Adolescents on Instagram: Considering the Effects of Envy and the Need for Relatedness on Self-Esteem

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Abstract

For today's adolescents it is hard to imagine a life without social media although it remains questionable how they affect the users' subjective well-being. In order to better understand this impact, we examined the relationship of active and passive Instagram use with general self-esteem and explored whether benign and malicious envy and need for relatedness function as mediators of these relationships. Six hundred eleven high school students (76.9% female; age: $M = 16.20$, $SD = 1.12$) from the City of Zagreb participated in the online survey. The participants filled an item regarding their frequency of active Instagram use, the Benign and Malicious Envy Scale, the Need for Relatedness subscale (a part of the Basic Psychological Needs Scale) and the General Self-esteem subscale (a part of the Marsh's Self-Description Questionnaire II). The results indicate the absence of a significant relationship between active Instagram use and general self-esteem. Neither benign nor malicious envy function as mediators of this relationship. However, the need for relatedness mediates the relationship between active Instagram use and general self-esteem: adolescents who engage more frequently in active Instagram use tend to have higher levels of need for relatedness satisfaction, which in turn relates to their higher levels of general self-esteem. The obtained results indicate that, contrary to the public perception, social media can have a positive impact in the life of adolescents, but when making such claims, it is crucial to consider the type of activities behind their usage.

Keywords: adolescence, Instagram, active and passive use, benign and malicious envy, need for relatedness

Introduction

As a period between childhood and adulthood, adolescence is marked by numerous changes. Adolescents want more freedom in making their life decisions

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although they are not fully ready to take over the responsibilities implied by wanted freedom. In such moments of conflict, peer support is very important. During the process of identity development, adolescents use their previous life experiences and exploration to perceive the traits, attitudes and values that form their self-image. However, the challenges of adolescence are especially demanding in today's age, marked by the growing popularity of social media. Although designed to connect people, it is questionable how they affect the well-being of their users.

Adolescents on Social Media

The rise of social media is mostly based on the Internet advances, which made it more available and easier to use at the beginning of the 21st century. The possibility of fulfilling different needs and motives of their users also plays a significant role in their popularity (Brailovskaia et al., 2020; Lin & Lu, 2011; Whiting & Williams, 2013). Today, the most popular social media platforms all have more than a billion users: as per Statista (2022) in January 2022, Facebook had 2.9 billion active users, YouTube 2.56 billion, WhatsApp 2 billion, Instagram 1.5 billion, and TikTok 1 billion.

Although social media are used by almost all age groups, adolescents often stand out as their most heavy users. In places like Germany and Scandinavia, more than 90% of people aged between 16 and 24 reported using social media for four hours per day on average (Ortiz-Ospina, 2019). The most often used are YouTube, Snapchat, and Instagram.

When it comes to Croatia, 85% of students aged 11-18 in 2008 reported that they had access to the Internet (Zagreb Child and Youth Protection Center, 2010). In a survey conducted on high school students in Rijeka, Malkoč (2019) found that 98.6% of adolescents use social media, usually 3 to 4 hours daily. Buljan Flander et al. (2020) observed that adolescents in Croatia use YouTube, Instagram, WhatsApp, and Snapchat most often, with more than 70% of participants spending between 1 and 5 hours daily. Also, 50% of participants check their notifications as soon as they receive them.

This data undoubtedly suggests the importance of social media for today's adolescents, which ultimately encouraged researchers to explore the outcomes of their use. Two decades after the first studies, we are yet to reach a conclusion whether social media use has positive or negative outcomes. For example, frequent and intense use has been associated with the symptoms of anxiety and depression (Primack et al., 2017), lower subjective well-being (Vannucci et al., 2017) and believing other people have better lives than us (Chou & Edge, 2012). However, there are also numerous studies suggesting that using social media can have positive outcomes, including the possibilities of self-discovery and expressing one's personality (Valkenburg & Peter, 2009), learning about topics that interest us

(Greenhow & Lewin, 2015) and strengthening friendships (Reich et al., 2012). These are all aspects that contribute to identity formation.

In terms of adolescents' subjective well-being, general self-esteem is often considered to be a useful indicator (Jelić, 2012; Skogbrott Birkeland et al., 2012). Defined as a positive or negative evaluation of self, it is usually treated as a unique construct although there are several dimensions in which we can evaluate ourselves (Jelić, 2012). For example, adolescents tend to assess their value in dimensions such as academic, social or sports competence, as well as friendships and romantic attachments (Harter & Monsour, 1992). Although each dimension can be evaluated separately, some longitudinal studies suggest that rank-order stability of self-esteem is quite stable during adolescence (Lacković-Grgin, 1994; Trzesniewski et al., 2003). In terms of its relation to social media, the results are contradictory: while some indicate that people with higher self-esteem use social media more (Brailovskaia & Margraf, 2016; Trifiro, 2018), others imply that people with lower self-esteem usually spend more time using them (O'Dea & Campbell, 2011; Woods & Scott, 2016).

Types of Social Media Use

One of the limitations of social media studies so far is that they usually treat social media as a unique term. There are many different social media platforms today, each of them having a particular set of features, which in turn can lead to different outcomes. In that context, social media platforms with predominantly visual content are especially interesting. People on social media are motivated to post positive aspects of their life. This tendency is particularly interesting in terms of the realism heuristic, based on which we are more likely to assume that visual content, like photos and videos, is a more reliable source of information than textual content (Sundar, 2008). That is why we decided to focus on Instagram in this study, as an example of a predominantly visual social media.

On Instagram, a user's social network is based on the number of followers. The profile of each user can be public (anyone can follow them) or private and it consists of photos and/or videos published by the user. Other users can react to the posts by liking them. As previously mentioned, Instagram is among most popular social media in general population (Statista, 2022), as well as adolescents (Anderson & Jiang, 2018; Buljan Flander et al., 2020).

When it comes to untangling contradictory results in social media studies, the progress has been made when researchers decided to consider how users spend time on social media, as opposed to the traditional focus on hours spent using social media (Gerson et al., 2017). In that context, a distinction between active and passive use proved to be useful. Active use implies direct exchanges between users, including activities like chatting, liking, and commenting posts (Verduyn et al., 2017). While passive use consists of going through other people's posts and profile, but without

any type of engagement, a behavior also known as *scrolling* (Verduyn et al, 2017). Studies examining these types of social media use have shown that passive use is correlated with lower self-esteem and lower subjective well-being (Chen et al., 2016; Strubel et al., 2018; Verduyn et al., 2015), as well as with greater symptoms of depression and anxiety (Thorisdottir et al., 2019; Wang et al., 2019). Common mediators of these relationships are social comparison (Wang et al., 2017) and envy (Ding et al., 2017; Wang et al., 2019). On the other hand, active use has been shown to correlate with greater subjective well-being (Frison & Eggermont, 2015; Lee et al., 2011) with social connectedness being their mediator (Frison & Eggermont, 2015; Grieve et al., 2013). However, it is necessary to further explore the relationship of these two types of social media use with self-esteem, as well as to examine the role of envy and social connectedness in their relationship.

Social Media and Envy

Negative outcomes of social media use are often related to the social comparison process, which the online environment can stimulate (Krause et al., 2019). According to Festinger (1954), people use social comparisons to evaluate their feelings, thoughts, and behaviors. The obtained information is especially important for adolescents, who use this feedback during identity formation (Nesi & Prinstein, 2015). Even though Festinger (1954) in his original work discusses social comparisons happening during live interactions, there are two specific social media features that can facilitate social comparisons in the online world. The first one refers to the abundance of other users we are surrounded by, which automatically increases the number of our potential comparison targets. The second feature is based on the social media algorithms, whose functioning usually provides us with users similar to us. As it is known, this similarity also enhances the probability of social comparisons.

However, unlike live interactions, social media users have greater control over aspects of their lives they want to share with others, so it is not surprising that we usually post positive content (achievements, journeys, etc.). That is why, when scrolling through other people's profiles, we are likely to conclude that other people have better lives than we do (Walther et al., 2011), which in turn can make us feel envious (Malkoč, 2019; Park & Baek, 2018).

Defined as an unpleasant emotion, envy is usually present when we evaluate that the other person has superior qualities, achievements, or possessions and we want them to lose that advantage (Parrot & Smith, 1993). However, researchers like Lange and Crusius (2015) suggest that there are two different types of envy - malicious and benign, with psychological studies traditionally focused on the role of malicious envy. Lange and Crusius (2015) put forward that malicious envy appears when the envier feels that the compared person does not deserve its advantage, while the envier lacks control over its personal outcomes. When feeling malicious envy, people tend to use self-protecting strategies, including self-handicapping and

changing the dimension and/or target comparison. On the other hand, people can feel benign envy when they see the envied person's higher status as deserved and having higher control over personal outcomes. The envier is then usually motivated to invest more effort in order to improve his/her own status. Even though these two types of envy produce different motivational and behavioral outcomes, it is important to highlight that they are both characterized by similar levels of frustration and negative affect.

As a relatively new model, there are not many studies exploring the relationship of benign and malicious envy with other psychological constructs. It has been found that subjective well-being correlates positively with benign envy and negatively with malicious envy (Briki, 2019; Lim & Yang, 2019). However, Vrabel et al. (2018) found that both types of envy are negatively correlated with self-esteem as a trait, although benign envy is positively correlated with self-esteem as a state. In the field of social media studies, both types of envy can act as mediators in the relationship between social comparison and different emotional and behavioral outcomes (Latif et al., 2020; Meier & Schäfer, 2018; Noon & Meier, 2019). Although the findings of mentioned studies are in line with Lange and Crusius' (2015) assumptions of outcomes for both types of envy, there are studies indicating that benign envy can also correlate with negative outcomes of social media use, including feeling social media fatigue (Yan et al., 2022) and avoidance of their use (Wang et al., 2021). The inconsistency of these results highlights the importance of evaluating the effects of both benign and malicious envy in terms of active and passive social media use, which will, therefore, be a part of this study.

Social Connectedness on Social Media

Social connectedness is often described as one of the basic psychological needs (Deci & Ryan, 2000). Its satisfaction is especially important during adolescence, when peer relations gain more relevance, especially in the context of identity formation.

Initial social media studies were critical toward the idea of achieving social connectedness from online interactions. Based on the *displacement hypothesis*, it was assumed that online interactions are superficial and decrease the quality of friendships because they take away the time people can spend on more meaningful interactions in person (Valkenburg & Peter, 2011). However, such view of online interactions was more plausible during the time the Internet was not as available to the general population as it is today. Nowadays, when most people have Internet access and own at least one smart device (for example, a smartphone), the possibilities of satisfying the need for connectedness on social media are quite different (Valkenburg & Peter, 2011). This is especially relevant for adolescents, for whom social media provides the opportunity to keep in touch with friends, but also expand their social network by meeting peers who share their interests and values

(Davis, 2012). This viewpoint is in line with the *stimulation hypothesis*, which proposes that social media encourages communication between its users and can, consequently, facilitate maintaining and strengthening friendships (Valkenburg & Peter, 2011). Current studies go in favor of this assumption, with findings implying that social connectedness on social media is correlated to lower levels of anxiety and depression and higher levels of subjective well-being (Ahn & Shin, 2013; Davis 2012; Grieve et al., 2013; Teppers et al., 2014).

To contribute further to the current level of knowledge in the field of social media used among adolescents, we decided to focus on the relationship between specific types of social media use and general self-esteem considering the role of mechanisms that potentially mediate this relationship. More specifically, we decided to focus on two problems.

First, we wanted to examine whether benign and malicious envy mediate the relationship between active Instagram use and general self-esteem. Considering theoretical background and previous research findings, a significant mediation effect of benign and malicious envy on the relationship between active Instagram use and general self-esteem was expected. In particular, a lower level of active Instagram use was expected to correlate with a higher score on the malicious envy subscale, which will in turn correlate with a lower result on the general self-esteem scale. Also, a lower degree of active Instagram use was expected to correlate with a higher score on the benign envy subscale, which will in turn correlate with a lower result on the general self-esteem scale.

Second, we wanted to examine whether the need for relatedness satisfaction mediates the relationship between active Instagram use and general self-esteem. Significant mediation effect of the need for relatedness satisfaction on the relationship between active Instagram use and general self-esteem was expected. In particular, a higher degree of active Instagram use was expected to correlate with a higher level of need for relatedness satisfaction, which will in turn correlate with a higher result on the general self-esteem scale.

Method

Participants

Six hundred eleven students (76.9% female) from four Zagreb high schools participated in the survey. Participants were aged between 14 and 19 ($M = 16.20$, $SD = 1.12$). Most of them have had an Instagram account for more than two years (88.1%) and for 88.5% the account is private. Most participants (around 60%) spend between 30 minutes and two hours on Instagram, while only 5.4% report that they do not use it every day.

Measures

Data collected from students included their gender, age, high school, grade, social media platforms they use, as well as some specifics of their Instagram account: how long have they had them, is it public or private and how much time do they use it daily.

Active Instagram use was examined with a single item, which was preceded with examples for active (chatting with other users) and passive use (scrolling through users' profiles, but without liking or commenting on their content). The item was: "Out of total time spent on Instagram, please estimate how much time (on a daily basis) you spend using it actively". The possible responses were: 1 (*0% of time*), 2 (*25% of time*), 3 (*50% of time*), 4 (*75% of time*) and 5 (*100% of time*). In other words, the first two responses indicate a predominantly passive Instagram use, while the last two responses point to a predominantly active Instagram use. This item was also followed with a control item: "Out of total time spent on Instagram, please estimate how much time (on a daily basis) you spend using it passively", with the identical response scale. Along with the items it was emphasized that the sum of answers for each participant must be 100%. Seventy-two participants, for which this sum did not amount to 100%, were excluded from further analysis.

Self-Description Questionnaire II (Marsh, 1992) is intended for children aged 13-17 and consists of three sets of instruments. In this study we used the *General Self-Esteem* scale ($\alpha = .89$), which has 10 items and is based on The Rosenberg Self-Esteem Scale. Participants' task is to evaluate how well each item describes them on a 5-point scale (1 = *false/not like me at all*, 5 = *true /it is very much like me*). Higher results indicate higher levels of general self-esteem.

Benign and Malicious Envy Scale (Lange & Crusius, 2015) measures two distinct types of dispositional envy - benign (5 items) and malicious envy (5 items) on a 6-point Likert scale (1 = *strongly disagree*, 6 = *strongly agree*). For each subscale the score is formed by averaging its item responses, with higher scores indicating higher levels of envy. As the scale was not previously used in Croatia, after obtaining approval from the authors, it was translated using the double translation method. In this study the internal consistency value for benign envy subscale was .82 and .81 for malicious envy subscale, with the correlation $r = .27$ between them.

Basic Psychological Needs Scale (Deci & Ryan, 2000; Croatian version Bratko & Mužinić Sabol, 2006) consists of 21 items. In this study the need for relatedness subscale was used ($\alpha = .78$). It has eight items, measured on a 7-point Likert scale (1 = *not at all true*, 7 = *very true*). The total score is calculated by averaging the item responses. A higher score indicates a higher level of the need for relatedness satisfaction.

Procedure

Before collecting the data, four high schools in Zagreb were contacted. School psychologists were the main point of contact. The aim of the study was explained to them in a written form, followed by a request for conducting the survey, which the headmasters had to approve. When this approval was obtained, school psychologists forwarded the information regarding our research to the students' parents. The survey was administered online, on the platform LimeSurvey: School psychologists shared the survey link with their students. In the introduction, the purpose of the study was described, with the remark that the participants could only be students who already had an Instagram account. It was also highlighted that the participation was voluntary and anonymous and that participants could withdraw anytime, without facing any consequences. Prior to completing the questionnaires participants gave their informed consent by agreeing to the following statement: "I have read all the information above, and I agree to participate in this research.". To encourage students to give authentic answers, it was noted there are no right or wrong answers. In case of possible complaints, the e-mails of the authors were also listed. It took around 15 minutes to complete the survey and the scales were listed in the same order for each participant. Ethical approval for this study was obtained from the Ethics Committee of the Department of Psychology, Faculty of Humanities and Social Sciences, University of Zagreb.

Results

IBM SPSS Statistics for Windows version 25.0. was used for data analysis. Descriptive statistics, the results of the Kolmogorov-Smirnov test and the skewness and kurtosis indexes are shown in Table 1. The results of the Kolmogorov Smirnov test indicated that distributions for all variables deviate from normal. However, based on the variables' indexes of skewness and kurtosis, we concluded that the deviations are not extreme (Kline, 2011) and proceeded with parametric statistical methods.

The descriptive statistics shown in Table 1 indicate that the mean results for benign envy, need for relatedness and general self-esteem scales are higher than their respective theoretical means. On the other hand, the mean for malicious envy scale is quite lower than its theoretical mean. The pattern of higher mean value for benign envy and lower mean value for malicious envy has also been found in other studies (Lange & Crusius, 2015; Noon & Meier, 2019). Only the mean value for the measure of active Instagram use is similar to its theoretical mean.

Table 1

Descriptive Statistics and Distributions of Results of Measured Variables (N = 539)

| | Active Instagram use | Envy | | Need for relatedness | General self-esteem |
		Benign	Malicious		
M	2.58	3.77	1.91	5.47	46.24
SD	1.005	1.239	0.941	0.891	8.538
Min	1.0 (1)[a]	1.0 (1)[a]	1.0 (1)[a]	2.13 (1)[a]	13 (10)[a]
Max	5.0 (5)[b]	6.0 (6)[b]	6.0 (6)[b]	7.0 (7)[b]	60 (60)[b]
K-S	0.26**	0.06**	0.17**	0.07**	0.12**
Skewness	0.540	-0.324	1.339	-0.836	-0.836
Kurtosis	-0.216	-0.483	1.659	0.269	0.269

Note. K-S = Kolmogorov-Smirnov value. [a] theoretically minimum value on the scale. [b] theoretically maximum value on the scale.
**$p < .01$.

Table 2 shows the variables' intercorrelations. Correlation coefficients between variables are mostly lower, apart from the relationship between the need for relatedness and general self-esteem. This correlation is moderately high. Active Instagram use was not significantly related to benign nor malicious envy or general self-esteem. However, contrary to the Lange and Crusius' model (2015), results indicate a significant but low positive relationship between benign and malicious envy.

Table 2

Intercorrelations of Measured Variables (N = 539)

		2	3	4	5
1	Active Instagram use	.00	-.02	.13**	.06
2	Benign envy	-	.27**	.06	.16**
3	Malicious envy		-	-.18**	-.19**
4	Need for relatedness			-	.50**
5	General self-esteem				-

In order to test the theoretical assumptions regarding the mediation roles of benign and malicious envy, as well as the need for relatedness, we used the bootstrapping method in the program PROCESS for SPSS version 4. In this method three types of relationships are tested: the direct effect, or the direct relationship between an independent variable and a dependent variable (c'), indirect effect, or the relationship ranging from an independent variable to a mediator and then to a dependent variable and total effect (c), which is equal to the sum of direct and indirect effect. If the values of total and indirect effect are equal, we can conclude the mediation is complete.

Figure 1

Unstandardized Regression Coefficients Obtained While Testing Mediation Effects of Benign and Malicious Envy on The Relationship Between Active Instagram Use and General Self-Esteem (N = 539)
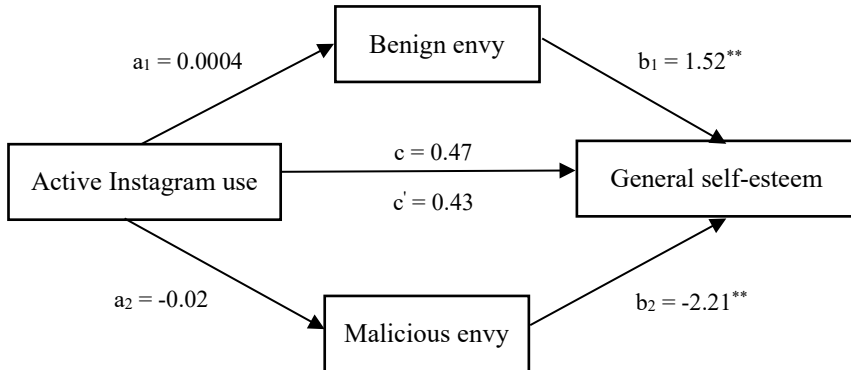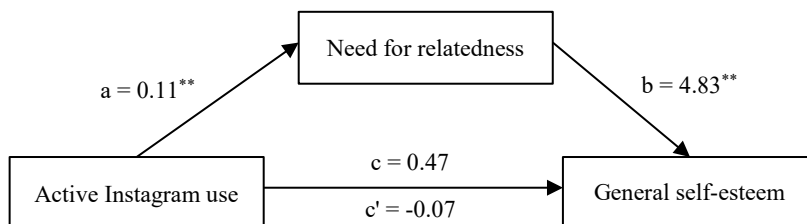

Note. a = the effect of independent variable on mediator; b = the effect of mediator on dependent variable; c = total effect; c' = direct effect.
**p < .01.

    The results of the regression analysis do not show a significant statistical effect of indirect effect in the case of benign envy (a_1b_1 = 0.001, *SE* = 0.09, BootCI$_{95}$ [-0.17, 0.17]) nor in the case of malicious envy (a_2b_2 = 0.044, *SE* = 0.09, BootCI$_{95}$ [-0.21, 0.14]). These findings suggest that above mentioned variables do not mediate the relationship between active Instagram use and general self-esteem. Additionally, the direct effect is not statistically significant (*c'* = 0.43, *SE* = 0.35, BootCI$_{95}$ [-1.12, 0.26]), although its trend indicates a positive relationship between active Instagram use and general self-esteem. Also, the total effect did not prove to be statistically significant (*c* = 0.47, *SE* = 0.37, BootCI$_{95}$ [-1.19, 0.25]). According to Zhao et al. (2010), the absence of both direct and indirect effect suggests a wrong theoretical framework.

    The second goal of this study was to examine whether the need for relatedness acts as a mediator in the relationship between active Instagram use and general self-esteem.

Figure 2

Unstandardized Regression Coefficients Obtained While Testing Mediation Effect of Need for Relatedness on the Relationship Between Active Instagram Use and General Self-Esteem (N = 539)

Note. a = the effect of independent variable on mediator; b = the effect of mediator on dependent variable; c = total effect; c' = direct effect.
$^{**}p < .01.$

The results of regression analysis indicate a significant indirect effect ($ab = 0.53$, $SE = 0.19$, BootCI$_{95}$ [0.18, 0.92]), based on which we concluded that the need for relatedness acts as a mediator in this relationship: adolescents who spend more time using Instagram actively also have a higher degree of need for relatedness satisfaction, which relates to their higher level of general self-esteem. The relationship between active Instagram use and need for relatedness, as well as the need for relatedness and general self-esteem are also significant. However, the direct effect of active Instagram use on general self-esteem is not statistically significant. This result suggests the presence of an indirect-only mediation (Zhao et al., 2010), which indicates the validity of the proposed theoretical model. This model explained 25.27% of general self-esteem variance.

Discussion

The first goal of the study was to examine whether two distinct types of envy, benign and malicious, act as mediators in the relationship between active Instagram use and general self-esteem. Contrary to our hypothesis, it was found that neither benign nor malicious envy act as mediators. Such results are also in opposition to previous studies indicating the mediating role of (malicious) envy in the relationship between passive social media use and subjective well-being (Ding et al., 2017; Wang et al., 2019).

The reason behind the non-significant total effect could be the fact that, in this study, benign and malicious envy were positively correlated. Furthermore, as predicted, adolescents with higher levels of malicious envy have lower levels of general self-esteem. Although their motivational and behavioral outcomes are different, we anticipated that benign envy would also be negatively correlated with general self-esteem because both types of envy are characterized by similar levels of

frustration and negative affect. However, this assumption was not confirmed as the results showed that adolescents with higher levels of benign envy also had a higher level of general self-esteem.

To explain the obtained results, we will focus on most recent findings in the field of social media studies. For example, Valkenburg et al. (2022) observed that adolescents who were more likely to feel (malicious) envy while using Snapchat and Instagram passively, had also lower levels of subjective well-being. However, adolescents who felt enjoyment when using these platforms passively, had higher levels of subjective well-being. These results can be prescribed to individual differences in the propensity of feeling specific emotions, but also mechanisms leading to these emotions. Gibbons and Buunk (1999), for example, state that when it comes to social comparisons and their consequences (including emotions), it is important to consider two dimensions: first, the comparison dimension (abilities or opinions) and second, whether we evaluate that the compared individual is better than us (upward social comparison) or worse than us (downward social comparison). In this context, studies show that individuals who are more oriented toward upward social comparisons are more likely to feel envy (Park & Baek, 2018; Wang et al., 2017). It was also found that benign envy can act as a mediator between social comparison of abilities and feeling inspired while using Instagram: adolescents who are more oriented to social comparison of abilities were more likely to feel benign envy which in turn manifested in stronger feelings of inspiration on Instagram (Noon & Meier, 2019).

Considering these findings, as well as different motives following benign and malicious envy, we can presume the reason why their relationships with general self-esteem had opposite directions in this study. While feeling malicious envy, our self-esteem can be jeopardized because we feel bad and assume we cannot decrease the advantage the compared person has over us. On the contrary, although feeling benign envy is also marked by negative affect, at the same time we believe there is a possibility of improving our status in the comparison dimension. Subsequently, it should not threaten our self-esteem. Therefore, it is possible that the absence of significant relationship of active use with benign and malicious envy can be the result of our participants' lower orientation on social comparison of abilities and/or lower tendency for upward social comparisons.

The main feature of active social media use is to enable social contact in the form of activities like chatting, liking, and commenting on other people's posts. Based on this feature and in line with the *stimulation hypothesis*, we assumed a mediating role of need for relatedness in the relationship between active Instagram use and general self-esteem. This hypothesis tested to be true and in accordance with other studies concerning the relationship of active social media use and the perception of social connectedness, as well as other indicators of subjective well-being (Frison & Eggermont, 2015; Grieve et al., 2013; Teppers et al, 2014).

Our finding of the possibility of satisfying the need for relatedness while actively using social media is also important to consider in context of the previous few years which were marked by the COVID-19 pandemic. The restrictions imposed during the pandemic severely limited the options and opportunities for live social interactions. In this regard, it was found that during the pandemic online communication indeed enabled adolescents' higher levels of social connectedness and subjective well-being, including self-esteem (Ellis et al., 2020; Feng & Tong, 2022). Still, it is important to emphasize that these findings also show that despite their positive effect, online interactions cannot serve as a substitute for person to person socializing, especially in times where social gathering is possible. The longitudinal study of Marinucci et al. (2022) implies that the positive effect of online interactions on users' well-being was the strongest in the period of severe restrictions, while in the period of their loosening this effect was not found. Outside of the pandemic circumstances, the positive effect of active social media use can be explained by the fact that online communication can serve as a good alternative in times when adolescents, because of their numerous (school) duties, simply do not have sufficient time for in person interactions.

Besides mentioned contextual determinants, it is important to consider other factors playing a role in achieving social connectedness on social media. For example, studies show that (active) use will not contribute to the feeling of connectedness if the motives behind it include avoiding social isolation (Ahn & Shin, 2013) or compensating for lower social skills (Teppers et al., 2014). In general, it seems that adolescents with better social skills usually benefit more from online communication (*The rich get richer hypothesis*). They are usually motivated to use social media to maintain and strengthen their friendships (Khan et al., 2016).

Moreover, the definition of active use is quite general, so specific types of these activities should also be reviewed. For instance, the results of a meta-analysis indicate that activities focused on a smaller group of users (i.e. chatting and commenting) are positively correlated with subjective well-being, as opposed to activities focused on a broader social network, like posting on your profile (Liu et al., 2019). Additionally, extreme activities, including posting inaccurate or threatening information about other users, in theory also form part of the active social media use definition, but it is unlikely their presence will lead to positive outcomes. Therefore, future studies concerning active social media use should also focus on users' individual traits, along with particular types of active use.

Limitations and Future Directions

Although this study is among the first to consider some of the potential mediators in the relationship between specific types of Instagram use and subjective well-being, there are some limitations. Firstly, considering the correlational and cross-sectional design used in this study, causality between variables, as well as

developmental changes cannot be inferred. Furthermore, the sample in our study was convenient and had a higher percentage of female participants. Previous research showed the importance of gender when considering the effect of social media use on the well-being of users. Therefore, it is recommended to examine the role of gender more carefully in future studies.

Also, it is important to note that in our study active Instagram use was measured by only one item. The primary reason behind such usage was the fact that, to our knowledge, to this date the only validated instrument is the Passive Active Use Measure (Gerson et al., 2017). However, its items are primarily related to Facebook usage, so it is questionable how appropriate it is to use it when studying other social media platforms. The general lack of validated instruments in this research area suggests that future studies should focus on development of measures that can finally allow us to draw more precise conclusions about the outcomes of social media use. We strongly believe that the differentiation between active and passive use could provide a solid foundation for these measures. Nevertheless, previously mentioned findings also indicate that there is more space to further define and specify both types of use.

Future studies should also consider the types of consumed content on social media because it is probable that passive consumption of specific content (i.e. funny or educational videos) is more likely to lead to more positive outcomes (Valkenburg et al., 2022; Verduyn et al., 2022). Additionally, apart from the activities on social media, researchers should also consider aspects such as users' individual traits and psychological mechanisms behind specific types of usage, including, already mentioned, social comparisons dimensions. These future findings could contribute to the current understanding of the unique social media environment.

Furthermore, since it is easier to manage impressions on social networks than during live interactions, such impressions can lead to a distorted picture of other people's lives. Therefore, it is important to teach young people to critically evaluate information on a private, and not just a wider social level. In the context of parenting, there is also a great possibility for progress regarding the role and responsibility that adults have in their children's behavior on social media. The main obstacle to this progress relates to parents' lack of awareness of the ways in which their children spend time on social media (Grmuša et al., 2019).

With more information and understanding it will be possible to establish more appropriate procedures and programs, aimed at supporting and encouraging the well-being of social media users, including adolescents and their parents.

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