# UNIVERSITY OF TWENTE.

**The Effects of Instagram Usage on Subjective Well-being among Millennials:**

A Cross-cultural Study of the Netherlands and Kenya

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**ABSTRACT**

**Purpose.** The increase in the use of social networking sites (SNSs) such as Instagram has resulted in a plethora of negative effects towards millennials' mental health. In relation to this, studies have identified depression, low self-esteem, and loneliness among the negative effects that arise from increased SNS usage. However, certain scholars refute such claims with research that reflects no relation between SNS usage and users' well-being. These inconsistencies in findings have brought forth the need for more research to understand the effects of Instagram usage on millennials' subjective well-being. To investigate this effect, this study considered four mediators including social capital, relational closeness, social comparison, and envy. These mediators were included in the model as they had the potential to better explain the relationship between Instagram use and subjective well-being. As previous studies on this relationship have primarily focused on Western countries, it is equally important to understand the moderating role of culture. Considering prior research on culture as a moderator is scarce, this research aimed to fill the gap with a cross-cultural study. These aspects were explored with the individualism-collectivism level differences and with national culture differences among millennials from the Netherlands and Kenya.

**Method.** A quantitative study was carried out with the use of an online survey hosted by Qualtrics. This was distributed to a sample consisting of 115 millennials residing in the Netherlands and 105 millennials residing in Kenya. To gather these respondents, a combination of convenience and snowball sampling was utilised. Based on the gathered data, a hierarchical regression analysis was used to determine the main effect between active and passive Instagram usage, and subjective well-being. Simple and multiple regression analyses were then used to determine the mediating and moderating effects.

**Results.** The results revealed that social capital and relational closeness were products of active usage, while social comparison and envy were products of passive usage. Additionally, the individualism-collectivism dimension was revealed as a moderator of the relationship between social capital, relational closeness, social comparison, and subjective well-being.

**Conclusion.** Based on the results of this research, active Instagram usage with reciprocal activities such as direct messaging is encouraged. Conversely, passive Instagram usage should be discouraged as it can trigger negative effects such as social comparison and envy. It is also recommended that future studies in the field measure culture on an individual level as opposed to a national level. This is to avoid overlooking cultural differences among individuals from the same country.

*Keywords: Subjective well-being, active and passive use, culture, Instagram, millennials*

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**1. INTRODUCTION**

Over the years, there has been an increase around the world in the use of digital technologies such as social networking sites (SNSs). This has led scholars to investigate the link between these technologies and their effect on users' well-being. From this, certain studies have linked the use of SNSs to poor mental health including depression and loneliness (Faelens et al., 2021; Wenninger et al., 2018). Idealised images of peers on sites such as Instagram have been found to increase isolation due to mental perspectives of unattainable happiness (Lemay et al., 2019). Conversely, other scholars have found limited support in relation to SNS usage and decreased well-being (Liu et al., 2019; Valkenburg et al., 2021). These inconsistencies in findings highlight the need for additional research to comprehend the effects of SNS usage on users' well-being. Moreover, prior studies have often focused on Western societies, creating a gap in literature that focuses on SNS usage and well-being among diverse cultures.

More specifically, this research will explore the effects of Instagram usage on users' subjective well-being. Subjective well-being is often defined as the ideal mental state that an individual tries to attain (Wenninger et al., 2018). Emphasis is placed on subjective well-being as it encompasses both cognitive and affective aspects within everyday life settings (Choi & Kim, 2020; Wenninger et al., 2018). Research states that the activities individuals partake in on these platforms are important indicators in determining how SNS usage affects subjective well-being. Such activities range from sharing photos, browsing content, instant messaging, and staying up to date with others (Desreumaux, 2018). Furthermore, scholars classify these activities into either active or passive usage with the former denoting to direct and reciprocal communication with other users, and the latter with actions such as monitoring others' activities through scrolling (Verduyn et al., 2020).

To further determine the link between active and passive Instagram use and subjective well-being, this study will analyse four mediators. Social capital and relational closeness are analysed as mediators of the relationship between active usage and subjective well-being. In contrast, social comparison and envy are analysed as mediators of the relationship between passive usage and subjective well-being. These mediators were selected on the basis that the development and maintenance of social capital often results in closer relational ties with contacts (Carr et al., 2016). On the other hand, individuals who engage in passive usage are likely to end up comparing themselves to others, which can result in feelings of envy (Wenninger et al., 2021). Therefore, these mediators are identified as mechanisms that occur through active and passive usage (Reimann et al., 2021; Verduyn et al., 2021).

Cultural backgrounds also play an important role in establishing the relation between active and passive Instagram use and subjective well-being. This is because online environments closely reflect the cultural values that are seen in offline environments (Choi et al., 2011). Research states

that the way individuals communicate and behave online differs from one culture to another (Choi et al., 2011). Individuals from cultures that are more collectivistic are therefore likely to reflect the same values online and vice versa. Considering this, the current study aims to add to literature by analysing the moderating role of culture in the specified context.

To explore these effects, Instagram which is a major SNS platform will be utilised. Previous studies have frequently focused on Facebook leading to recommendations for future research in the field to explore other platforms (Wenninger et al., 2019). Additionally, at 32% the largest age group of Instagram users belongs to millennials (Statista, 2022a), who are also the target group of this study. Research suggests that millennials are among the cohorts prone to mental health issues associated with SNS usage (Hassan et al., 2022). This makes them an important group to prioritise with practical advice on well-being. They are also considered a significant target segment in researching SNS usage as they are known as 'digital natives,' due to their experience growing up around such technologies (Beaudoin & Hong, 2021). For this reason, this study focuses on millennials from two different countries and cultures i.e., the Netherlands and Kenya. In both countries, millennials are also identified as one of the largest groups of SNS users after Gen Z (CBS, 2021; Statista, 2022b), making them a suitable target group.

To sum up, this research investigates three levels with the first being the effect of active and passive Instagram use on millennials' subjective well-being. This is followed by an analysis of the mediating role of social capital, relational closeness, social comparison, and envy. Lastly, the moderating role of culture on the individualism-collectivism dimension will be examined with millennials from the Netherlands and Kenya. To accomplish this, the following research questions were formulated for this study:

*RQ1: To what extent does active or passive Instagram use affect the subjective well-being of millennials?*

*RQ 2: To what extent do social capital, relational closeness, social comparison, and envy, mediate the relationship between active and passive Instagram use, and subjective well-being of millennials?*

*RQ3: To what extent does the cultural background of millennials moderate the relationship between social capital, relational closeness, social comparison, envy, and subjective well-being?*

**2. LITERATURE REVIEW**

The following section provides a comprehensive overview on the main concepts and underlying theories, which also form a foundation for the proposed hypotheses. First, the dependent variable of subjective well-being will be discussed, followed by the independent variable of active and passive SNS usage. Second, the mediating variables of social capital, relational closeness, social comparison, and envy will be discussed. Lastly, the moderating role of culture within the individualistic and collectivistic dimension will be analysed. A visualisation of the of all these aspects will then be presented in the conceptual framework.

**2.1. Subjective well-being on Instagram**

The concept of well-being can be defined in multiple ways as scholars differ on the number of dimensions it entails. A frequently used framework of well-being distinguishes it into two dimensions, these being hedonic and eudemonic well-being (Best et al., 2014). The former is concerned with constructs such as happiness, positive or negative affect, and life satisfaction while the latter is concerned with positive cognitive functioning (Dodge et al., 2012). Furthermore, the division categorises hedonia as subjective well-being and eudaimonia as psychological well-being (Goodman et al., 2017). This conceptualisation is often used by scholars as it clearly breaks down the concept of well-being into the aspect of feeling good and functioning well (Huppert & So, 2011).

Another established framework of well-being categorises the concept into five dimensions including positive emotions, engagement, relationships, meaning, and accomplishment (Zhou & Zhang, 2019). Better known by the acronym PERMA, these dimensions encompass elements of both hedonia and eudaimonia (Goodman et al., 2017). More specifically, positive emotions include aspects such as happiness and satisfaction while engagement includes the eagerness to learn and have captivating interests (Zhou & Zhang, 2019). The relationship dimension includes maintaining healthy connections with others, while the meaning dimension is reflected by having a purpose (Butler & Kern, 2016). Lastly, the dimension of accomplishment is reflected by an individual's sense of achievement and mastery in various aspects of their life (Goodman et al., 2017).

Derived from the numerous dimensions of well-being, subjective well-being can be further defined as the ideal mental state that individuals strive to achieve (Wenninger et al., 2018). Within the SNS context, scholars often study subjective well-being over other dimensions of well-being. According to Hsu et al. (2020) this is because subjective well-being is an indicator of continuance intention towards SNS platforms. SNSs also have the potential to boost users' subjective well-being as they satisfy a variety of users' needs including entertainment and information-seeking needs (Chang & Hsu, 2016). Considering the highlighted relationship between SNSs and subjective well-being, the PERMA framework would be beneficial to this research. A study conducted by Goodman et al. (2017) found empirical evidence that the PERMA framework's facets are directly linked to

subjective well-being as they measure the same items. Additionally, the PERMA framework allows for the measurement of subjective well-being on multiple dimensions, hence the choice to utilise it for this study.

To further understand the relationship between subjective well-being and SNS platforms, scholars highlight the social identity theory. This states that individuals can develop a sense of belonging and enhance their self-esteem through bonds in social groups (Zhou & Zhang, 2019). Increased self-esteem has been identified as an indicator of subjective well-being as it reflects an individual's assessment of their life quality (Du et al., 2017). Considering SNSs are online environments that facilitate relationship building, they have the potential to affect users' subjective well-being. Furthermore, numerous studies suggest that the level of subjective well-being users attain on SNSs depends on whether they use the sites actively or passively (Frison & Eggermont, 2016; Chang & Hsu, 2016). Individuals can therefore attain higher levels of subjective well-being from Instagram when it is utilized properly.

## 2.2. Active and passive Instagram usage

Scholars often categorize the use of SNSs into either active or passive usage, with each defined by different activities. Active usage is defined by online activities that are reciprocal in nature such as video calling or sending messages as these actions evoke two-way communication from users (Verduyn et al., 2020). Updating one's status is also considered active usage as it allows others the opportunity to interact with the content thereby facilitating communication exchange (Yang, 2016). On Instagram, these activities are made possible with features such as Instagram stories that other users can react to and direct messaging. Certain scholars also refer to the act of liking on Instagram as active usage, as it allows users to communicate a positive attitude (Frison & Eggermont, 2016). Regardless of these definitions, active usage may reflect differently among users. This study defines active usage with the element of reciprocity which includes activities that aid two-way communication.

Active usage is essential as prior research suggests a positive relationship between this type of usage and subjective well-being (Tosun, 2019; Wenninger et al., 2018). This is because active usage stimulates social exchange and interactivity with friends, acquaintances, and strangers (Reimann et al., 2021). Scholars state that building connections through such social exchanges are important as they can increase happiness which is a key component of subjective well-being (Arampatzi et al., 2016). Instagram also provides users with a wider audience to communicate with including strangers. This provides users with the opportunity to display support-seeking posts when in need and gain supportive communication from a wider audience than used to (Li & Zhang, 2021). Such online support is considered fundamental in supporting users' well-being as it provides benefits such as reduced stress (Lin et al., 2016).

Contrary to active use, passive use involves activities that do not provoke direct communication from others such as perusing through content and monitoring the online activities of others (Verduyn et al., 2020). Passive usage is also defined by the consumption as opposed to the production of content, which studies often found to negatively influence subjective well-being (Tosun, 2019). On Instagram, passive use includes activities such as browsing through other people's images and scrolling through the explore page (Hanley et al, 2019). This type of usage is also more common on Instagram due to the platform's focus on images and videos, as opposed to text that would allow users to communicate better with each other (Choi, 2022). In line with this study, passive usage is defined by non-reciprocal activities on Instagram.

Passive usage is frequently referred to as harmful as it has been found to have detrimental effects on users' subjective well-being (Chen et al., 2016; Wenninger et al., 2018). Choi (2022) found that due to Instagram features, the platform was more likely to facilitate passive usage as opposed to other SNS platforms such as Facebook. This is because unlike Facebook that requires friend requests, numerous Instagram profiles can easily be viewed by the public. This increases Instagram users' exposure to edited and unblemished images from peers, portraying flawless lives (Frison & Eggermont, 2016). Scholars state that this presentation of positive aspects of peers and celebrities' lives is also known as positivity bias whereby positive posts are deemed as more appropriate than negative posts (Li & Zhang, 2021). Furthermore, the constant exposure to such images presents passive users with feelings of inadequacy which deteriorates their subjective well-being (Choi, 2022; Wenninger et al., 2018). Based on this, the following hypotheses are proposed:

*Hypothesis 1a: Millennials who actively use Instagram positively influence their subjective well-being.*

*Hypothesis 1b: Millennials who passively use Instagram negatively influence their subjective well-being.*

## 2.3. Mediators of active Instagram usage
### 2.3.1. Social capital

The first mediating variable that is highlighted to explain the relationship between active usage and subjective well-being is social capital. Social capital can be defined as the total of actual and potential resources that an individual accumulates from their various relationships (Ellison et al., 2007). Such resources range from the ability to attain helpful knowledge, to employment connections and capabilities to bring groups together (Ellison et al., 2007). The concept can further be divided into two dimensions that reflect different types of relationships including bridging and bonding social capital. Bridging social capital is concerned with weak ties and acquaintances, which often leads to resources such as employment opportunities and information (Reimann et al., 2021). On the other hand, bonding social capital relates to strong ties with close relationships such as friends and family, producing resources such as emotional support (Ji et al., 2010).

Over the years, SNSs have been identified as platforms that facilitate both bridging and bonding social capital as they allow individuals to sustain their current relationships, while simultaneously creating new ties (Ellison et al., 2007). While some SNS platforms offer more opportunities for either bridging or bonding social capital, research attests that Instagram offers a combination of both (Reimann et al., 2021). This is because Instagram users can interact with people they do not know on public profiles as well as people they have closer ties with (Phua et al., 2017). Considering active Instagram usage is defined by communication with other users and reciprocal activities, studies highlight it as a key path to attaining and maintaining social capital (Reimann et al., 2021; Verduyn et al., 2021).

Social capital has also been found to increase individuals' subjective well-being due to the personal resources that it provides them with (Lee et al., 2011). Scholars state that individuals can develop a sense of connectedness through the relationships formed from social capital, which enhances their well-being (Verduyn et al., 2021). This is also because human beings are naturally social at their core, which makes social capital an essential asset and an emotional investment (Burke et al., 2011; Ji et al., 2010). Furthermore, social capital has been identified as an important determinant of life satisfaction, which is a part of subjective well-being (Reimann et al., 2021). Hence, it is hypothesised that:

*Hypothesis 2a: Millennials who actively use Instagram acquire more social capital.*

*Hypothesis 2b: Millennials who actively use Instagram acquire more social capital which in turn positively influences their subjective well-being.*

### 2.3.2. Relational closeness

Aside from social capital, relational closeness is also identified as a potential mediator between active usage and subjective well-being. Much like social capital, SNS users can attain relational closeness through their online interactions (de Zúñiga et al., 2016). The concept of relational closeness can be defined as the personal experience of emotionally and cognitively connecting with another individual (Gioia et al., 2021). This concept is closely linked to social capital as they are both concerned with relationships, whereas relational closeness also pertains to the strength of a relationship (Hayes et al., 2016). On Instagram and other SNSs, relational closeness is highlighted as an accompanying outcome of active usage. This is because active usage involves direct communication with others which increases chances of social interaction and closeness as a social benefit (Frison & Eggermont, 2016). Moreover, Instagram aids relational closeness as it allows users to share information on their daily lives through stories and posts (Reimann et al., 2021). This allows other users the opportunity to feel involved and close from interacting with such content (Neubaum & Krämer, 2015).

In relation to subjective well-being, relational closeness plays an important role as users who share greater closeness are more likely to benefit from online support in times of need (Li & Zhang, 2021). On Instagram, such support can take the form of supportive communication in relation to a support-seeking post from a user, which is positively linked to subjective well-being (Li & Zhang, 2021; Webster et al., 2020). Moreover, unlike in traditional environments where individuals are more likely to develop relational closeness with family and close friends, SNSs provide a setting that allows relational closeness from a wider audience including strangers (Li & Zhang, 2021). This provides more opportunities for users to develop subjective well-being. Lastly, the development of relational closeness and social relationships is a basic human need that when deprived has damaging effects towards individual's overall well-being. From these points, it is hypothesised that:

*Hypothesis 3a: Millennials who actively use Instagram maintain more relational closeness.*

*Hypothesis 3b: Millennials who actively use Instagram maintain more relational closeness which in turn positively influences their subjective well-being.*

## 2.4. Mediators of passive Instagram usage
### 2.4.1. Social comparison

The relationship between passive Instagram usage and subjective well-being may be mediated by social comparison. Social comparison can be defined as the inclination to use other people as a point of information or scale, to determine how well one is doing in various aspects of life such as career performance (Verduyn et al., 2020). Scholars identify passive Instagram usage as a practice that leads to social comparison due to the amount of perfectly edited and filtered images that passive users consume (Frison & Eggermont, 2016). Moreover, passive Instagram usage is characterised by content consumption and browsing other users' posts without interaction. This makes passive users more susceptible to negative feelings including comparison, resentment, and loneliness (Lup et al., 2015).

Similar to the negative effects of passive Instagram usage, social comparison has been found to negatively influence users' subjective well-being. This is because comparison elicits negative emotions which lead to low self-esteem and distorted perceptions of oneself (Yang, 2016). The nature of Instagram also creates a setting for social comparison to take place as the information necessary to compare one's life to another is often easily available (Choi & Kim, 2020; Verduyn et al., 2020). As previously mentioned, this is also a consequence of the positivity bias, which favours positive posts over negative ones (Li & Zhang, 2021). This presents the idea to passive users that other people are mainly having positive life experiences, which is a warped version of reality. Considering this, it is hypothesised that:

*Hypothesis 4a: Millennials who passively use Instagram compare themselves more to others.*

*Hypothesis 4b: Millennials who passively use Instagram compare themselves more to others which in turn negatively influences their subjective well-being.*

### 2.4.2. Envy

Aside from social comparison, the emotion of envy may also mediate the relationship between passive usage and subjective well-being. Scholars state that envy arises as a product of social comparison, linking the two concepts closely (Verduyn et al., 2020). Envy can be defined as the distasteful feeling caused by a combination of inferiority, spite, and dislike towards another individual that has something one desires (Meier & Schäfer, 2018). The emotion of envy can further be divided into benign envy which occurs when an individual has a longing to have what another person has, and malicious envy which occurs when an individual yearns for another person to lose their competitive advantage (Liu et al., 2018). Various scholars also hypothesize that passive Instagram usage results in feelings of envy. This occurs when passive users consume content related to idealised versions of other users' lives (Wang et al., 2017). Additionally, as Instagram is an image-centred platform, the positive presentation of people's lives is magnified, triggering feelings of envy among passive users (Lup et al., 2015).

Considering the feeling of envy erupts as a result of social comparison, it is also negatively linked to users' subjective well-being. Research states this is due to the negative and damaging mental outcomes that are associated with envy such as depression and anxiety (Wenninger et al., 2021). Several studies on benign and malicious envy have also found negative effects on well-being to be related to malicious envy as opposed to benign envy (Liu et al., 2018; Noon & Meier, 2019). This is because benign envy is less harmful towards the individual, while malicious envy often leads to loneliness on SNSs (Wenninger et al., 2021).

Despite these findings, there are scholars that claim envy can be beneficial towards individual's well-being. One study conducted on social comparison and envy on Instagram found that benign envy fully mediated the relationship between social comparison and inspiration on the platform (Meier & Schäfer, 2018). Similarly, Valkenburg et al. (2021) attest that passive use doesn't only result in envy, but also induces inspiration and positive effects on well-being. Nevertheless, studies have found that individuals who passively use SNSs often agree that their peers are living better lives than they are, based on the content they have seen online (Fioravanti et al., 2020). Such false views of life depreciate individual's subjective well-being by encouraging unfavourable behaviours in response to envy (Wenninger et al., 2019). Accordingly, the following hypotheses are proposed:

*Hypothesis 5a: Millennials who passively use Instagram develop increased feelings of envy.*
*Hypothesis 5b: Millennials who passively use Instagram develop increased feelings of envy which in turn negatively influences their subjective well-being.*

**2.5. The moderating role of culture**
*2.5.1. Individualism and collectivism*

In this study, the element of culture is identified as a moderator between the relationship of the mediating concepts and subjective well-being. Culture can be defined as the collection of shared values, norms, and practices by a group of people (Qiu et al., 2012). Considering the concept of culture is broad, this study firstly analyses culture on the individualism and collectivism level as conceptualised by Geert Hofstede. Divided into a framework of six dimensions, Geert Hofstede grouped culture into individualism-collectivism, masculinity-femininity, power distance, uncertainty avoidance, restraint-indulgence, and long-term and short-term orientation (Gill, 2017). Individualistic cultures can be defined as those that prioritise the betterment of themselves as opposed to integrating with other groups, while collectivistic cultures prioritise social ties and groups beyond their immediate family (Minkov et al., 2017). In this regard, the Netherlands has a high individualism score of 80 while Kenya scores significantly lower with 25, making the culture more collectivistic (Hofstede Insights, n.d.).

Arguably, several studies within an SNS context state that the individualism-collectivism dimension is the most important in differentiating among national cultures (Cho & Park, 2012; Jackson & Wang, 2013). This is because the dimension highlights cultural differences on both social and psychological levels (Hamamura, 2011), which makes it suitable for this study. Nevertheless, there are scholars that criticise the use of this dimension as individuals from one national culture may identify disparately than expected or have both individualistic and collectivistic tendencies (Kitirattarkarn et al., 2019). For this reason, this study analyses the individualism-collectivism dimension on an individual comparison level rather than a country comparison level. Therefore, differences between the Netherlands and Kenya are observed separately. This approach would take such criticism into consideration by highlighting any disparities.

As highlighted in previous studies, variations are evident in the way individuals from the individualism-collectivism dimension use SNSs (Kim et al., 2011; Qiu et al., 2012; Wenninger et al., 2019). Research states that people from collectivistic cultures often seek to attain online support when using SNSs, and thus maintain more social capital (Choi et al., 2011). Conversely, users from individualistic cultures prioritise themselves over nurturing relationships, making them more inclined to using SNSs for entertainment purposes rather than acquiring social capital (Yin et al., 2018). Similar to social capital is the aspect of relational closeness which is concerned with the strength of a relationship (Hayes et al., 2016). Correspondingly, individualistic SNS users are more likely to have larger networks with weak social ties, as opposed to those from collectivistic cultures who maintain smaller networks with stronger social ties (Choi et al., 2011). Beilmann et al. (2017) also state that

individualistic cultures are more open to larger weak networks besides their immediate family. Hence, this would reflect greater relational closeness on SNSs among collectivistic individuals.

Besides this, the aspect of social comparison and envy also manifest themselves differently within the individualism-collectivism dimension. Song et al. (2018) state that social comparison is more likely to be apparent among collectivistic users as they depend on others for social standards. On the contrary, individualistic cultures reflect independence with people who define standards for themselves thus leading to less social comparison (Song et al., 2018). Regarding envy, research states that collectivistic cultures avoid flaunting to preserve harmony within groups, while individualistic cultures often display and proclaim personal achievements (Wenninger et al., 2019). Therefore, it is hypothesized that individualistic SNS users are likely to experience the feeling of envy more than users from collectivistic cultures. Taking these aspects into consideration, the following hypotheses were formulated:

*Hypothesis 6a: The positive relationship between social capital on Instagram and subjective well-being is stronger for millennials from collectivistic cultures.*

*Hypothesis 6b: The positive relationship between relational closeness on Instagram and subjective well-being is stronger for millennials from collectivistic cultures.*

*Hypothesis 6c: The negative relationship between social comparison on Instagram and subjective well-being is stronger for millennials from collectivistic cultures.*

*Hypothesis 6d: The negative relationship between feelings of envy on Instagram and subjective well-being is stronger for millennials from individualistic cultures.*

### 2.5.2. The Netherlands and Kenya

Culture influences various aspects of life including technology and the way humans communicate therefore, there is a need for more research on the role it plays in terms of SNS usage. Currently in literature, there are limited studies that address the moderating role of culture on a country comparison level. One such study by Kim et al. (2011) found that the motives for SNS usage among students from the US and South Korea differed in terms of importance. This difference was evident from Korean students placing more value on attaining online support from existing relationships, and American students placing more importance on browsing entertainment. A separate study conducted on SNS users from Germany and Hong Kong found that individuals from Germany were more likely to engage in self-enhancement behaviours to cope with envy on SNSs (Wenninger et al., 2019).

As previously mentioned, the Netherlands is considered more individualistic while Kenya is deemed a more collectivistic culture (Hofstede Insights, n.d.). Therefore, it is expected that the country comparison level will mainly reflect the relationships hypothesized within the individualism-collectivism dimension. In this lens, social capital, relational closeness, and social comparison would

be more pronounced with millennials from Kenya. On the other hand, the emotion of envy would be more evident among millennials from the Netherlands. This can be seen from the envy-avoidance strategies of Kenyans with a prime example being the way individuals choose not to eat food in public, to avoid sparking jealousy among others (Harries, 2012). Based on this, the following hypotheses were formulated:

*Hypothesis 7a: The positive relationship between social capital on Instagram and subjective well-being is stronger for millennials from Kenya.*

*Hypothesis 7b: The positive relationship between relational closeness on Instagram and subjective well-being is stronger for millennials from Kenya.*

*Hypothesis 7c: The negative relationship between social comparison on Instagram and subjective well-being is stronger for millennials from Kenya.*

*Hypothesis 7d: The negative relationship between feelings of envy on Instagram and subjective well-being is stronger for millennials from the Netherlands.*

## 2.6. Control variables: Number of Instagram followers and frequency of usage

According to previous research in similar settings, two variables were included in the research as they were identified to potentially influence the outcome of the study. This included the number of Instagram followers and the frequency of Instagram use (Wenninger et al., 2019; Choi, 2022). Research states that individuals with large friendship networks on SNSs are more likely to acquire social capital (Ellison et al., 2011). This is evident from the greater opportunities they have to receive emotional support when they broadcast support-seeking posts (Ellison et al., 2011). Hence, this variable was controlled to determine its potential contribution to users' social capital.

Additionally, the frequency of Instagram use was controlled to determine its effect on subjective well-being. This is because research shows that individuals who use SNSs for longer intervals are more susceptible to depression and low subjective well-being (Kross et al., 2013). Based on this, individuals may exhibit lower levels of subjective well-being based on the amount of time they spend on Instagram, and not solely as a result of passive usage.

Figure 1 further illustrates the relationship between the different concepts and hypotheses that are relevant to the study.

**Figure 1**

*Conceptual Framework*
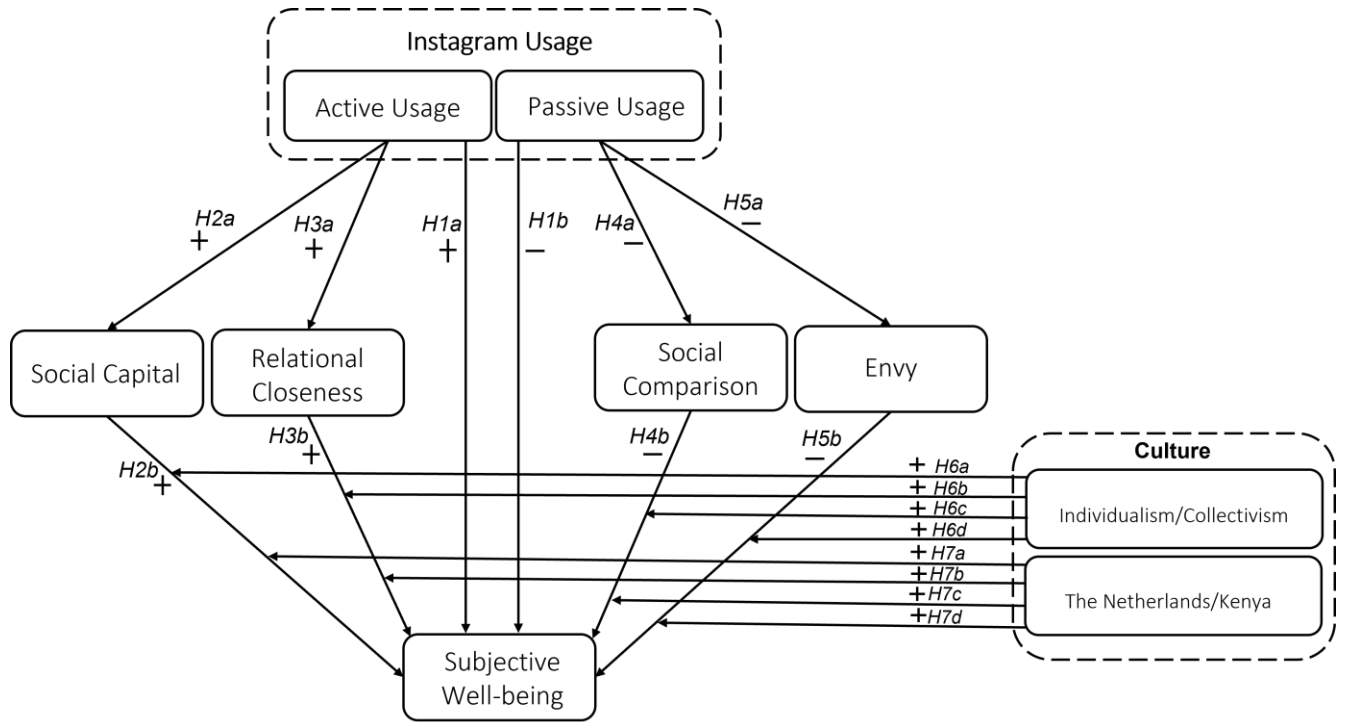
**3. METHODOLOGY**

This chapter outlines the research elements selected for this study including the research design, the participants, the measurements, and the research procedure. Additionally, the process undertaken in the pre-test will be presented including the overall reliability and validity of the main study.

**3.1. Research design**

To answer the research questions, a correlational research design was constructed to test the hypotheses. This research design was selected as it allows for the analysis of the relationship between variables (Bhandari, 2021). Considering the research questions aim to primarily investigate the relationship between Instagram usage and subjective well-being, this design was deemed appropriate.

**3.2. Participants**

Participants for this study were selected on the basis that they were a millennial, had an Instagram account, and resided in either the Netherlands or Kenya. These two countries were selected to allow cultural background variations within the individualism-collectivism cultural dimension. As previously mentioned, the Netherlands has an individualism score of 80 while Kenya has a lower score of 25 making it more collectivistic (Hofstede Insights, n.d.). To define the millennial age group, respondents were required to be within the ages of 25 to 36 years old (Bialik & Fry, 2019). This is because at 32%, this age group make up the largest percentage of Instagram users in both countries (CBS, 2021; Statista, 2022a; Statista, 2022b). Additionally, the age group was selected as it consists of both younger and older millennials (Bialik & Fry, 2019), making it inclusive.

To gather the sample, non-probability sampling methods were utilised due to the lack of resources available to access the entire list of millennials living in the Netherlands and Kenya. This was achieved with a combination of convenience and snowball sampling considering the efficiency both these methods offer. These sampling methods were also beneficial due to the limited time frame of the study. The first set of respondents was gathered from the researcher's personal Instagram network. This was done by posting a link to the online survey on the researcher's Instagram story which allowed interested viewers to quickly access the survey. Following this, snowball sampling was used by requesting a portion of existing respondents to assist the researcher by sharing the survey link further. Respondents were also recruited from other SNS platforms including LinkedIn and Facebook groups. To further increase the reach, participants were recruited from SurveySwap and SurveyCircle, which are platforms that allow students and researchers to exchange surveys.

Following the conclusion of the data collection, a total of 260 respondents filled in the survey. From this, 35 respondents were excluded from the data analysis as they did not complete

the survey. Additionally, 5 respondents who completed the survey were excluded as they did not meet the age range criteria. This resulted in a final sample of 115 millennials from the Netherlands and 105 millennials from Kenya. Table 1 provides an overview of the sample characteristics from both countries. Respondents in the Netherlands were on average 27.9 years old (*SD* = 3.0), while respondents in Kenya were on average 28.7 years old (*SD* = 3.1).

**Table 1**

*Sample Characteristics*

| Charactersistic | The Netherlands | | Kenya | |
|---|---|---|---|---|
| | n | % | n | % |
| Gender | | | | |
| Male | 39 | 33.9 | 35 | 33.3 |
| Female | 69 | 60 | 68 | 64.8 |
| Other | 7 | 6.1 | 2 | 1.9 |
| Education | | | | |
| Low education | 4 | 3.5 | 10 | 9.5 |
| High education | 111 | 96.5 | 95 | 90.5 |
| Number of followers | | | | |
| 10 or less | 0 | 0 | 1 | 1 |
| 11 - 50 | 2 | 1.7 | 5 | 4.8 |
| 51 - 100 | 6 | 5.2 | 8 | 7.6 |
| 101 - 150 | 7 | 6.1 | 8 | 7.6 |
| 151 - 200 | 7 | 6.1 | 7 | 6.7 |
| 201 - 250 | 5 | 4.3 | 12 | 11.4 |
| 251 - 300 | 17 | 14.8 | 10 | 9.5 |
| 301 - 400 | 37 | 32.2 | 16 | 15.2 |
| more than 400 | 34 | 29.6 | 38 | 36.2 |
| Time on Instagram per day | | | | |
| Less than 30 minutes | 47 | 40.9 | 39 | 37.1 |
| 30 - 59 minutes | 39 | 33.9 | 37 | 35.2 |
| 1 - 2 hours | 23 | 20.0 | 19 | 18.1 |
| 3 - 4 hours | 5 | 4.3 | 6 | 5.7 |
| 5 or more hours | 1 | 0.9 | 4 | 3.8 |

*Note.* N = 220 (*n* = 115 in the Netherlands and *n* = 105 in Kenya).

### 3.3. Measurements

All measurements used were replicated from established scales with reliability scores presented from their respective studies. A few adjustments were implemented to suit the Instagram context of this study. A full list of all the scales used in the study can be found in Appendix A.

### 3.3.1. Subjective well-being

The dependent variable measuring subjective well-being was measured using fourteen items from the PERMA scale by Zhou and Zhang (2019) ($\alpha$ = .94). This scale was selected as it analyses subjective well-being on five comprehensive dimensions including positive emotion, engagement,

relationships, meaning, and accomplishment. All items were rated on a 5-point Likert scale with responses ranging from 'never' to 'always' and 'not at all' to 'completely' depending on the specific item. Respondents were required to respond to statements such as "how often do you feel joyful?" (Zhou & Zhang, 2019, p. 4).

### 3.3.2. Active and passive Instagram usage

To measure the independent variable of Instagram usage, seven items from the Passive and Active Usage Scale (PAUS) by Hanley et al. (2019) were utilised. This was divided into two sub-scales with four items measuring passive usage ($\alpha$ = .87) and three items measuring active usage ($\alpha$ = .82). Furthermore, the scale was modified to make the questions more specific to Instagram by adding the word 'Instagram' to each question appropriately. Sample items on this scale include "how often do you scroll through your Instagram explore page?" and "how often do you post photos on Instagram?" (Hanley et al., 2019). All questions were presented on a 5-point Likert scale ranging from "never" to "almost every time I log in".

### 3.3.3. Social capital

The mediating variable of social capital was measured with a two-dimensional scale by Lee et al. (2016), reflecting bridging ($\alpha$ = .89) and bonding ($\alpha$ = .87) social capital. This consisted of ten items that were measured on a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. Additionally, the statements were modified by replacing the word 'online' with 'Instagram' to make them more specific to the platform. A sample item from the bridging dimension includes "interacting with people on Instagram makes me feel like part of a larger community" (Lee et al., 2016, p. 1172). Conversely, a sample item from the bonding dimension includes "when I feel lonely, there are several people on Instagram I can talk to" (Lee et al., 2016, p. 1172).

### 3.3.4. Relational closeness

The second mediating variable was relational closeness. This was measured with the perceived social closeness scale ($\alpha$ = .84) by Neubaum and Krämer (2015). This scale was deemed appropriate as it measures individuals' encounters of feeling close to others in an online setting (Neubaum & Krämer, 2015). This consisted of five statements that were measured using a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. Furthermore, as this scale was originally designed for Facebook, all statements referring to 'Facebook' were modified and replaced with 'Instagram'. This resulted in statements such as "when browsing through Instagram, I had the sense of being close to my friends" (Neubaum & Krämer, 2015, p. 445).

### 3.3.5. Social comparison

The third mediating variable concerned with social comparison was measured using the Iowa-Netherlands Comparison Orientation Scale (INCOM) by Yang (2016). The scale consisted of eleven items that were measured on a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree' ($\alpha$ = .83). Additionally, to make the statements more specific to Instagram, the scale

was modified by including the word 'Instagram' to eight statements. No modifications were made to the remaining three statements. A sample statement from the scale includes "I often compare how I am doing socially with other people on Instagram" (Yang, 2016, p. 705).

### 3.3.6. Envy

The final mediating variable, which is the feeling of envy was measured with the Benign and Malicious Envy Scale (BeMaS) by Meier and Schäfer (2018). This consisted of nine items divided into two sub-scales with five items measuring benign envy ($\alpha$ = 0.89) and four items measuring malicious envy ($\alpha$ = 0.87). All items were rated on a 5-point Likert scale with responses ranging from 'strongly disagree' to 'strongly agree'. A sample item for benign envy includes ''when I envy others on Instagram, I focus on how I can become equally successful in the future'' (Meier & Schäfer, 2018, p. 413). Conversely, a sample item for malicious envy includes ''seeing other people's achievement on Instagram makes me resent them'' (Meier & Schäfer, 2018, p. 413).

### 3.3.7. Individualism-collectivism

To measure the moderating role of culture with the dimension of individualism-collectivism, the INDCOL scale by Oyserman et al. (2002) was utilised. This consisted of thirteen items measured on a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. Additionally, the scale was divided into two sub-scales consisting of six items measuring individualism ($\alpha$ = 0.63) and seven items measuring collectivism ($\alpha$ = 0.72) (Dardara, 2018). A sample item for individualism includes "I tend to do my own thing, and others in my family do the same" (Oyserman et al., 2002, p. 9). Conversely, a sample item for collectivism includes "to me, pleasure is spending time with others" (Oyserman et al., 2002, p. 9).

### 3.3.8. Control variables

The first control variable measured respondent's total number of Instagram followers while the second control variable measured respondent's frequency of Instagram use. Both control variables were each measured using a single item adapted from the Facebook Intensity scale by Ellison et al. (2007). As the items were originally developed for Facebook, the term 'Facebook' was replaced with 'Instagram' to suit the current study. The first control variable was assessed through the following question: "Approximately how many total Instagram followers do you have?" (Ellison et al., 2007). Answer options ranged from '10 or less' to 'more than 400'. The second control variable was assessed through the following question: "In the past week, on average, approximately how much time per day have you spent on Instagram?" (Ellison et al., 2007, p. 1150). Responses for this question ranged from 'less than 30 minutes' to '5 or more hours.'

### 3.4. Pre-test

A pre-test was conducted to ensure the survey was comprehensible before distributing it in the main study. To do this, 15 respondents from the Netherlands and 15 respondents from Kenya were gathered to participate in the pre-test. This consisted of an age range between 25 to 36 years

old in the Netherlands ($M$ = 29.73, $SD$ = 5.14) and Kenya ($M$ = 27.13, $SD$ = 4.20). Participants were recruited by requesting close contacts and acquaintances to complete the survey.

Following the participant recruitment, cognitive interviews with 10 participants were conducted to evaluate the quality of the survey questions. Participants were asked about their ability to comprehend the questions and for further comments they had about the survey. From this, it was identified that two questions from the relational closeness scale were perceived as asking the same thing. The questions were: "While browsing through Instagram, it felt like my friends were near me" and "when browsing through Instagram, I had the sense of being close to my friends." To better differentiate them, the first question was modified to: "While browsing through Instagram, it felt like my friends were physically near me." This was done to imply physical closeness in the modified question. The cognitive interviews also identified that the survey was perceived as lengthy by respondents. An overview of all questions implemented into the final study after modifications can be found in Appendix A.

**3.5. Construct reliability and validity**

To measure the internal consistency of the measurements used in the main study, a reliability analysis was first performed by calculating the Cronbach's alpha (see Table 2). This revealed that the reliability of all the constructs used in the study were above .70.

**Table 2**

*Reliability analysis of main study*

| Factor | Cronbach's alpha |
| --- | --- |
| Instagram usage (active) | 0.78 |
| Instagram usage (passive) | 0.83 |
| Social capital (bridging) | 0.79 |
| Social capital (bonding) | 0.85 |
| Relational closeness | 0.89 |
| Social comparison | 0.73 |
| Envy (benign) | 0.91 |
| Envy (malicious) | 0.89 |
| Culture (individualism) | 0.80 |
| Culture (collectivism) | 0.73 |
| Subjective well-being | 0.92 |

Furthermore, a factor analysis was computed using a principal component analysis (see Appendix B). This revealed a total of 15 factors measuring all dimensions of the measurements used in the study. From this analysis, one question measuring malicious envy seemed to measure on both the benign envy and malicious envy dimension. However, the decision was made to retain the item as it loaded higher on the malicious envy dimension with 0.67, than on the benign envy dimension

with 0.44. Therefore, it was deemed fit that the item was retained for further analysis. Overall, both the reliability and validity analysis reflected internal consistency allowing for further analysis.

### 3.6. Research procedure

Before proceeding with data collection, the study was approved by the BMS Ethics Committee of the University of Twente. The data collection process was then carried out via an online survey which was hosted by Qualtrics. After clicking the link to the survey, all respondents were presented with an informed consent form which detailed information about the study. This included but was not limited to, the purpose of the study, and the anonymity of participants and their responses. Respondents who provided consent were then asked inclusion criteria questions pertaining to whether they had an Instagram account and their country of residence. Those who answered 'no' to having an Instagram account or indicated that they did not reside in the Netherlands or Kenya, were excluded from the study.

Participants who sufficiently answered the inclusion criteria questions were then asked demographic questions including their age, gender, and educational level. Participants were also asked to indicate their total number of Instagram followers, and the average time they spent on Instagram per day. Following this, participants were required to respond to questions on the activities they partake in on Instagram to determine if they were active or passive users. Questions on the individualism-collectivism dimension were then asked to determine if participants were individualistic or collectivistic. Participants were also asked to answer questions to determine their level of subjective well-being. Lastly, questions on all four mediating variables were presented including social capital, relational closeness, social comparison, and envy. No incentives were offered to respondents in exchange for completing the survey.

Following the data collection, the data was analysed with the use of SPSS statistical software. Firstly, correlations were computed to examine the relationships between the scales used in the study. A hierarchical linear regression was then used to determine the main effect between Instagram use and subjective well-being. Regression analyses were also used to determine the mediating and moderating effects. Additionally, both control variables were included as predictor variables in the respective regression analyses. This was to control for and assess if they had an influence on social capital and subjective well-being as anticipated.

## 4. RESULTS

The following chapter outlines the findings of the study in relation to the research questions. Firstly, descriptive statistics of the measurement scales are presented. This is followed by an overview of the correlations. A hierarchical regression analysis is then presented to examine the relationship between active and passive usage and subjective well-being. Furthermore, multiple regression and hierarchical regression analyses are used to determine the effect of the mediating and moderating variables respectively. Lastly, an outline of the supported hypotheses will be presented. It is also important to note that a p-value of .001 was selected as this presents very strong evidence that the null hypothesis is rejected (Singh, 2013).

### 4.1. Descriptive statistics

Table 3 presents the mean scores and standard deviations for each measurement scale used in the study. It can be stated that more millennials use Instagram passively with ($M$ = 3.67, $SD$ = 0.86) on a 5-point Likert scale. This is in contrast with active usage reflecting lower scores with ($M$ = 2.86, $SD$ = 0.82). Regarding the mediating variables, bridging social capital had the highest average score with ($M$ = 3.31, $SD$ = 0.73) on a 5-point Likert scale, while malicious envy had the lowest average score of ($M$ = 1.75, $SD$ = 0.76). It can also be stated that millennials in the overall sample scored higher on individualistic traits with ($M$ = 5.48, $SD$ = 0.95) on a 7-point Likert scale. Furthermore, the subjective well-being measurement reflected higher average scores of ($M$ = 3.66, $SD$ = 0.59) on a 5-point Likert scale. A complete overview of all other scales including their means and respective standard deviations can be found in the table below.

**Table 3**

*Descriptive statistics of measurement scales*

|  | Mean | SD |
|---|---|---|
| *Measurement scales* |  |  |
| Instagram usage (active)[a] | 2.86 | 0.82 |
| Instagram usage (passive)[a] | 3.67 | 0.86 |
| Social capital (bridging)[b] | 3.31 | 0.73 |
| Social capital (bonding)[b] | 2.62 | 0.88 |
| Relational closeness[b] | 2.69 | 0.93 |
| Social comparison[b] | 2.90 | 0.50 |
| Envy (benign)[b] | 2.65 | 0.88 |
| Envy (malicious)[b] | 1.75 | 0.76 |
| Culture (individualism)[c] | 5.48 | 0.95 |
| Culture (collectivism)[c] | 3.98 | 1.20 |
| Subjective well-being[d] | 3.66 | 0.59 |

[a] *5-point Likert scale (1 = never / 5 = almost every time I log in)*

[b] *5-point Likert scale (1 = strongly disagree / 5 = strongly agree)*

[c] *7-point Likert scale (1 = strongly disagree / 7 = strongly agree)*

[d] *5-point Liker scale (1 = never / 5 = always) and (1 = not at all / 5 = completely)*

### 4.2. Correlation analysis

To establish the relationships between the variables used in the study, Pearson's correlation coefficient was computed (Table 4). The table below shows that there was a weak positive correlation between active Instagram usage and subjective well-being, $r(218) = .09$, $p < .01$. Contrastingly, there was a weak negative relationship between passive Instagram usage and subjective well-being, $r(218) = -.06$, $p < .01$. Regarding the mediating variables, a low positive correlation and statistical significance was identified between active usage and bridging social capital $r(218) = .39$, $p < .01$. This was also the case with bonding social capital $r(218) = .47$, $p < .01$. The table further shows that the mediating variables linked to passive Instagram usage overall reflect low positive correlations. For a comprehensive overview, all Pearson correlation coefficients computed can be found in table 4.

**Table 4**

*Correlation coefficients*

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Instagram usage (active) | 1 | | | | | | | | | | |
| 2. Instagram usage (passive) | .707** | 1 | | | | | | | | | |
| 3. Social capital (bridging) | .389** | .399** | 1 | | | | | | | | |
| 4. Social capital (bonding) | .470** | .405** | .445** | 1 | | | | | | | |
| 5. Relational closeness | .501** | .547** | .536** | .554** | 1 | | | | | | |
| 6. Social comparison | .277** | .291** | .366** | .375** | .393** | 1 | | | | | |
| 7. Envy (benign) | .102 | .265** | .101 | .121 | .256** | .210** | 1 | | | | |
| 8. Envy (malicious) | .135* | .073 | -.060 | .180** | .229** | .156* | .562** | 1 | | | |
| 9. Culture (individualism) | .057 | .200** | .062 | -.067 | .033 | -.111 | .087 | -.003 | 1 | | |
| 10. Culture (collectivism) | .144* | .016 | .153* | .312** | .064 | .227** | -.179** | -.076 | -.305** | 1 | |
| 11. Subjective well-being | .087 | -.057 | .114 | .074 | -.012 | .007 | -.460** | -.240** | .017 | .284** | 1 |

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

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

### 4.3. Main effects
#### 4.3.1. Active and passive Instagram usage and subjective well-being

A hierarchical regression analysis was computed to investigate the effect of active and passive usage on subjective well-being (Table 5). This method was used to analyse the effect of frequency of Instagram use, which was the control variable anticipated to affect subjective well-being. The overall regression for the main effects model was not statistically significant ($R^2 = .04$, $F(2, 217) = 4.04$, $p = .019$). This indicated that both active and passive Instagram usage did not have a significant impact on subjective well-being. It was also noted that the control variable did not have an effect on subjective well-being.

Furthermore, the coefficients were analysed to establish the effect of active and passive Instagram usage on subjective well-being. The results showed that active Instagram usage did not have a significant impact on subjective well-being ($β = .19$, $t(217) = 2.77$, $p = .006$). Similarly, passive Instagram usage did not have a significant impact on subjective well-being ($β = -.16$, $t(217) = -2.52$, $p = .012$). Consequently, H1a and H1b were not supported.

**Table 5**

*Hierarchical regression analysis for main effects and control variable*

| | β | t | Sig. |
|---|---|---|---|
| **Model 1: Frequency of Instagram use** | | | |
| $R^2$ = .00, *F* (1, 218) = .15, *p* = .703 | | | |
| Frequency of Instagram usage | -.016 | -.381 | .703 |
| **Model 2: Active usage and Passive usage + Frequency of Instagram use** | | | |
| $R^2$ = .04, *F* (3, 216) = 2.83, *p* = .039 Active usage | .192 | 2.77 | .006 |
| Passive usage | -.165 | -2.52 | .012 |
| Frequency of Instagram usage | -.027 | -.663 | .508 |

a. Dependent variable: Subjective well-being

## 4.4. Mediation effects

### 4.4.1. Social capital

To test the mediation, two hierarchical regression analyses were firstly run to establish the relationship between active usage and bridging and bonding social capital. The control variable of number of Instagram followers was included as it was anticipated to influence social capital. This was followed by a multiple regression analysis of the relationship between active usage and bridging and bonding social capital on subjective well-being.

According to H2a, it was hypothesized that actively using Instagram would result in the accrual of more social capital. The first analysis was conducted on bridging social capital (see Table 6). The results from this model revealed a statistically significant outcome ($R^2$ = .17, $F(2, 217)$ = 21.37, $p < .001$). The regression coefficient also showed that active Instagram usage had a significant effect on bridging social capital (β = .31, $t(218)$= 5.33, $p < .001$). The control variable of number of Instagram followers also revealed a statistically significant outcome ($R^2$ = .05, $F(2, 217)$ = 12.71, $p < .001$). This indicated that it had an effect on bridging social capital.

Similarly, the second analysis was conducted on bonding social capital (see Table 7). The results from the model with bonding social capital revealed a statistically significant outcome ($R^2$ = .22, $F(1, 218)$ = 30.70, $p < .001$). This was also reflected from the regression coefficient (β = .51, $t(218)$= 7.43, $p < .001$). Therefore, active Instagram usage had a significant impact on both bridging and bonding social capital. Hence, H2a was supported. It was also noted that the control variable did not have a significant impact on bonding social capital.

To complete the mediation analysis, H2b hypothesized that actively using Instagram would result in the accrual of more social capital which in turn would positively influence subjective well-being. The results revealed that the overall regression was not statistically significant ($R^2$ = .02, $F(3, 216)$ = 1.12, $p = .342$). Therefore, H2b was rejected as active Instagram usage and both dimensions of social capital did not have a significant impact on subjective well-being (see Table 8). This result also showed that social capital did not mediate the relationship between active Instagram usage and subjective well-being.

**Table 6**

*Hierarchical regression analysis for active usage, bridging social capital and control variable*

| | β | t | Sig. |
|---|---|---|---|
| **Model 1: Number of Instagram followers** | | | |
| $R^2 = .05$, $F(1, 218) = 12.71$, $p < .001$ | | | |
| Number of Instagram followers | .082 | 3.57 | <.001 |
| **Model 2: Active usage + Number of Instagarm followers** | | | |
| $R^2 = .17$, $F(2, 217) = 21.37$, $p < .001$ | | | |
| Active usage | .312 | 5.33 | <.001 |
| Number of Instagram followers | .042 | 1.84 | .067 |

a. Dependent variable: Bridging social capital

**Table 7**

*Hierarchical regression analysis for active usage, bonding social capital and control variable*

| | β | t | Sig. |
|---|---|---|---|
| **Model 1: Number of Instagram followers** | | | |
| $R^2 = .02$, $F(1, 218) = 4.94$, $p = .027$ | | | |
| Number of Instagram followers | .062 | 2.22 | .027 |
| **Model 2: Active usage + Number of Instagarm followers** | | | |
| $R^2 = .22$, $F(2, 217) = 30.70$, $p < .001$ | | | |
| Active usage | .507 | 7.43 | <.001 |
| Number of Instagram followers | -.002 | -.073 | .942 |

a. Dependent variable: Bonding social capital

**Table 8**

*Regression coefficients of active usage, bridging and bonding social capital*

| Variables | B | SE | t | p | 95%CI |
|---|---|---|---|---|---|
| Constant | 3.29 | .202 | 16.3 | <.001 | [2.89, 3.69] |
| Active usage | .034 | .057 | .594 | .553 | [-.079, .146] |
| Bridging social capital | .074 | .063 | .242 | .242 | [-.050, .198] |
| Bonding social capital | .008 | .054 | .886 | .886 | [-.100, .115] |

*Note. $R^2 = .015$*

a. Dependent variable: Subjective well-being

### 4.4.2. Relational closeness

To test the mediation, a simple regression analysis was used to determine the relationship between active usage and relational closeness. This was followed by a multiple regression analysis of the relationship between active usage and relational closeness on subjective well-being. According to H3a, it was expected that actively using Instagram would result in the maintenance of more relational closeness. The results show that the overall regression was statistically significant ($R^2 = .25$, $F(1, 218) = 72.99$, $p < .001$). As shown in Table 9, the coefficient revealed that active Instagram usage had a significant impact on relational closeness (β = .57, $t(218)= 8.54$, $p < .001$). Hence, H3a was supported. To complete the mediation analysis, H3b hypothesized that actively using Instagram would result in the maintenance of more relational closeness, which in turn would positively influence subjective well-being. The results indicated that the overall regression was not statistically

significant ($R^2$ = .01, $F(2, 217)$ = 1.29, $p$ = .276). Consequently, H3b was rejected also showing no mediation from relational closeness (see Table 10).

**Table 9**

*Regression coefficients of active usage and relational closeness*

| Variable | β | SE | p | 95%CI |
|---|---|---|---|---|
| Constant | 1.06 | .199 | <.001 | [.672, 1.45] |
| Active usage | .570 | .067 | <.001 | [.438, .701] |

*Note. $R^2$ = .251*

a. Dependent variable: Relational closeness

**Table 10**

*Regression coefficients of active usage and relational closeness*

| Variables | B | SE | t | p | 95%CI |
|---|---|---|---|---|---|
| Constant | 3.52 | .155 | 22.73 | <.001 | [3.22, 3.83] |
| Active usage | .090 | .057 | 1.59 | .111 | [-.021, .202] |
| Relational closeness | -.047 | .050 | -.952 | .342 | [-.145, 0.51] |

*Note. $R^2$ = .012*

a. Dependent variable: Subjective well-being

### 4.4.3. Social comparison

To investigate the mediating effect of social comparison, a simple regression analysis was used to test the relationship between passive usage and social comparison. This was followed by a multiple regression analysis of the relationship between passive usage and social comparison on subjective well-being. H4a evaluated whether passively using Instagram would lead millennials to compare themselves more to others. The overall regression results were statistically significant ($R^2$ = .08, $F(1, 218)$ = 20.10, $p < .001$). As shown in Table 11, the regression coefficient revealed passive Instagram usage significantly affects social comparison (β = .17, $t(218)$= 4.48, $p < .001$). This indicated that H4a was supported. Following this, H4b evaluated whether passively using Instagram would lead millennials to compare themselves more to others, thereby decreasing subjective well-being. The results revealed that the regression was not statistically significant ($R^2$ = .00, $F(2, 217)$ = .42, $p$ = .658). This resulted in the rejection of H4b, also indicating no mediation effect from social comparison on passive usage and subjective well-being (see Table 12).

**Table 11**

*Regression coefficient of social comparison*

| Variable | β | SE | p | 95%CI |
|---|---|---|---|---|
| Constant | 2.29 | .141 | <.001 | [2.01, 2.57] |
| Passive usage | .168 | .037 | <.001 | [.094, .241] |

*Note. $R^2$ = .084*

a. Dependent variable: Social comparison

**Table 12**

*Regression coefficients of passive usage and social comparison*

| Variables | B | SE | t | p | 95%CI |
|---|---|---|---|---|---|
| Constant | 3.73 | .263 | 14.20 | <.001 | [3.21, 4.25] |
| Passive usage | -.045 | .049 | -.910 | .364 | [-.141, .052] |
| Social comparison | .031 | .085 | .367 | .714 | [-.136, .198] |

*Note. $R^2$ = .004*

a. Dependent variable: Subjective well-being

### 4.4.4. Envy

The final mediation was firstly examined with two simple regression analyses to test the relationship between passive usage and benign and malicious envy. This was followed by a multiple regression analysis of the relationship between passive usage, benign, and malicious envy on subjective well-being. H5a hypothesized that millennials who passively used Instagram would develop increased feelings of envy. The regression results revealed a statistically significant outcome ($R^2$ = .07, $F(1, 218)$ = 16.53, $p < .001$). As shown in Table 13, the significance was also reflected in the regression coefficient ($\beta$ = .27, $t(218)$= 4.07, $p < .001$).

A similar analysis was computed to determine the effect of malicious envy (see Table 14) which revealed the regression result was not statistically significant ($R^2$ = .07, $F(1, 218)$ = 1.16, $p$ = .283). Likewise, the regression coefficient was not statistically significant ($\beta$ = .06, $t(218)$= 1.08, $p$ = .283). This showed that passive Instagram usage had a significant effect on benign envy but not on malicious envy. Hence, H5a was partially supported.

To further analyse the mediation effect, H5b hypothesized that millennials who passively used Instagram would develop increased feelings of envy, thereby decreasing subjective well-being. The analysis revealed that the overall regression was statistically significant ($R^2$ = .21, $F(3, 216)$ = 19.97, $p < .001$). As shown in Table 15, the coefficients revealed that only benign envy had a significant effect on subjective well-being ($\beta$ = -.34, $t(216)$= -6.60, $p < .001$). This result indicated a partial mediation effect in that benign envy mediated the relationship between passive Instagram usage and subjective well-being. Therefore, H5b was partially supported.

**Table 13**

*Regression coefficient of benign envy*

| Variable | β | SE | p | 95%CI |
|---|---|---|---|---|
| Constant | 1.65 | .253 | <.001 | [1.15, 2.15] |
| Passive usage | .272 | .067 | <.001 | [.140, .404] |

*Note. $R^2$ = .070*

a. Dependent variable: Benign envy

**Table 14**

*Regression coefficient of malicious envy*

| Variable | β | SE | p | 95%CI |
|---|---|---|---|---|
| Constant | 1.52 | .227 | <.001 | [1.07, 1.96] |
| Passive usage | .064 | .060 | .283 | [-.054, .183] |

*Note. $R^2$ = .005*

a. Dependent variable: Malicious envy

**Table 15**

*Regression coefficients of passive usage and benign and malicious envy*

| Variables | B | SE | t | p | 95%CI |
|---|---|---|---|---|---|
| Constant | 4.32 | .176 | 24.5 | <.001 | [3.97, 4.66] |
| Passive usage | .051 | .043 | 1.16 | .245 | [-.035, .136] |
| Benign envy | -.336 | .051 | -6.60 | <.001 | [-.437, -.236] |
| Malicious envy | .027 | .057 | .481 | .631 | [-.085, .140] |

*Note. $R^2$ = .217*

a. Dependent variable: Subjective well-being

Figure 2 illustrates the final mediation model with benign envy identified as the only significant mediator in the relationship between passive use and subjective well-being.

**Figure 2**

*Mediation model*



Passive Instagram use → Benign envy: β = .27, t(218)= 4.07, p < .001

Benign envy → Subjective well-being: β = -.34, t(216)= -6.60, p < .001

Passive Instagram use → Subjective well-being: β = -.16, t(217)= -2.52, p = .012
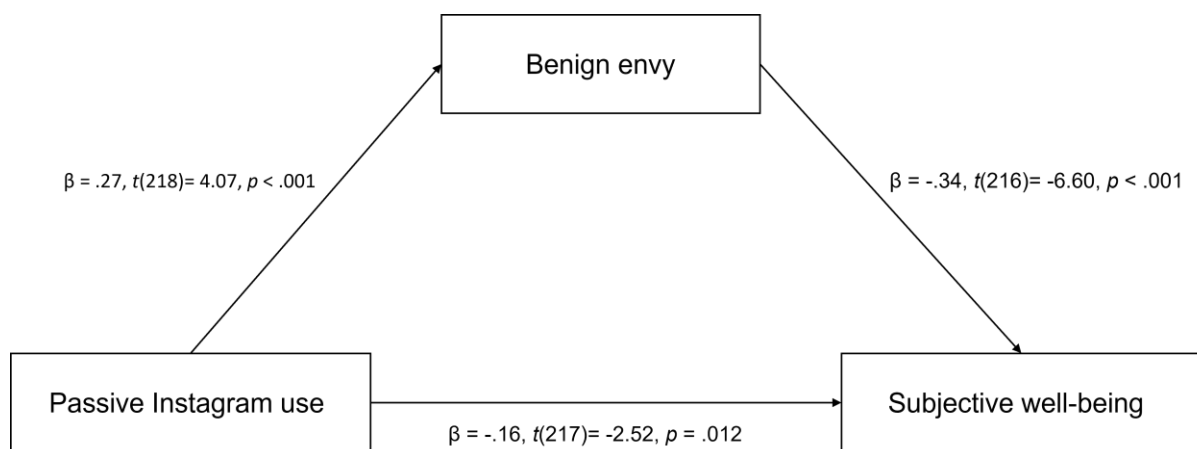
**4.5. Moderation effects**

Hierarchical regression analyses were computed to determine the moderating effect of individualism and collectivism (see Table 16), and The Netherlands and Kenya (see Table 17).

***4.5.1. Individualism and Collectivism***

*Social capital*

H6a evaluated whether the positive relationship between social capital and subjective well-being would be stronger for millennials from collectivistic cultures. As social capital consists of two dimensions including bridging and bonding, two hierarchical regression analyses were performed. For the first analysis, bridging social capital and collectivism were included as predictor variables, with subjective well-being as the dependent variable. An interaction effect between bridging social

capital and collectivism was also included to test the moderation. The regression result from the model with this interaction was statistically significant ($R^2$ = .11, $F(3, 216)$ = 8.83, $p$ < .001). It was also noted that the model with the interaction effect explained 11% of the variance in the dependent variable. On the other hand, the model without the interaction effect accounted for 8% of the variance in the dependent variable.

The same analysis was computed to determine the role of bonding social capital. The regression results revealed that the model with the interaction effect between bonding social capital and collectivism was statistically significant ($R^2$ = .12, $F(3, 216)$ = 8.60, $p$ < .001). This model accounted for 12% of the variance in the dependent variable. In comparison, the model without the interaction effect accounted for 8% of the variance in the dependent variable. From these results, H6a was supported as collectivism moderated the relationship between social capital and subjective well-being.

*Relational closeness*

According to H6b, it was hypothesized that the positive relationship between relational closeness and subjective well-being would be stronger for millennials from collectivistic cultures. Relational closeness and collectivism were included as predictor variables, with subjective well-being as the dependent variable. An interaction effect between relational closeness and collectivism was computed and used in the model. The regression results from the model with the interaction effect revealed a statistically significant outcome ($R^2$ = .13, $F(3, 216)$ = 10.89, $p$ < .001). Moreover, the model with the interaction effect explained 13% of the variance in the dependent variable. Contrastingly, the model without the interaction effect explained 8% of the variance in the dependent variable. Therefore, H6b was supported.

*Social comparison*

H6c evaluated whether the negative relationship between social comparison and subjective well-being would be stronger for millennials from collectivistic cultures. To examine this, social comparison and collectivism were included as predictor variables with subjective well-being as the dependent variable. An interaction effect between social comparison and collectivism was also included in the model. The interaction regression results showed that the model was statistically significant ($R^2$ = .09, $F(3, 216)$ = 7.28, $p$ < .001). The interaction model accounted for 9% of the variance in subjective well-being. In comparison, the model without the interaction accounted for 8% which only revealed a minor difference. Nevertheless, H6c was supported as the significant outcome identified collectivism as a moderator in the relationship between social comparison and subjective well-being.

*Envy*

In line with H6d, it was hypothesized that the negative relationship between feelings of envy and subjective well-being would be stronger for millennials from individualistic cultures. Considering envy comprises of benign and malicious envy, two hierarchical regression analyses were computed. The first analysis consisted of benign envy and individualism as predictor variables with subjective well-being as the dependent variable. Additionally, an interaction effect between benign envy and individualism was included. The results revealed that the interaction model was statistically significant ($R^2$ = .22, $F$(3, 216) = 19.76, $p$ < .001). It was further observed that the percentage of variance accounted for in the dependent variable did not change between the two models. The model without the interaction explained 22% of the variance while the model with the interaction also explained 22% of the variance in subjective well-being.

A similar analysis was computed to determine the role of malicious envy on the moderation effect. The regression results showed that the model with the interaction effect between malicious envy and individualism was not statistically significant ($R^2$ = .06, $F$(3, 216) = 4.63, $p$ = .004). Consequently, H6d was not supported.

**Table 16**

*Hierarchical regression analysis for moderation of individualism and collectivism*

| **Bridging social capital** | | β | t | Sig. |
|---|---|---|---|---|
| Model 1: Bridging social capital and Collectivism | | | | |
| $R^2 = .08$, $F(2, 217) = 10.21$, $p < .001$ | | | | |
| | Bridging social capital | .059 | 1.10 | .271 |
| | Collectivism | .136 | 4.16 | <.001 |
| Model 2: Bridging social capital and Collectivism + Interaction | | | | |
| $R^2 = .11$, $F(3, 216) = 8.83$, $p < .001$ | Bridging social capital | -.386 | -1.98 | .049 |
| | Collectivism | -.228 | -1.45 | .147 |
| | Interaction | .111 | 2.37 | .018 |
| **Bonding social capital** | | | | |
| Model 1: Bonding social capital and Collectivism | | | | |
| $R^2 = .08$, $F(2, 217) = 9.58$, $p < .001$ | | | | |
| | Bonding social capital | -.011 | -.239 | .271 |
| | Collectivism | .144 | 4.22 | <.001 |
| Model 2: Bonding social capital and Collectivism + Interaction | | | | |
| $R^2 = .12$, $F(3, 216) = 8.60$, $p < .001$ | Bonding social capital | -.358 | -2.44 | .015 |
| | Collectivism | -.080 | -.828 | .409 |
| | Interaction | .087 | 2.48 | .014 |
| **Relational closeness** | | | | |
| Model 1: Relational closeness and Collectivism | | | | |
| $R^2 = .08$, $F(2, 217) = 9.66$, $p < .001$ | | | | |
| | Relational closeness | -.019 | -.461 | .645 |
| | Collectivism | .143 | 4.39 | <.001 |
| Model 2: Relational closeness and Collectivism + Interaction | | | | |
| $R^2 = .13$, $F(3, 216) = 10.89$, $p < .001$ | Relational closeness | -.508 | -3.50 | <.001 |
| | Collectivism | -.191 | -1.90 | .058 |
| | Interaction | .124 | 3.51 | <.001 |
| **Social comparison** | | | | |
| Model 1: Social comparison and Collectivism | | | | |
| $R^2 = .08$, $F(2, 217) = 9.99$, $p < .001$ | | | | |
| | Social comparison | -.073 | -.908 | .365 |
| | Collectivism | .149 | 4.47 | <.001 |
| Model 2: Social comparison and Collectivism + Interaction | | | | |
| $R^2 = .09$, $F(3, 216) = 7.28$, $p < .001$ | Social comparison | .316 | 1.04 | .297 |
| | Collectivism | .411 | 2.05 | .041 |
| | Interaction | -.091 | -1.33 | .184 |
| **Benign envy** | | | | |
| Model 1: Benign envy and Individualism | | | | |
| $R^2 = .22$, $F(2, 217) = 29.71$ $p < .001$ | | | | |
| | Benign envy | -.313 | -7.70 | <.001 |
| | Individualism | .036 | .94 | .346 |
| Model 2: Benign envy and Individualism + Interaction | | | | |
| $R^2 = .22$, $F(3, 216) = 19.76$, $p < .001$ | Benign envy | -.227 | -.812 | .418 |
| | Individualism | .077 | .553 | .581 |
| | Interaction | -.015 | -.309 | .757 |
| **Malicious envy** | | | | |
| Model 1: Malicious envy and Individualism | | | | |
| $R^2 = .05$, $F(2, 217) = 6.67$ $p = .002$ | | | | |
| | Malicious envy | -.187 | -3.64 | <.001 |
| | Individualism | .010 | .241 | .810 |
| Model 2: Malicious envy and Individualism + Interaction | | | | |
| $R^2 = .06$, $F(3, 216) = 4.63$, $p = .004$ | Malicious envy | .005 | .020 | .984 |
| | Individualism | .077 | .788 | .431 |
| | Interaction | -.036 | -.758 | .450 |

a. Dependent variable: Subjective well-being

### 4.5.2. The Netherlands and Kenya
*Social capital*

Following H7a, it was hypothesized that the positive relationship between social capital and subjective well-being would be stronger for millennials from Kenya. Each dimension of social capital was assessed with separate hierarchical regression analyses. The first analysis included bridging

social capital and country of residence as predictor variables with subjective well-being as the dependent variable. Additionally, an interaction variable with bridging social capital and country of residence was included to test the moderation. The overall regression result from the model with the interaction was statistically significant ($R^2$ = .16, $F$(3, 216) = 13.55, $p$ < .001). However, an analysis of the regression coefficient showed that the interaction did not have a significant impact on subjective well-being (β = .23, $t$(217)= 2.22, $p$ = .027).

To evaluate the impact of bridging social capital, the same analysis was computed. The regression results revealed that the model with the interaction was statistically significant ($R^2$ = .14, $F$(3, 216) = 11.88, $p$ < .001). However, the regression coefficient of the interaction was not statistically significant (β = .08, $t$(217)= .89, $p$ = .374). From these results, H7a was rejected as the regression coefficients of the interaction effects were not significant. Therefore, this indicated no moderation.

*Relational closeness*

In line with H7b, it was hypothesized that the positive relationship between relational closeness and subjective well-being would be stronger for millennials from Kenya. An interaction variable with relational closeness and country of origin was computed to test the moderation hypothesis. The interaction result indicated a statistically significant outcome ($R^2$ = .20, $F$(3, 216) = 18.24, $p$ < .001). Furthermore, the model with the interaction effect explained 20% of the variance subjective well-being. In comparison, the model without the interaction effect explained 14% of the variance in the dependent variable. Hence, H7b was supported as there was a moderation effect.

*Social comparison*

H7c evaluated whether the negative relationship between social comparison and subjective well-being would be stronger for millennials from Kenya. To test the moderation, an interaction variable with social comparison and country of residence was implemented in the model. The regression results revealed that the model with the interaction was statistically significant ($R^2$ = .15, $F$(3, 216) = 12.57, $p$ < .001). Despite this, an analysis of the regression coefficient revealed the interaction was not statistically significant (β = -.20, $t$(217)= -1.29, $p$ = .197). Consequently, H7c was rejected and indicated no moderation effect.

*Envy*

H7d which was the final hypothesis evaluated whether the negative relationship between feelings of envy and subjective well-being would be stronger for millennials from the Netherlands. As envy consisted of two dimensions, two separate regression analyses were computed. The first analysis was conducted with an interaction effect between benign envy and country of residence. From this, the regression result was statistically significant ($R^2$ = .26, $F$(3, 216) = 24.81, $p$ < .001).

Nonetheless, the regression coefficient revealed the interaction was not statistically significant ($\beta$ = -.11, $t$(217)= 1.26, $p$ = .210).

Using the same analysis for malicious envy, the results revealed that the model with the interaction was statistically significant ($R^2$ = .14, $F$(3, 216) = 11.87, $p$ < .001). However, the regression coefficient revealed the interaction was not statistically significant ($\beta$ = -.07, $t$(217)= -.86, $p$ = .391). From these results, H7d was rejected as the regression coefficients of the interaction effects were not significant, also indicating no moderation effect.

**Table 17**

*Hierarchical regression analysis for moderation of The Netherlands and Kenya*

| **Bridging social capital** | | β | t | Sig. |
|---|---|---|---|---|
| Model 1: Bridging social capital and Kenya<br>$R^2$ = .14, $F$(2, 217) = 17.52, $p$ < .001 | | | | |
| | Bridging social capital | .022 | .422 | .674 |
| | Kenya | .437 | 5.63 | <.001 |
| Model 2: Bridging social capital and Kenya + Interaction<br>R² = .16, F(3, 216) = 13.55, p < .001 | | | | |
| | Bridging social capital | -.061 | -.950 | .343 |
| | Kenya | -.393 | -1.03 | .303 |
| | Interaction | .246 | 2.22 | .027 |
| **Bonding social capital** | | | | |
| Model 1: Bonding social capital and Kenya<br>$R^2$ = .14, $F$(2, 217) = 17.43, $p$ < .001 | | | | |
| | Bonding social capital | .006 | .131 | .896 |
| | Kenya | .443 | 5.78 | <.001 |
| Model 2: Bonding social capital and Kenya + Interaction<br>$R^2$ = .14, $F$(3, 216) = 11.88, $p$ < .001 | | | | |
| | Bonding social capital | -.025 | -.456 | .649 |
| | Kenya | .233 | .939 | .349 |
| | Interaction | .079 | .891 | .374 |
| **Relational closeness** | | | | |
| Model 1: Relational closeness and Kenya<br>$R^2$ = .14, $F$(2, 217) = 17.43, $p$ < .001 | | | | |
| | Relational closeness | -.021 | -.519 | .604 |
| | Kenya | .447 | 5.92 | <.001 |
| Model 2: Relational closeness and Kenya + Interaction<br>$R^2$ = .20, $F$(3, 216) = 18.24, $p$ < .001 | | | | |
| | Relational closeness | -.153 | -3.03 | .003 |
| | Kenya | -.434 | -1.92 | .056 |
| | Interaction | .326 | 4.11 | <.001 |
| **Social comparison** | | | | |
| Model 1: Social comparison and Kenya<br>$R^2$ = .14, $F$(2, 217) = 17.96, $p$ < .001 | | | | |
| | Social comparison | -.074 | -.964 | .336 |
| | Kenya | .458 | 5.99 | <.001 |
| Model 2:Social comparison and Kenya + Interaction<br>$R^2$ = .15, $F$(3, 216) = 12.57, $p$ < .001 | | | | |
| | Social comparison | .007 | .069 | .945 |
| | Kenya | 1.05 | 2.26 | .025 |
| | Interaction | -.202 | -1.29 | .197 |
| **Benign envy** | | | | |
| Model 1: Benign envy and Netherlands<br>$R^2$ = .14, $F$(2, 217) = 17.96, $p$ < .001 | | | | |
| | Benign envy | -.249 | -5.70 | <.001 |
| | Netherlands | -.260 | -3.36 | <.001 |
| Model 2: Benign envy and Netherlands + Interaction<br>$R^2$ = .26, $F$(3, 216) = 24.81, $p$ < .001 | | | | |
| | Benign envy | -.308 | -4.80 | <.001 |
| | Netherlands | -.548 | -2.27 | .024 |
| | Interaction | .110 | 1.26 | .209 |
| **Malicious envy** | | | | |
| Model 1: Malicious envy and Netherlands<br>$R^2$ = .14, $F$(2, 217) = 17.45, $p$ < .001 | | | | |
| | Malicious envy | -.002 | -.233 | .816 |
| | Netherlands | -.445 | -5.90 | <.001 |
| Model 2: Malicious envy and Netherlands + Interaction<br>$R^2$ = .14, $F$(3, 216) = 11.87, $p$ < .001 | | | | |
| | Malicious envy | .004 | .321 | .748 |
| | Netherlands | -.303 | -1.66 | .097 |
| | Interaction | -.071 | -.86 | .391 |

a. Dependent variable: Subjective well-being

**4.6. Summary of tested hypotheses**

Seven hypotheses were formulated for this study which were either supported or not supported based on the results in the previous section. Table 18 provides a summary for all the hypotheses and their respective outcomes.

**Table 18**

*Summary of supported hypotheses*

| Hypothesis | | Outcome |
|---|---|---|
| H1a | Millennials who actively use Instagram positively influence their subjective well-being. | Not supported |
| H1b | Millennials who passively use Instagram negatively influence their subjective well-being. | Not supported |
| H2a | Millennials who actively use Instagram acquire more social capital. | Supported |
| H2b | Millennials who actively use Instagram acquire more social capital which in turn positively influences their subjective well-being. | Not supported |
| H3a | Millennials who actively use Instagram maintain more relational closeness. | Supported |
| H3b | Millennials who actively use Instagram maintain more relational closeness which in turn positively influences their subjective well-being. | Not supported |
| H4a | Millennials who passively use Instagram compare themselves more to others. | Supported |
| H4b | Millennials who passively use Instagram compare themselves more to others which in turn negatively influences their subjective well-being. | Not supported |
| H5a | Millennials who passively use Instagram develop increased feelings of envy. | Partially supported |
| H5b | Millennials who passively use Instagram develop increased feelings of envy which in turn negatively influences their subjective well-being. | Partially supported |
| H6a | The positive relationship between social capital on Instagram and subjective well-being is stronger for millennials from collectivistic cultures. | Supported |
| H6b | The positive relationship between relational closeness on Instagram and subjective well-being is stronger for millennials from collectivistic cultures. | Supported |
| H6c | The negative relationship between social comparison on Instagram and subjective well-being is stronger for millennials from collectivistic cultures. | Supported |
| H6d | The negative relationship between feelings of envy on Instagram and subjective well-being is stronger for millennials from individualistic cultures. | Not supported |
| H7a | The positive relationship between social capital on Instagram and subjective well-being is stronger for millennials from Kenya. | Not supported |
| H7b | The positive relationship between relational closeness on Instagram and subjective well-being is stronger for millennials from Kenya. | Supported |
| H7c | The negative relationship between social comparison on Instagram and subjective well-being is stronger for millennials from Kenya. | Not supported |
| H7d | The negative relationship between feelings of envy on Instagram and subjective well-being is stronger for millennials from the Netherlands. | Not supported |

**5. DISCUSSION**
**5.1. Discussion of the results**

The central purpose of this study was to determine the effect of active and passive Instagram usage on the subjective well-being of millennials. It was also an objective to evaluate whether this relationship was mediated by social capital, relational closeness, social comparison, and envy. The study further investigated whether millennials' culture acted as a moderator in the relationship between social capital, relational closeness, social comparison, envy, and subjective well-being.

To answer the first research question, the results from this study revealed that neither active nor passive Instagram usage impacted users' subjective well-being. This finding was in contrast with prior research that claimed engaging in active versus passive usage led to increased subjective well-being among users (Wenninger et al., 2018). One factor that may explain the contrasting results is that individuals can also weaken their subjective well-being depending on the type of active usage they engage in. For instance, users who constantly engage in moral outrage negatively impact their well-being, despite this being a form of active usage (Kross et al., 2021). The results can also be explained by the notion that passive usage can enhance rather than diminish subjective well-being. Meier et al. (2020) state that this is because of the inspired feeling people get to better themselves when they constantly view positive images of others.

The second research question was answered in four parts as it focused on the mediating effects of social capital, relational closeness, social comparison, and envy. Firstly, it was found that there was a significant effect of active Instagram usage on both bridging and bonding social capital. Similar to prior findings, scholars identify active usage as a key path to attaining social capital as it involves reciprocal communication which builds relationships (Reimann et al., 2021; Verduyn et al., 2021). However, social capital did not mediate the relationship between active usage and subjective well-being. This finding could be explained by the different types of online activities that define active usage. This is because not all forms of active usage yield social capital and subjective well-being. Verduyn et al. (2021) state that non-targeted active usage such as simply posting a story doesn't always provoke others to respond. Therefore, such non-targeted active usage could lead to less emotional resources, hindering subjective well-being.

Regarding the second mediator, it was found that there was a significant effect of active Instagram usage on relational closeness. Research confirms these findings as active users who post pictures and stories concerning their everyday lives benefit from relational closeness (Reimann et al., 2021). This is because followers are provided with the opportunity to interact with such content, enhancing feelings of involvement (Neubaum & Krämer, 2015). However, relational closeness did not mediate the relationship between active usage and subjective well-being. This outcome may be

explained by the nature of Instagram that often connects users to strangers, as opposed to platforms such as Facebook that often have networks of people with closer relational ties (Frison & Eggermont, 2016). Therefore, Instagram could lack the potential to provide users with opportunities for relational closeness regardless of active usage.

In the third mediation analysis, the results revealed a significant effect between passive usage and social comparison, which was consistent with prior research. The image-centred nature of Instagram has been found to elicit social comparison due to edited and filtered images (Frison & Eggermont, 2016). As it is easy to portray a covetous lifestyle on Instagram, passive users are often susceptible to comparison with others (Lup et al., 2015). On the other hand, passive usage and social comparison did not have a significant impact on subjective well-being. Valkenburg (2022) highlight that although passive use and social comparison take place on SNSs, many users do not feel worse after comparing themselves to others online. Rather, only a small percentage experience negative effects on their well-being from comparison (Valkenburg, 2022). Additionally, research shows that comparison leads individuals to employ self-improving behaviours as a result of positive motivation (Meier & Schäfer, 2018).

Regarding the final mediator, it was found that there was a significant effect of passive Instagram usage on benign envy but not on malicious envy. This outcome can be explained by the object of desire on SNSs as benign envy is more common among friends than malicious envy (Meier & Schäfer, 2018). This is because while malicious envy is hostile and aggressive, benign envy involves slight frustration and motives to improve oneself (Meier & Schäfer, 2018). Additionally, research shows that users with homogeneous Instagram connections are more likely to indulge in benign envy than malicious envy (Noon & Meier, 2019). The results also revealed that only benign envy mediated the relationship between passive usage and subjective well-being. This finding can also be explained by the literature which highlights benign envy as a more common emotion on SNSs than malicious envy (Meier & Schäfer, 2018; Noon & Meier, 2019).

The final research question centred on the moderating role of culture was answered in two parts. The first being with a focus on the individualism-collectivism cultural dimension and the second part with national culture differences. Regarding the first set of answers, the results from this study showed a significant effect of collectivism on the relationship between social capital and subjective well-being. This finding was in line with prior research as Choi et al. (2011) state that SNS users from collectivistic cultures prioritise online support and thus seek to attain more social capital than users from individualistic cultures. In line with their offline nature, users from collectivistic cultures are also driven to connect with in-group members on SNSs thereby building their online social capital (Park et al., 2015). Verduyn et al. (2021) further state that the relationships built from

attaining social capital enhance individuals' well-being from feelings of connectedness with others. Therefore, as collectivistic users attain more social capital online, they are also likely to have enhanced subjective well-being.

It was also found that there was a significant effect from collectivism on the relationship between relational closeness and subjective well-being. This finding was similar to previous research as  SNS users from collectivistic cultures often maintain smaller networks with stronger relational ties (Choi et al., 2011). In comparison, users from individualistic cultures typically have larger social networks with weaker ties as they are more open to networking with strangers (Beilmann et al., 2017; Choi et al., 2011). Li and Zhang (2021) further state that users who share closeness are more likely to benefit from online support in times of need which enhances subjective well-being. In this sense, as collectivistic users have higher levels of relational closeness, they are also likely to have greater subjective well-being online.

The results of the study also found that there was a significant effect of collectivism on the relationship between social comparison and subjective well-being. Considering people from collectivistic cultures often look to other group members for social standards, scholars state that they are more susceptible to comparison with others (Song et al., 2018). Contrastingly, the concept of comparison is less apparent in individualistic users as they typically reflect independence by defining their own standards (Song et al., 2018). Social comparison also negatively influences subjective well-being as it elicits negative emotions which lead to low self-esteem and distorted perceptions of oneself (Yang, 2016). Therefore, as collectivistic users engage more in social comparison online, they are more likely to negatively influence their subjective well-being.

Lastly, the results from this study did not find a significant effect of individualism on the relationship between envy and subjective well-being. This finding was contrary to research that claimed self-idealisation on SNSs was more apparent among individualistic people, which increased their chances for the development of envious feelings (Wenninger et al., 2019). One explanation for the finding could be that envious feelings are regulated by the amount of time users spend on SNSs. Wenninger et al. (2019) state that individuals who use SNSs frequently are more exposed to content that creates a base for comparison and thus envy. In this sense, the relationship between envy and subjective well-being would be moderated by heavy usage as opposed to cultural traits.

Regarding national culture differences, the only significant finding from this was that the positive relationship between relational closeness and subjective well-being was stronger for millennials from Kenya. This finding is in line with prior research as SNS users from collectivistic cultures such as Kenya prioritise stronger social ties (Choi et al., 2011). The non-significant findings can be explained by the notion that numerous cultural differences may exist in individuals from the

same country (Song et al., 2018). Such differences can be derived from individuals' economic status, leading to varying cultural values (Song et al., 2018). Kitirattarkarn et al. (2019) further state that an individual can have both individualistic and collectivistic values. Therefore, SNS users from Kenya may identify as individualistic or have traits from both sides of the scale. This may also be the case for individuals from the Netherlands.

## 5.2. Limitations and recommendations for future research

The entire study presents numerous limitations, which also offer opportunities for future research. To begin with, the use of convenience and snowball sampling contributed to a gender imbalance within the samples which presents a limitation for generalisability. Nayak (2010) states that samples selected based on convenience often present errors in sampling. Consequently, future research should consider sampling methods that are not based on convenience. The sample of this study also focused solely on millennials. Although this age group is relevant to the study, future studies should consider investigating other cohorts such as Generation Z. This is because they are the first generation to be raised with SNSs, making these platforms an integral part of their lives as compared to other generations (Chatzoglou et al., 2020).

Another limitation of this study lies in the exploration of culture using the individualism-collectivism dimension. Certain scholars state that this dimension is the most important in differentiating culture on a national level (Cho & Park, 2012; Jackson & Wang, 2013). However, culture is made up of numerous elements which cannot be defined by merely one dimension. Future studies should therefore consider implementing numerous dimensions to observe potential differences in SNS use. This can be seen in the study by Sheldon et al. (2019) who found significant differences in SNS use among cultural dimensions such as masculinity-femininity and uncertainty-avoidance.

A fourth limitation pertains to the self-report measures of subjective well-being used in this study. Although this is a common method used by researchers to measure subjective well-being, it does not measure a broad spectrum of emotions (Choi & Kim, 2020). Respondents may therefore experience multiple emotions related to subjective well-being that are not reflected in the statements presented. Additionally, the responses towards the subjective well-being measures may have been influenced by respondents' offline experiences and not directly by their activities on Instagram. Future studies should consider measuring subjective well-being at different intervals before and after Instagram use. A similar study by Hanley et al. (2019) made use of this measure by investigating subjective well-being at two intervals.

It is also important to highlight the analysis of the moderation effect in this study as a limitation. This is because the moderation was only analysed on the relationship between social capital, relational closeness, social comparison, envy, and subjective well-being. This analysis

provides a limited approach as it does not consider the entire relationship from active and passive Instagram usage to subjective well-being. Future studies should take this into consideration when measuring culture as a moderator with various mechanisms as mediators. One suggestion is to implement a moderated mediation model as this takes all the relationships into consideration.

Lastly, this study only investigates active and passive Instagram use and does not take other SNS platforms into consideration. Therefore, the results cannot be generalised across all SNS platforms. As noted by Zhou and Zhang (2019), differences in SNS platforms can explain variations in active or passive use. Prior literature has also extensively examined similar effects on Facebook (Song et al., 2018; Wenninger et al., 2018; Zhou & Zhang, 2019). This leaves room for future research to study these effects on upcoming platforms such as TikTok.

### 5.3. Implications

The findings of this study provide certain implications for millennials who use Instagram. As entirely stopping the use of such platforms is difficult (Wenninger et al., 2018), advice on how to use these platforms while minimising harm is more practical. To begin with, it was found that actively using Instagram contributed to the accrual of more social capital and relational closeness. This highlights the benefits of using Instagram actively with reciprocal activities such as direct messaging. The direct effects of passively using Instagram also highlight the related risks as such activities lead to social comparison and benign envy. Therefore, to benefit from using Instagram, millennials are advised to partake in mutual communication with other users. Activities such as posting pictures and sharing stories are also beneficial as they provide other users with the opportunity to interact with the content.

Additionally, implications for Instagram are also provided as certain features can contribute to passive usage and hinder active usage. As Wenninger et al. (2019) suggest, developing SNS platforms that are beneficial to mental health are important for the longevity of the platform. Therefore, Instagram is advised to encourage participation with prompts to chat with other users. Encouraging users to share content such as stories and posts is also beneficial as this can increase positive self-perception among users (Wenninger et al., 2018).

### 5.4. Conclusion

SNSs platforms such as Instagram have brought about negative aspects towards users such as comparison with others and feelings of envy (Frison & Eggermont, 2016; Wang et al., 2017). Research also shows that mentally and physically disconnecting from these platforms can be quite difficult (Hanley et al., 2019). This makes it crucial to understand how to use Instagram in manners that benefit users. Therefore, prioritising active usage is important as this type of usage is linked to positive outcomes such as the accrual of social capital and relational closeness. It is also important to note that individuals with different cultural traits prioritise different activities on Instagram.

Understanding these cultural differences in users is necessary to make targeted recommendations on actively using Instagram.

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## Qualtrics Survey

UNIVERSITY OF TWENTE.

Thank you for taking the time to fill in this online survey. This is a research project being conducted by Melissa Ouko from the faculty of Behavioural Management and Social Sciences at the University of Twente.

The aim of this research is to investigate how individuals from different cultures use Instagram, and the effects of this usage on the individual's well-being. Filling in the survey will take approximately 10 minutes.

Your participation in this research is completely voluntary. There are no foreseeable risks involved in participating in this study. If at any point and due to any reason you wish to withdraw from the survey, you are free to do so. The information collected in this survey will be anonymous and will only be used for the purpose of this research.

If you have questions about this survey or the research, you may contact the researcher at the following email address: m.a.ouko@student.utwente.nl

By ticking the box 'I agree' below, you are indicating that you have read and understood this consent form and agree to participate in this study.
P.S.: This survey contains a completion code for SurveySwap.io

○ I agree
○ I do not agree

→

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Do you have an Instagram account?

○ Yes
○ No

What is your country of residence?

○ The Netherlands

○ Kenya

○ None of the above

How old are you?

[_____]

What is your gender?

○ Male

○ Female

○ Non-binary / third gender

○ Prefer not to say

What is your educational level?

○ No formal education

○ Primary school

○ High school: primary vocational education (in Dutch: VMBO)

○ High school: higher professional education (in Dutch: HAVO)

○ High school: pre-university education (in Dutch: VWO)

○ University of applied sciences (in Dutch: HBO)

○ University (in Dutch: WO)

○ Other, please specify

[_____]
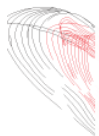
Approximately how many TOTAL Instagram followers do you have?

○ 10 or less
○ 11 - 50
○ 51 - 100
○ 101 - 150
○ 151 - 200
○ 201 - 250
○ 251 - 300
○ 301 - 400
○ more than 400

In the past week, on average, approximately how much time PER DAY have you spent using Instagram?

○ Less than 30 minutes
○ 30 - 59 minutes
○ 1 - 2 hours
○ 3 - 4 hours
○ 5 or more hours

Passive and active usage scale

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The following questions ask about your Instagram usage. Using the scale, please indicate to what extent the questions apply to you.

| | Never | Rarely | Sometimes | Often | Almost every time I log in |
|---|---|---|---|---|---|
| How often do you scroll through your Instagram explore page? | ○ | ○ | ○ | ○ | ○ |
| How often do you look at other people's photos on Instagram? | ○ | ○ | ○ | ○ | ○ |
| How often do you contact your Instagram friends via DM (direct message)? | ○ | ○ | ○ | ○ | ○ |
| How often do you comment on people's images on Instagram? | ○ | ○ | ○ | ○ | ○ |
| How often do you like people's images on Instagram? | ○ | ○ | ○ | ○ | ○ |
| How often do you post photos on Instagram? | ○ | ○ | ○ | ○ | ○ |
| How often do you click on Instagram profiles that you don't follow and view their images? | ○ | ○ | ○ | ○ | ○ |

Individualism-collectivism scale

Please indicate to what extent you either disagree or agree with the following statements about your mannerisms.

| | Strongly disagree | Disagree | More or less disagree | Neither disagree nor agree | More or less agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|---|
| I take great pride in accomplishing what no one else can accomplish. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| It is important to me that I perform better than others on a task. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| I am unique – different from others in many respects. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| I like my privacy. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| I always state my opinions very clearly. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| I would help, within my means, if a relative were in financial difficulty. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| I make an effort to avoid disagreements with my group members. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Before making a decision, I always consult with others. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| I would rather do a group paper than do one alone. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

## Subjective well-being: PERMA scale

The following questions ask about your well-being.
Please indicate to what extent these questions apply to you.

|  | Never | Rarely | Sometimes | Often | Always |
|---|---|---|---|---|---|
| How often do you feel joyful? | ○ | ○ | ○ | ○ | ○ |
| How often do you feel positive? | ○ | ○ | ○ | ○ | ○ |
| How often do you become absorbed in what you are doing? | ○ | ○ | ○ | ○ | ○ |
| How often do you lose track of time while doing something you enjoy? | ○ | ○ | ○ | ○ | ○ |
| To what extent do you receive help and support from others when you need it? | ○ | ○ | ○ | ○ | ○ |
| How much of the time do you feel you are making progress towards accomplishing your goals? | ○ | ○ | ○ | ○ | ○ |
| How often do you achieve the important goals you have set for yourself? | ○ | ○ | ○ | ○ | ○ |
| How often are you able to handle your responsibilities? | ○ | ○ | ○ | ○ | ○ |

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The following questions ask about your well-being.
Please indicate to what extent these questions apply to you.

|  | Not at all | Very little | Somewhat | Quite a bit | Completely |
|---|---|---|---|---|---|
| To what extent do you feel excited and interested in things? | ○ | ○ | ○ | ○ | ○ |
| To what extent have you been feeling loved? | ○ | ○ | ○ | ○ | ○ |
| How satisfied are you with your personal relationships? | ○ | ○ | ○ | ○ | ○ |
| To what extent do you lead a purposeful and meaningful life? | ○ | ○ | ○ | ○ | ○ |
| To what extent do you feel that what you do in your life is valuable and worthwhile? | ○ | ○ | ○ | ○ | ○ |
| To what extent do you generally feel you have a sense of direction in your life? | ○ | ○ | ○ | ○ | ○ |

## Bridging and bonding social capital scale

|  | Strongly disagree | Disagree | Neither disagree nor agree | Agree | Strongly agree |
|---|---|---|---|---|---|
| There are several people on Instagram I trust to help solve my problems. | ○ | ○ | ○ | ○ | ○ |
| When I feel lonely, there are several people on Instagram I can talk to. | ○ | ○ | ○ | ○ | ○ |
| If I needed an emergency loan of €30 (KES. 3000), I know someone on Instagram I can turn to. | ○ | ○ | ○ | ○ | ○ |
| The people I interact with on Instagram would put their reputation on the line for me. | ○ | ○ | ○ | ○ | ○ |
| The people I interact with on Instagram would help me fight an injustice. | ○ | ○ | ○ | ○ | ○ |
| Interacting with people on Instagram makes me interested in things that happen outside of my town. | ○ | ○ | ○ | ○ | ○ |
| Interacting with people on Instagram makes me interested in what people unlike me are thinking. | ○ | ○ | ○ | ○ | ○ |
| Talking with people on Instagram makes me curious about other places in the world. | ○ | ○ | ○ | ○ | ○ |
| Interacting with people on Instagram makes me feel like part of a larger community. | ○ | ○ | ○ | ○ | ○ |
| On Instagram, I come in contact with new people all the time. | ○ | ○ | ○ | ○ | ○ |

## Relational closeness scale

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Please indicate to what extent you either disagree or agree with the following statements about the relationship with your Instagram followers.

|  | Strongly disagree | Disagree | Neither disagree nor agree | Agree | Strongly agree |
|---|---|---|---|---|---|
| While browsing through Instagram, it felt like I had met with my friends. | ○ | ○ | ○ | ○ | ○ |
| While browsing through Instagram, it felt like my friends were physically near me. | ○ | ○ | ○ | ○ | ○ |
| When browsing through Instagram, I had the sense of being close to my friends. | ○ | ○ | ○ | ○ | ○ |
| While I was using Instagram, I could vividly imagine my friends. | ○ | ○ | ○ | ○ | ○ |
| It is important for me to interact with my Instagram followers. | ○ | ○ | ○ | ○ | ○ |

## Social comparison scale

| | Strongly disagree | Disagree | Neither disagree nor agree | Agree | Strongly agree |
|---|---|---|---|---|---|
| I often compare myself with others on Instagram with respect to what I have accomplished in life. | ○ | ○ | ○ | ○ | ○ |
| If I want to learn more about something, I try to find out what others think about it. | ○ | ○ | ○ | ○ | ○ |
| I always pay a lot of attention to how I do things compared with how others do things. | ○ | ○ | ○ | ○ | ○ |
| I often compare how my loved ones (boy or girlfriend, family members, etc.) are doing with how others are doing on Instagram. | ○ | ○ | ○ | ○ | ○ |
| I always like to know what others in a similar situation would do. | ○ | ○ | ○ | ○ | ○ |
| I am not the type of person who compares often with others on Instagram. | ○ | ○ | ○ | ○ | ○ |
| If I want to find out how well I have done something, I compare what I have done with how others on Instagram have done. | ○ | ○ | ○ | ○ | ○ |
| I often try to find out what others on Instagram think who face similar problems as I face. | ○ | ○ | ○ | ○ | ○ |
| I often like to talk with others on Instagram about mutual opinions and experiences. | ○ | ○ | ○ | ○ | ○ |
| I never consider my situation in life relative to that of other people on Instagram. | ○ | ○ | ○ | ○ | ○ |
| I often compare how I am doing socially (e.g., social skills, popularity) with other people on Instagram. | ○ | ○ | ○ | ○ | ○ |

End of survey remarks

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Thank you for participating in this research.

If you have any further questions or concerns about this study, please feel free to contact the researcher at the following email address: m.a.ouko@student.utwente.nl

Kindly click the button below to ensure your response is recorded.

○ Record response

→

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We thank you for your time spent taking this survey.

Your response has been recorded.

The following code gives you credits that can be used to get free research participants at SurveySwap.io.

Go to: https://surveyswap.io/sr/I20P-S3CQ-98EU

Or, alternatively, enter the code manually: I20P-S3CQ-98EU

For SurveyCircle users (www.surveycircle.com): The Survey Code is: WPY7-RMWZ-XRNF-ZNF7
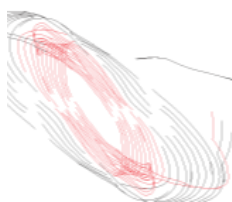
## Appendix B

## Factor Analysis

**Factor analysis – (rotated component matrix)**

| Statements | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SWB - To what extent do you lead a purposeful and meaningful life? | 0.836 | | | | | | | | | | | | | | |
| SWB - To what extent do you feel that what you do in your life is valuable and worthwhile? | 0.812 | | | | | | | | | | | | | | |
| SWB - To what extent do you generally feel you have a sense of direction in your life? | 0.791 | | | | | | | | | | | | | | |
| SWB - How satisfied are you with your personal relationships? | 0.787 | | | | | | | | | | | | | | |
| SWB - To what extent have you been feeling loved? | 0.768 | | | | | | | | | | | | | | |
| SWB - How often do you feel positive? | 0.728 | | | | | | | | | | | | | | |
| SWB - How often do you feel joyful? | 0.695 | | | | | | | | | | | | | | |
| SWB - To what extent do you feel excited and interested in things? | 0.671 | | | | | | | | | | | | | | |
| SWB - How much of the time do you feel you are making progress towards accomplishing your goals? | 0.617 | | | | | | | | | | | | 0.573 | | |
| SWB - How often are you able to handle your responsibilities? | 0.473 | | | | | | | | | | | | 0.415 | | |
| PAUS (passive) - How often do you like people's images on Instagram? | | 0.795 | | | | | | | | | | | | | |
| PAUS (active) - How often do you comment on people's images on Instagram? | | 0.773 | | | | | | | | | | | | | |
| PAUS (active) - How often do you contact your Instagram friends via DM (direct message)? | | 0.745 | | | | | | | | | | | | | |
| PAUS (passive) - How often do you look at other people's photos on Instagram? | | 0.703 | | | | | | | | | | | | | |
| PAUS (passive) - How often do you scroll through your Instagram explore page? | | 0.659 | | | | | | | | | | | | | |
| PAUS (active) - How often do you post photos on Instagram? | | 0.644 | | | | | | | | | | | | | |
| PAUS (passive) - How often do you click on Instagram profiles that you don't follow and view their images? | | 0.552 | | | | | | | | | | | | | |
| Envy (benign) - When I envy others on Instagram, I focus on how I can become equally successful in the future. | | | 0.814 | | | | | | | | | | | | |
| Envy (benign) - Envying others on Instagram motivates me to accomplish my goals. | | | 0.795 | | | | | | | | | | | | |
| Envy (benign) - If I notice that another person on Instagram is better than me, I try to improve myself. | | | 0.769 | | | | | | | | | | | | |
| Envy (benign) - On Instagram, I strive to reach other people's superior achievements. | | | 0.715 | | | | | | | | | | | | |
| Envy (benign) - If someone on Instagram has superior qualities, achievements, or possessions, I try to attain them for myself. | | | 0.713 | | | | | | | | | | | | |
| Relational_closeness - When browsing through Instagram, I had the sense of being close to my friends. | | | | 0.819 | | | | | | | | | | | |
| Relational_closeness - While browsing through Instagram, it felt like I had met with my friends. | | | | 0.74 | | | | | | | | | | | |
| Relational_closeness - While I was using Instagram, I could vividly imagine my friends. | | | | 0.732 | | | | | | | | | | | |
| Relational_closeness - While browsing through Instagram, it felt like my friends were physically near me. | | | | 0.717 | | | | | | | | | | | |
| Relational_closeness - It is important for me to interact with my Instagram followers. | | | | 0.612 | | | | | | | | | | | |
| Social_capital (bonding) - The people I interact with on Instagram would put their reputation on the line for me. | | | | | 0.754 | | | | | | | | | | |
| Social_capital (bonding) - The people I interact with on Instagram would help me fight an injustice. | | | | | 0.719 | | | | | | | | | | |
| Social_capital (bonding) - There are several people on Instagram I trust to help solve my problems. | | | | | 0.714 | | | | | | | | | | |
| Social_capital (bonding) - When I feel lonely, there are several people on Instagram I can talk to. | | | | | 0.686 | | | | | | | | | | |
| Social_capital (bonding) - If I needed an emergency loan of €30 (KES. 3000), I know someone on Instagram I can turn to. | | | | | 0.639 | | | | | | | | | | |
| Envy (malicious) - Envious feelings from Instagram cause me to dislike the other person. | | | | | | 0.836 | | | | | | | | | |
| Envy (malicious) - Seeing other people's achievements on Instagram makes me resent them. | | | | | | 0.831 | | | | | | | | | |
| Envy (malicious) - If other people on Instagram have something that I want for myself, I wish to take it away from them. | | | | | | 0.794 | | | | | | | | | |
| Envy (malicious) - I wish that superior people on Instagram lose their advantage. | | | 0.449 | | | 0.676 | | | | | | | | | |
| INDCOL (IND) - I take great pride in accomplishing what no one else can accomplish. | | | | | | | 0.822 | | | | | | | | |
| INDCOL (IND) - I am unique – different from others in many respects. | | | | | | | 0.803 | | | | | | | | |
| INDCOL (IND) - It is important to me that I perform better than others on a task. | | | | | | | 0.793 | | | | | | | | |
| INDCOL (IND) - I like my privacy. | | | | | | | 0.709 | | | | | | | | |
| INDCOL (IND) - I always state my opinions very clearly. | | | | | | | 0.504 | | | | | | | | |
| Social_comparison - I often like to talk with others on Instagram about mutual opinions and experiences. | | | | | | | | 0.818 | | | | | | | |
| Social_comparison - I often try to find out what others on Instagram think who face similar problems as I face. | | | | | | | | 0.778 | | | | | | | |
| Social_comparison - If I want to find out how well I have done something, I compare what I have done with how others on Instagram have done. | | | | | | | | 0.602 | | | | | | | |
| Social_comparison - I often compare how I am doing socially (e.g., social skills, popularity) with other people on Instagram. | | | | | | | | 0.422 | 0.406 | | | | | | |
| Social_comparison - If I want to learn more about something, I try to find out what others think about it. | | | | | | | | | 0.746 | | | | | | |
| Social_comparison - I often compare myself with others on Instagram with respect to what I have accomplished in life. | | | | | | | | | 0.585 | | | | | | |
| Social_comparison - I always like to know what others in a similar situation would do. | | | | | | | | 0.434 | 0.578 | | | | | | |
| Social_comparison - I always pay a lot of attention to how I do things compared with how others do things. | | | | | | | | | 0.566 | | | | | | |
| Social_comparison - I often compare how my loved ones (boy or girlfriend, family members, etc.) are doing with how others are doing on Instagram. | | | | | | | | | 0.406 | | | | | | |
| Social_capital (bridging) - Interacting with people on Instagram makes me interested in what people unlike me are thinking. | | | | | | | | | | 0.774 | | | | | |
| Social_capital (bridging) - Talking with people on Instagram makes me curious about other places in the world. | | | | | | | | | | 0.75 | | | | | |
| Social_capital (bridging) - Interacting with people on Instagram makes me interested in things that happen outside of my town. | | | | | | | | | | 0.719 | | | | | |
| INCOL (COL) - I make an effort to avoid disagreements with my group members. | | | | | | | | | | | 0.779 | | | | |
| INCOL (COL) - Before making a decision, I always consult with others. | | | | | | | | | | | 0.711 | | | | |
| INCOL (COL) - I would rather do a group paper than do one alone. | | | | | | | | | | | 0.651 | | | | |
| INCOL (COL) - I would help, within my means, if a relative were in financial difficulty. | | | | | | | | | | | 0.595 | | | | |
| Social_comparison - I never consider my situation in life relative to that of other people on Instagram. | | | | | | | | | | | | 0.816 | | | |
| Social_comparison - I am not the type of person who compares often with others on Instagram. | | | | | | | | | | | | 0.65 | | | |
| SWB - How often do you become absorbed in what you are doing? | | | | | | | | | | | | | 0.66 | | |
| SWB - How often do you lose track of time while doing something you enjoy? | 0.445 | | | | | | | | | | | | 0.488 | | |
| SWB - To what extent do you receive help and support from others when you need it? | | | | | | | | | | | | | | | |
| Social_capital (bridging) - Interacting with people on Instagram makes me feel like part of a larger community. | | | | | | | | | | 0.429 | | | | 0.623 | |
| Social_capital (bridging) - On Instagram, I come in contact with new people all the time. | | | | | | | | | | | | | | 0.61 | |
| SWB - How often do you achieve the important goals you have set for yourself? | 0.561 | | | | | | | | | | | | | | 0.592 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 11 iterations.