to 5=strongly agree).

Self-Esteem. Self-esteem was measured with one item: "I have high self-esteem" based on Robins and colleagues' scale (2001) and was evaluated on a 5-point Likert scale (ranging from 1=Not at all like you to 5=Totally like you).

Confirmatory Feedback on BeReal. This self-developed scale inquired respondents about how often (from 1=never to 5=very often) confirmatory feedback on their BeReal posts (see Appendix A). The scores of the 2 items were averaged into a new variable. Both items were significantly positively correlated (r=.60, p<.001).

Social Comparison on BeReal. This scale was based on the Social Comparison Scale of Noon and colleagues (2022). Respondents were asked to indicate how often (from 1=never to 5=very often) nine statements (i.e., three statements for upward, downward and lateral comparisons) regarding their life in general, popularity and appearance applied to their BeReal use (see Appendix A). A PCA with oblimin rotation was performed for each comparison scale. A one-factor solution for each social comparison process was confirmed: upward (*KMO*=.69, p<.001, initial eigenvalue=2.22, explained variance=74.15%, ω=.82), downward (*KMO*=.73, p<.001, initial eigenvalue=2.36, explained variance=78.63%, ω=.86), and lateral (*KMO*=.69, p<.001, initial eigenvalue=2.47, explained variance=82.21%, ω=.89). Items were averaged into three respective scales.

General Social Media Use. To measure respondents' general social media use, they were asked how much time they spent using social media on a typical day during the past 4 months. They could indicate the total number of hours with answer options ranging from 0 hours to 24 hours with a 30 minutes increase (i.e., 0h., 0h.30min., 1h. …).

Analytical Strategy

Descriptive statistics and zero-order correlations were calculated. To test our hypotheses and explore our research questions, two structural models were constructed using Structural Equation Modeling in Mplus (version 8.8, Muthén and Muthén, 2022).

A first model was constructed for adolescents' authentic self-presentations on BeReal (H1a–H1.d). Because the PCA indicated a two-factor structure (i.e., one factor for adolescents' perceived authentic behavior and one for engagement in unauthentic practices), we entered both factors as separate independent variables in the structural model. Next, self-esteem was entered as a manifest dependent variable and self-concept clarity as a manifest mediating variable. Age and gender were entered as control variables by modeling predictive paths to the factors of authentic self-presentations on BeReal, self-esteem and self-concept clarity. Covariances between the two factors of authentic self-presentations on BeReal were also estimated.

To test the moderating role of confirmatory feedback on BeReal, a categorical variable was created in order to conduct a multiple group test. Participants with a score equal or lower than the median value (i.e., 3) were assigned to the category of low perceived confirmatory feedback while those with a higher score were assigned to the category of high perceived confirmatory feedback. Afterwards, a $\chi 2$-difference test was performed. More precisely, an unconstrained multigroup model (the path of authentic self-presentations on BeReal to self-esteem is set to be different across the two different levels of confirmatory feedback) was compared to a constrained multigroup model (the path of authentic self-presentations on BeReal to self-esteem is specified to be the same across the groups of low and high confirmatory feedback).

For the second model (RQ1–RQ2), perceived exposure to authentic self-presentations of others on BeReal was entered as a latent predicting variable and self-esteem as a manifest dependent variable. The three factors for the three different social comparison processes (i.e.,

upward, downward and lateral) were entered as latent parallel mediators. Age and gender were included as control variables and were modeled to predict perceived exposure to authentic self-presentations on BeReal, self-esteem, upward-, downward- and lateral social comparisons on BeReal. Error terms of the item pairs of the upward, downward and lateral social comparison scales were covaried since the comparison criteria (i.e., comparison of life, friends and appearance) in each set of comparison items were similar for the three comparison processes.

Model fit for both models was evaluated as follows: $\chi^2/df<3.00$, CFI>=.90, TLI>=.90, RMSEA<=.08, 90% CI for RMSEA upper limit<=.10, and SRMR<=.08 (West et al., 2012). The significance of the examined pathways was assessed with the p-value (significant if <.05) and 95% bias-corrected bootstrapped confidence intervals (significant if the interval does not contain 0). Hypotheses and the analysis plan were preregistered on OSF where the analytical sample and the syntaxes can be found as well.

Results

Descriptives

Table 1 (see Appendix B) shows the zero-order correlations, means, and standard deviations for all variables. Authentic and unauthentic self-presentations on BeReal had a weak negative association (r=-.21, p=.01), meaning that adolescents who perceive to present themselves authentically on BeReal also engage less in unauthentic self-presentation practices (e.g., retaking a picture). Adolescents who perceive their own self-presentations on BeReal as authentic, also tend to perceive the self-presentations of their connections as authentic (r=.65, p<.001). Finally, of all predicting variables, only upward social comparison was significantly related to self-esteem (r=-.47, p<.001).

Preliminary analyses

In order to get a more comprehensive view on the population of BeReal-users, preliminary analyses were conducted to explore if and how BeReal-users differed from non-users regarding the main variables of this study, their demographics, and their general social media use. For these analyses, all participants (i.e., BeReal-users and non-users) who succeeded the attention check and completed the items of the variables of these preliminary analyses were included.

First, a one-way MANOVA was conducted to determine whether there is a difference between users and non-users of BeReal regarding their self-concept clarity, self-esteem, age, and general social media use. There were significant multivariate effects of having a BeReal-account on the four variables $F(4,333)=4.00$, $p<.001$; *Wilk's lambda*=.01, *partial η2*=.99. An examination of the univariate analyses of using BeReal showed a significant effect on self-concept-clarity ($F(1,336)=4.24$, $p=.03$, *partial η2*=.01) and self-esteem ($F(1,336)=5.73$, $p=.02$, *partial η2*=.02). BeReal-users have on average a lower self-concept clarity ($M=3.17$, $SD=.08$) and a lower self-esteem ($M=2.98$, $SD=.08$) than adolescents who do not use BeReal (self-concept clarity: $M=3.40$, $SD=.07$; self-esteem: $M=3.24$, $SD=.07$). Another significant difference was found regarding users and non-users' general social media use ($F(1,336)=39.29$, $p<.001$, *partial η2*=.05) with BeReal-users spending significantly more time on social media in general ($M=2.74$, $SD=.12$) than non-users ($M=2.05$, $SD=.11$). The univariate analyses for the main effect of using BeReal on age did not show a significant effect, $F(1,336)=1.29$, $p=.44$, *partial η2*=.002. BeReal-users ($M=16.23$, $SD=.12$) and non-users ($M=16.11$, $SD=.11$) thus did not differ regarding their age.

Next, a Chi²-test was conducted to test whether having a BeReal-account is unrelated to one's gender and educational track. Given the small sample size, some categories were taken together (i.e., all educational paths which are not general) or considered as missings (i.e., non-binary or missing genders) in order to have larger categories which is necessary to

conduct this test. For educational track, the resulting categories were general educational pathway (*n*=301) and other educational pathways (such as technical, professional, art, other; *n*=37). For gender, boys (*n*=115) were compared to girls (*n*=217). No significant relationship was found between having a BeReal-account and educational track ((*X*²(1)=2.18, *p*=.14). Gender did, however, significantly relate to having a BeReal-account ((*X*²(1)=36.22, *p*<.001). Girls were more likely to have a BeReal-account than boys.

Model 1

Figure 1 displays the results of the first model regarding the association between the two factors of adolescents' authentic self-presentations on BeReal and self-esteem via self-concept clarity. Model fit indices indicated that the model fit the data moderately ($\chi^2(43)=78.75$, $p<.001$, $\chi^2/df=1.83$, RMSEA=.08 (90% CI: .05/.10), CFI=.91, TLI=.87, SRMR=.07). Results showed that the two factors of authentic self-presentations on BeReal were not significantly associated with self-esteem (authentic self-presentation: β=.11, *SE*=.09, *p*=.22, 95% CI [.06/.28]; unauthentic self-presentation: β=-.01, *SE*=.10, *p*=.91, 95% CI [-.21/.19]) nor with self-concept clarity (authentic self-presentation: β=.12, *SE*=.09, *p*=.20, 95% CI [-.06/.30]; unauthentic self-presentation: β=-.08, *SE*=.11, *p*=.43, 95% CI [-.29/.19]), thus rejecting respectively H1.a and H1.b. Self-concept clarity was significantly positively associated with self-esteem, meaning that adolescents who have a clearer self-concept also have a higher self-esteem (β=.21, *SE*=.08, *p*=.01, 95% CI [.06/.36]), supporting H1.c. A $\chi 2$ difference test demonstrated that the fit of the unconstrained model ($\chi^2_u(98)=150.88$, $p<.001$) did not significantly differ from the constrained model ($\chi_c^2(100)=152.30$, $p<.001$) ($\Delta\chi^2(2)=1.5$, *p*=.47). Thus, no moderating effect was found for confirmatory feedback and H1.d was rejected.

[Figure 1 here]

Model 2

Next, a second structural model was constructed for adolescents' perceived exposure to others' authentic self-presentations. Model fit indices showed a good fit between the theorized model and observed data ($\chi^2(77)=143.80$, $p<.001$, $\chi^2/df=1.87$, RMSEA=.08 (90% CI: .06/.10), CFI=.95, TLI=.92, SRMR=.06). Results are displayed in Figure 2. No significant relations were found between exposure to perceived authentic self-presentations of others on BeReal and adolescents' self-esteem (β=-.05, *SE*=.08, p=.49, 95% CI [-.21/.10]) (RQ1.a). As for our second research question (RQ1.b), none of the relations between perceived exposure to authentic self-presentations on BeReal and the three social comparison processes on BeReal were significant (upward: β=-.05, *SE*=.10, p=.59, 95% CI [-.24/.14]; downward: β=-.05, *SE*=.10, p=.64, 95% CI [-.23/.14]; lateral: β=.05, *SE*=.09, p=.55, 95% CI [-.12/.23]).

Finally, we examined how social comparison processes on BeReal (RQ1.c) are related to adolescents' self-esteem. The negative association between upward social comparison on BeReal and adolescents' self-esteem (β=-.73, *SE*=.11, p <.001, 95% CI [-.95/-.51]) as well as the positive association between lateral social comparison processes on BeReal adolescents' self-esteem (β=.28, *SE*=.14, p<.04, 95% CI [.01/.55]) were significant. No significant relations were found between downward social comparison processes on BeReal and self-esteem (β=.17, *SE*=.14, p=.23, 95% CI [-.11/.45]). Although the social comparison factors were strongly correlated, multicollinearity was not a threat since the values of the variance inflation factors (VIF) for the linear regressions of the three social comparison processes on self-esteem were lower than 5 (VIF_{upward}=1.58, $VIF_{downward}$=2.00, $VIF_{lateral}$=2.10) (Menard, 2002). [Figure 2 here]

Discussion

The purpose of the current study was to examine how adolescents' BeReal use is related to their self-esteem. Much research focused on self-esteem effects of interacting with

the idealized and positively biased nature of social media content (e.g., Alfasi, 2019). Although this might be different for BeReal as its affordances emphasize authenticity, no studies have investigated how this app relates to individuals' self-esteem. Nevertheless, the increasing popularity of BeReal among adolescents highlights the changing dynamic in the social media landscape towards users' need for more "real" content. As such, it is critical to empirically investigate the theorized benefits for the self of being more authentic online in a social media environment specifically designed for that purpose. This study did so by exploring, for the first time, the role of posting authentic self-presentations on BeReal as well as exposure to perceived authentic self-presentations of others in relation to adolescent users' self-esteem. Findings as well as study limitations and suggestions for future research will be discussed below.

Posting Authentic Self-Presentations on BeReal

First, we tested if adolescents' authentic self-presentations on BeReal are directly positively associated with their self-esteem (H1.a). In contrast to previous literature on online authentic self-presentations and adolescents' well-being (e.g., Twomey and O'Reilly, 2017), our data could not support this hypothesis. We additionally reasoned that engaging in authentic self-presentations on BeReal might contribute to a clearer self-concept (H1.b), which in turn might lead to a higher self-esteem (H1.c). No significant evidence was found to support the hypothesized positive association between authentic self-presentations on BeReal and self-concept clarity, however, rejecting H1.b. Yet, self-concept clarity and self-esteem were significantly positively associated, supporting H1.c.

Two specific affordances of BeReal may account for the lack of association between self-presentation on this platform and users' self-beliefs. First, because of BeReal's emphasis on authenticity, the idealized scope that is needed for self-affirmative effects to occur may not have been sufficiently adopted by users. Indeed, the beneficial influence of online self-

presentation is thought to stem from one's focus on positive yet authentic self-content, thereby reminding users of their own agreeable qualities (Vogel and Rose, 2016). In this respect, the specific features of BeReal that afford increased authenticity (e.g., its lack of editing tools) may have concurrently prevented users from constructing a positive version of themselves, thus obstructing self-affirmative effects. In other words, while users' presentations on BeReal may have been authentic, they were not positive enough for an association with self-esteem to occur.

Similarly, the ephemeral and timely nature of posts afforded by this platform may have placed constraints on the cognitive resources users devote to their posts. In this way, there could have been insufficient opportunity for BeReal users to select the self-aspects they want to present, resulting in no additional benefits regarding their self-esteem or clarity of self-concept.

In accordance with previous research, self-concept clarity was in itself positively related to users' self-esteem. As such, our findings add to a body of research that has shown that having a clear and stable view of the self typically corresponds with greater self-esteem (e.g., Campbell et al., 1996). Despite this positive association between self-concept clarity and self-esteem, however, authentic self-presentation on BeReal did not appear to contribute to these processes.

Next, we examined whether confirmatory feedback on one's self-presentations on BeReal would reinforce the hypothesized relationship between authentic self-presentations on BeReal and self-esteem. Although previous studies have highlighted the important role of feedback in online identity processes, confirmatory feedback did not significantly moderate the hypothesized associations (e.g., Carr and Hayes, 2019). One potential explanation for these null findings may be traced back to our small sample size. Because BeReal represents a novel social media platform, only 148 out of 367 (40.3%) participants could be included in

our analytical sample. In order to retain sufficient power, the data regarding the social feedback users received on their posts were aggregated into a dichotomous variable. This decision, however, may have also impacted our ability to detect potential effects regarding social feedback.

Exposure to Perceived Authentic Self-Presentations of Others on BeReal

We also explored how exposure to others' authentic content on BeReal is related to adolescents' self-esteem directly, and indirectly through upward, downward, and lateral social comparison processes. First, results showed that the perceived exposure to others' authentic content was not significantly related to any of the comparison processes (RQ2). In other words, adolescents who perceived their BeReal friends' content to be authentic to a greater extent were not engaging more in upward, downward, or lateral comparison processes.

It remains important to stress, however, that social comparisons did occur on BeReal, as reflected in the means and frequencies of these variables. This suggests that other factors than the authentic nature of the posted content might be at play. For example, the use of BeReal among adolescents might not be driven by a need for authenticity, but can rather be explained by peer conformity goals. Adolescents are on the leading edge of the social media landscape and are generally attracted to environments that are highly peer-oriented. This dynamic has for instance been observed for Facebook, where adolescents turned to other platforms such as Instagram and TikTok once Facebook gained in popularity among older adults (Van Driel et al., 2019). Similarly, adolescents may now be turning to BeReal as Instagram and TikTok are becoming more adopted by members outside the peer group. This peer-oriented nature of BeReal is exacerbated by the unique affordances of this platform (e.g., by exclusively allowing followers with reciprocal acceptance, there is a distinct emphasis on rather strong ties). The resulting abundance of peer information may naturally

trigger social comparison processes, regardless of whether the comparison targets present themselves authentically or not. Future research should explore adolescents' motivations for using BeReal to potentially lend credence to this reasoning.

Furthermore, while our study did not capture a significant relation between exposure to perceived authentic content of others on BeReal and adolescents' self-esteem (RQ1), social comparison processes did seem to play a role (RQ3). More specifically, this study found that upward social comparison related negatively to adolescents' self-esteem whereas lateral comparison processes related positively to self-esteem. No significant relation was found for downward social comparison on BeReal. These differing findings may potentially be explained by the size and the nature of adolescents' network on BeReal. Our descriptive information indicated that an adolescent's social network on BeReal mainly consists of rather close social ties (i.e., on average only 30 connections of whom they see three or four as real friends). Due to the absence of weak social ties or people they don't know in their network, the traditional social comparison dynamics identified within previous social media contexts likely do not apply. Adolescents thus mainly compare themselves with relatively similar others (i.e., no influencer or celebrity content) which results according to the selective accessibility model (Mussweiler, 2003) in assimilative processes.

Downward assimilative comparisons can be negative for self-esteem in case the adolescent focuses on the self in the comparison and is thereby informed on how they can end up in a similar unfortunate situation (Smith, 200). However, because of the tie strength between BeReal connections, a feared self may not come to mind. Rather, the adolescent may focus on the other person in the comparison and experience feelings of empathy for this "worse off" other (Smith, 2000). As such, downward comparisons on BeReal may not inform one's own self-esteem.

Likewise, upward comparisons with similar others may trigger upward assimilation processes (Mussweiler, 2003). Such comparisons are typically expected to result in feelings of inspiration (Smith, 2000). Yet, it may not feel very inspirational when a close tie looks attractive and/or is seen posting about interesting activities and successes in their supposedly real content. As users get on BeReal a daily reminder of this person's perceived superiority (as opposed to just a snapshot once every so often as is the case on Instagram), it may foster the belief that this person's life *truly* is better and more interesting. In that case, feelings of envy and fear of missing out (FoMO) are more likely to be evoked than feelings of inspiration (e.g., Riordan et al., 2022), which would explain why upward comparisons on BeReal were negatively linked to self-esteem in our study.

Conversely, lateral comparisons were found to positively relate to self-esteem. In other words, adolescents who compared themselves in terms of their social life, popularity and appearances with BeReal connections who were seemingly scoring the same in these domains felt more self-confident. Given the rather few connections adolescents have on BeReal (i.e., 30 on average) and the relatively strong tie strength between these connections, adolescents likely know and care about them and do not want them to do worse or better. As such, perceiving oneself to be as good as their connections on BeReal seems to have a positive influence on how one evaluates themselves. Further research should therefore focus more on lateral social comparisons in the social media context (e.g., who engages in them and what content triggers them), as this seems to be a positive and understudied social comparison force.

Together, the findings of this study indicate that it may not be authentic social media content in itself - but rather *how* adolescents psychologically respond to this content that informs their self-esteem.

Limitations and suggestions for future research

The current study has some limitations worth considering when interpreting the results. First, the sample size was rather small. Only 148 out of 367 adolescents stated that they used BeReal and could be included in the analytical sample, thereby restricting the complexity of the analyses. As a result, the multiple group test was restricted to two groups of confirmatory feedback in order to have sufficient people in each comparison group. Future research should include a larger sample to test more fine-grained models.

Moreover, a larger sample would also allow to extend the comparisons between users and non-users of BeReal. The current study showed that BeReal-users (compared to non-users) have a lower self-concept clarity, a lower self-esteem, spend more time on social media in general, and are more likely to be girls. Given that BeReal is well-suited to keep track of peers' daily activities, it may especially attract adolescents who experience a strong sense of FoMO. As research has indeed shown that FoMO correlates with lower self-esteem and greater social media acitivity (Barry & Wong, 2020), this variable may thus explain the found differences between BeReal users and non-users. Future research investigating well-being and self-esteem effects of new social media platforms should therefore also consider the role of FoMO.

Next, although this study attempted to have a diverse sample of adolescents, the majority was female with Western origins. Individuals from collectivistic-oriented countries (i.e., focusing on the common good rather than individuals' own interests) might be less interested to use this app than individuals from Western or more individualistic-oriented countries (i.e., focusing on distinguishing oneself as a unique individual), with the latter experiencing a higher need to express their true and authentic self (Jackson and Wang, 2013). However, it is also possible that individuals of collectivistic-oriented countries are more attracted to BeReal than their individualistic counterparts since BeReal offers its users fewer opportunities to stand out individually. Since this Western sample might thus have an

influence on the results, we recommend future studies to examine whether the popularity of BeReal is culture-specific.

It should also be stressed that the scales measuring BeReal practices were self-developed and thus need further validation by future research. More specifically, our measure for exposure to authentic content captured the extent to which adolescents perceive their friends' content to be authentic, rather than how frequently they are exposed to this content type. Future research on BeReal should therefore adopt a frequency measure, in combination with authenticity perceptions, to further investigate the role of exposure to BeReal posts of others on self-esteem.

Finally, given our explicit focus on BeReal in the scale items, the findings cannot be extended to the users' general social media usage. Future research may adopt a more holistic approach by integrating adolescents' various uses of social media platforms (e.g., analyzing social comparison across multiple platforms). This would also allow to investigate how self-presentation practices and social comparison processes across different platforms are interrelated. For example, since BeReal-users are exposed to their friends' lives on an almost daily basis, they receive plenty of (social) information about their friends via this platform, guiding and inducing social comparisons on the platform. Conversely on Instagram, for example, most adolescents only post once every few weeks on average (Van Driel et al., 2019), reducing the amount of peer-generated content on this platform and therefore also the social information flow which feeds peer social comparison processes. Thus, because adolescents receive so much information from their peers (and extended network) on BeReal, it is likely that they also compare themselves more often with this posted content, than with the content on other platforms with less friends-generated content or real-life interactions.

Conclusion

Taken together, the current study contributes to the existing literature on authentic self-presentations on social media in several ways. To the best of our knowledge, this is the first study researching self-presentation practices on BeReal. By examining both the role of self-postings of authentic content and exposure to such content of others, this study advances current practices in social media research. In contrast to the non-significant links between posting authentic self-content on BeReal and self-esteem, this study found that when viewing social media content and upward and lateral social comparisons occur, a lower and higher self-esteem, respectively, are present.. Given the limited research on lateral comparison processes, this is an important finding that refines our knowledge on social comparison processes in social media contexts.

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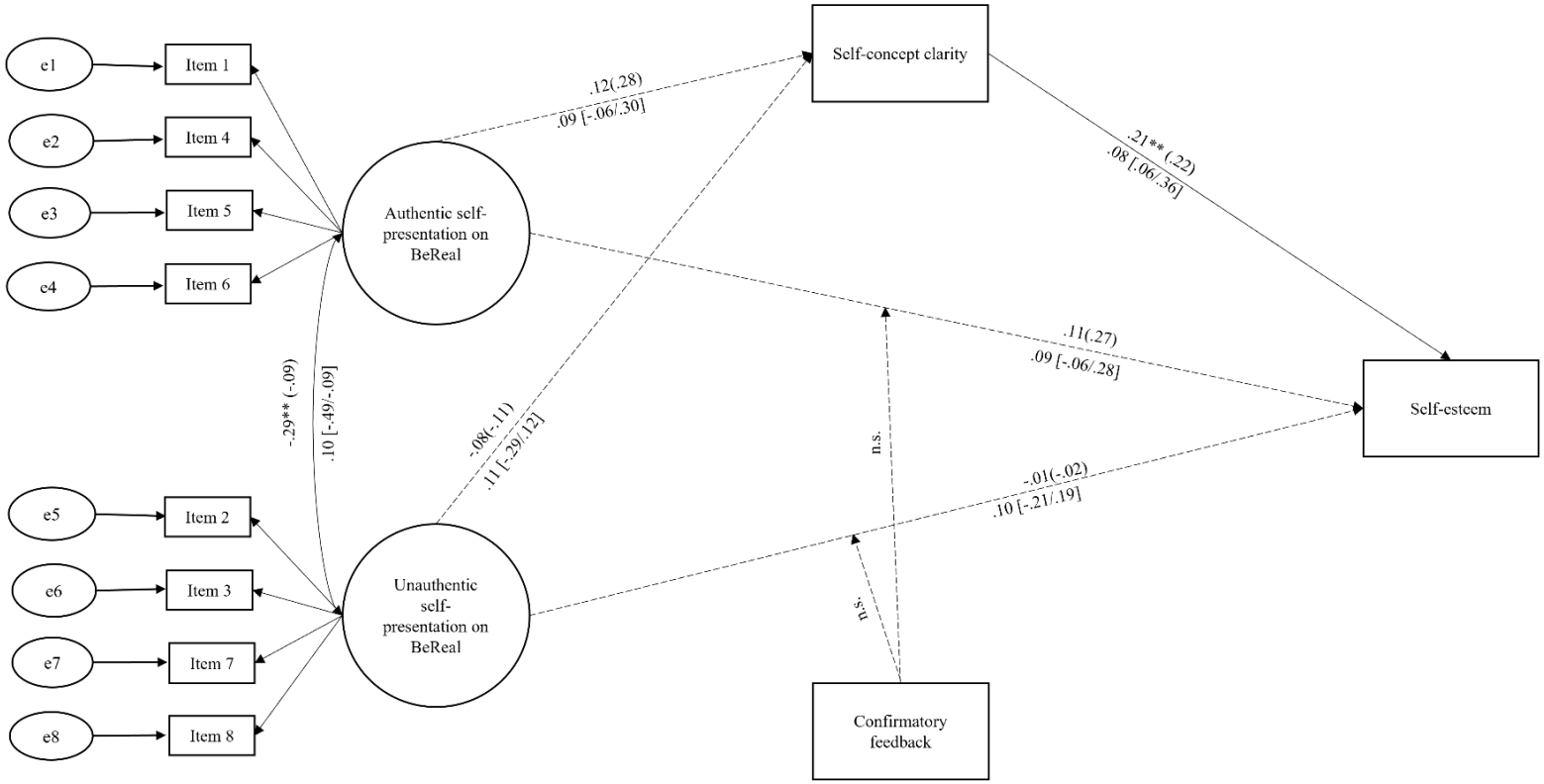
Figure 1

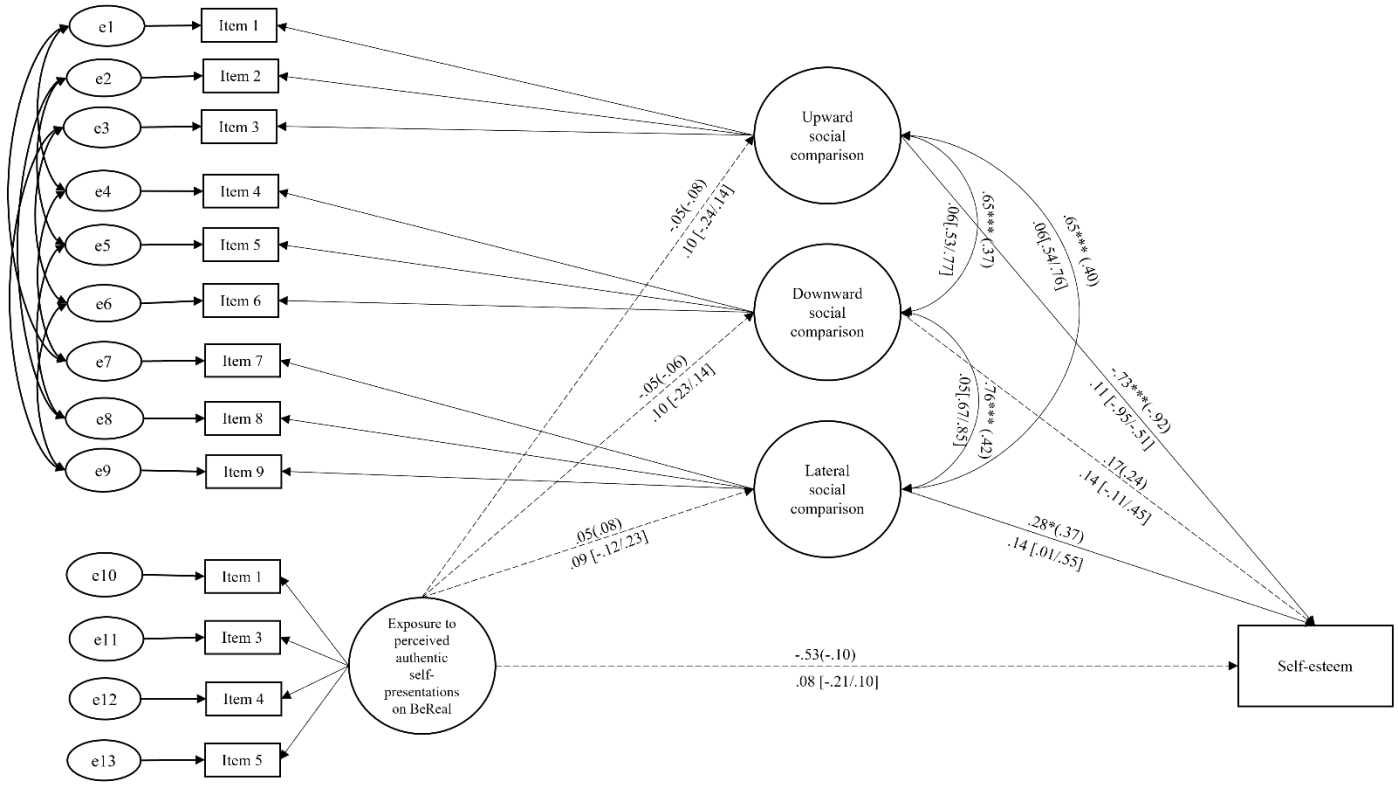
SEM of the Relations Between the Two Factors of Authentic Self-Presentations on BeReal, Self-Esteem, Self-Concept Clarity and Confirmatory Feedback (n=148)



Note. χ^2 (43) = 78.75, p < .001, χ^2/df = 1.83, RMSEA = .08 (90% CI: .05/.10), CFI = .91, TLI = .87, SRMR = .07.
Above the arrow: First value reflect standardized coefficient (β), value within brackets reflects unstandardized coefficients (b-value). Significance criteria were: *p< .05, **p< .01. Dashed lines refer to nonsignificant paths.
Below the arrow: First value reflects the standardized standard errors, the values within squared brackets reflect 95% confidence intervals of the standardized coefficients.
Due to space constraints, control variables and factor loadings were not included in the figure.

Figure 2

SEM of the Relations Between Perceived Exposure to Authentic Self-Presentations on BeReal, Self-Esteem, Upward-, Downward- and Lateral Social Comparison (n=148)



Note. $\chi^2(77) = 143.80$, $p < .001$, $\chi^2/df = 1.87$, RMSEA = .08 (90% CI: .06/.10), CFI = .95, TLI = .92, SRMR = .06.
Above the arrow: First value reflect standardized coefficient (β), value within brackets reflects unstandardized coefficients (b-value).
Significance criteria were: *p< .05, **p< .01, ***p<.001. Dashed lines refer to nonsignificant paths.
Below the arrow: First value reflects the standardized standard errors, the values within squared brackets reflect 95% confidence intervals of the standardized coefficients.
Due to space constraints, control variables and factor loadings were not included in the figure.