

**Portraying a Perfect Life – Envy as a Mediator in the Relationship of Social Media and
Emotional Wellbeing**

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07 July 2022

Abstract

The extent to which social media affects us in daily life is a topic that has gained tremendous amounts of research in the past years. With growing numbers of users, especially in the younger population, psychologists have been interested in the way usage of various social media sites has played out in our lives. Especially with Instagram and TikTok gaining users and surpassing the most used app, Facebook, more and more young adults are exposed to perfect portrayals of people's lives in the form of short videos or photos. These portrayals can bring about negative affect and make people envious of the lives they aspire to have. The present study therefore focuses on the way social media use affects emotional wellbeing in the form of the balance of positive and negative affect throughout the week. In addition to that, it measures two forms of envy, malicious and benign, how that factor plays into wellbeing, and whether it mediates the relationship between social media use and emotional wellbeing. A survey was conducted throughout the population of young adults and results showed that there is a strong correlation between social media use and emotional wellbeing. Even though envy is not a mediator, malicious envy strongly affects emotional well-being as well. These findings show that using social media does not necessarily bring about envy, yet there is a consensus that both social media use and malicious envy are correlated with more negative affect throughout a person's week.

Keywords: social media, emotional wellbeing, envy, mediation

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Worldwide, there were 3.6 billion people using social media in 2020, an immensely large number that has been growing each year and is expected to further grow to around 4.4 billion in the next five years (Statista, 2022). The global social penetration rate, which shows the percentage of the world's population being exposed to social media, now lies at 49 percent, meaning almost half of the world uses social media. In Germany, one can find that in the age group of 14–29-year-olds, 85% of them use social media sites weekly and 66% daily (ARD/ZDF-Onlinestudie, 2021). This means that almost every young adult gets exposed to social media at least once a week, making them susceptible to the effects that come with its use. Typical issues within this domain include social comparison and, in turn, envy.

As the numbers of social media users grow, so does the number of research concerning said usage as well as its links to mental health. In past years, researchers have been interested in numerous psychological aspects of social media use, yet findings have mostly been inconclusive. While some studies show increased levels of depression or anxiety with social media use (Baker & Algorta, 2016), others show higher levels of happiness (Valkenburg, 2022). As the outcomes vary so widely, it would be interesting to assess whether there are indirect effects that are of importance. Fluctuations in direct effects could point to indirect effects influencing the relationship.

In particular, assessing the timely aspect could be helpful. Spending time on social media sites frequently or for long periods of time could emphasize the side effects that social media usage brings with it. Previous studies cannot be considered conclusive on this topic. Coyne et al. (2020) discuss that time spent using social media is not related to changes in depression or anxiety. However, studies such as that of Geirdal et al. (2020) show that more frequent usage is linked to more mental health issues such as loneliness.

A factor that might have an indirect effect on the impact social media has on emotional wellbeing is envy. Feelings of envy can arise when one compares their life to someone who has a seemingly better life (Smith, 2004). Consuming content that shows perfect lives and vacations can therefore foster the experience of envy. In turn, feeling envious may lead to more negative feelings throughout the week (Mujcic & Oswald, 2018). Encountering negative emotions following the consumption of content on a daily or weekly basis could significantly affect emotional well-being.

Social Media Use

73% of 14-29-year-olds visit Instagram weekly, a trend that has changed immensely in the past years. Just since 2018, Instagram users have almost doubled in percentage (ARD/ZDF-Onlinestudie, 2021). While Facebook still is the most used social media network in Germany, the number of young adults using Instagram is twice as large as young Facebook users (ARD/ZDF-Onlinestudie, 2021). The nature of the content on Instagram is completely different than on Facebook. Instagram as a highly visual social media site consists of photos and videos, whereas Facebook also provides users with the functions of making public life updates or uploading texts. Further, on Facebook one mostly engages with personal friends or acquaintances, while one is exposed to hundreds and thousands of strangers on Instagram. Following Instagram and Facebook, on the third place of most used social media sites, there is Snapchat, a communication service relying solely on photos and videos with a weekly use of 44% of 14-29-year-olds. Similar to Instagram, TikTok has been on the rise within this age group, with 32% of them using the app weekly (ARD/ZDF-Onlinestudie, 2021). The content on this app is exclusively short videos.

These differences in the content do not seem very large, but they play a great role in the way one perceives the lives of others. While Facebook shows everything about the lives of one's friends and barely focuses on the aspect of subscribers, people on sites, such as Instagram, Snapchat, and TikTok can fabricate photos and videos that make their lives seem close to perfect in order to gain followers (Chou & Edge, 2012).

Past studies have largely focused on Facebook as the social media site that mostly affects young adults, but with changing usage, where more people use highly visual social media sites, it is advisable that further studies consider the effect Instagram, Snapchat, and TikTok have on the wellbeing of this age group (Sharma, 2020). Studies concerning Instagram and mental health are often still inconclusive and the effect it has on well-being varies with different well-being indicators, such as the Positive and Negative Affect Scale, which is why it would be beneficial to further research it. What can be said though, is that Instagram exposes users to upward social comparison material, comparing one's life to a seemingly better one, which has negative impacts on their mental wellbeing in the form of lowered life satisfaction (Faelens et al., 2021). Studies on Snapchat also show links to decreased mental health as well as increased jealousy (Dunn & Langlais, 2020), whereas studies about TikTok have not focused much on mental health yet (Zenone, Ow, & Barbic, 2021).

Engaging in the use of highly visual social media sites can bring about various feelings. Content on those sites is relatively easy to consume, with little need to think deeply about what is seen. It is therefore completely natural that young adults scrolling through dozens of photos and videos tend to compare themselves to what they are seeing. Social comparison is not a new idea that has come with increased social media use, Festinger already described this process as inherent to any human half a decade ago (1954). Often, such comparison can lead to lots of emotions, varying from feeling motivated to achieve the same life as those shown online to becoming angry and bitter at the fact that other people seem to have such a great life. Both of these extremes can be grouped under the feeling of envy (van de Ven, 2016).

Envy

Comparing oneself to peers is natural, but it can bring about considerable feelings of envy and frustration (Festinger, 1954). As discussed by Smith, envy is the feeling of inferiority when comparing oneself to someone who is better off (2004). Jealousy is often mentioned in reference to envy, so it is important to understand the difference between the two concepts. Envy is the emotion occurring when desiring aspects of other people's lives, while jealousy rather refers to the fear of losing someone or something to someone else (van de Ven, 2016).

There are two consequences arising when feeling envious. It can either motivate oneself to achieve what the other person has, or it can induce anger at the idea of being inferior. These two feelings can be conceptualized as benign and malicious envy (van de Ven, 2016). While these concepts may allow one to assume that benign envy is more of a positive emotion while malicious envy is a negative one, it is not that simple. While benign envy does seem to be the more positive way of experiencing envy, van de Ven found out that it still differs greatly from more positive emotions such as admiration and cannot necessarily be linked to it (2016). It was further found that benign envy can motivate oneself to improve, yet stronger feelings of malicious envy led to the opposite and motivated people to pull the other one down. So, even though benign envy might be more motivating, it can be assumed that it still does not play positively into well-being. Generally, envy is shown to negatively predict one's psychological health in the present, as well as in the future (Mujcic & Oswald, 2018), proving that it is not only harmful in the moment of going through social media and feeling envious but also afterward. It would be interesting to see the meaning distinct forms of envy

have for wellbeing, as they seem to differ in intensity. While both malicious and benign envy are uncomfortable feelings, it is to be seen how strongly they are associated with wellbeing.

Emotional Wellbeing

Consuming content can make one feel happy, relaxed, and connected (Weinstein, 2018). Thus, watching other people live their life through photos and videos can be entertaining and helpful to ease one's mind after a stressful day. At the same time, it can have severely negative effects on mental health. It is shown to increase loneliness and depression (Frison & Eggermont, 2017). With the growing usage of social media, especially amongst impressionable adolescents and young adults, assessing the links it has to mental health could be fundamental.

Experiencing both positive and negative emotions is common, yet it is desirable that the positive feelings overall outweigh the negative ones. Emotional Wellbeing in general is the balance between those positive and negative feelings one has in their daily life (Keyes, 2007). This experience of positive emotions is also called positive affect (Lyubomirsky, King, & Diener, 2005). A lack of positive affect lowers one's quality of life in that one experiences fewer positive emotions. In addition, it also affects one's physical health. Studies have found that lower Emotional Wellbeing hinders the body from recovering from physical illness (Lamers et al., 2012). A lack of Emotional Wellbeing can also increase one's susceptibility to infections or cardiovascular disease (Stewart-Brown, 1988).

Concluding, there are various aspects that may influence the experience of social media. As it encompasses the fabrication of content, it can be deceptive and foster social comparison and envy (Chou & Edge, 2012). Enduring feelings of envy on a regular basis can consequently be detrimental to one's Emotional Wellbeing (Mujcic & Oswald, 2018). In conclusion, the present study is focusing on the effect social media use has on emotional wellbeing with a focus on envy as a mediating factor.

H1: There is a negative relationship between time spent on social media and emotional wellbeing.

H2: There is a positive relation between the time spent on social media and malicious envy.

H3: There is a negative relation between malicious envy and emotional wellbeing.

H4: Malicious envy acts as a mediator in the relationship between time spent on social media and emotional wellbeing.

H5: There is a positive relation between the time spent on social media and benign envy.

H6: There is a negative relation between benign envy and emotional wellbeing.

H7: Benign envy acts as a mediator in the relationship between time spent on social media and emotional wellbeing.

Method

Participants

Using the G*Power program, the needed sample size was calculated to be 74 participants. The study used a convenience sample of 252 adults aged 18-29 years old, with 178 not having completed the survey or being outside the age group, leaving a sample of 74. The survey was distributed using the SONA website as well as via social media, such as WhatsApp or Instagram. The participants had a mean age of $M=22.37$. Further, 66.7% of them identified as female while 31.8% identified as male. As for nationality, 71.2% of the participants were German, 4% Dutch, and 24.7% belonged to other nationalities, such as Belgian, American, or Malaysian.

Materials

Social Media Use

Participants were asked to indicate their total screen time during the last full week in the format of “hours.minutes”. They were instructed on how to find the needed information on both Android and iOS phones. The term Social Media Use is going to be used with the meaning of time spent on social media, as explained here.

Positive and Negative Affect Schedule – Short Form (PANAS-SF)

The Positive and Negative Affect Schedule is a questionnaire developed by Watson, Clark, and Tellegen in 1988. The scale measures positive and negative affect throughout the past week on a five-point Likert scale ranging from “Very slightly or not at all” to “Extremely”. Examples of feelings being asked for in the PANAS are “Interested”, “Ashamed”, “Jittery”, or “Determined”. Overall, the short form of the scale has 20 items, half of which are positive affect and half negative affect items. The scale is used to measure emotional wellbeing in that the score of Negative Affect is subtracted from the score of Positive Affect, omitting a score representing the balance of positive and negative emotions throughout the week. This method has been used in the study of Peixoto and Lopes (2022).

The PANAS-SF shows adequate or good psychometric properties in Hungarian and Spanish populations with Cronbach's alpha ranging from .65 to .91 (Díaz-García et al., 2020, Gyollai, Simor, Koteles, & Demetrovics, 2011). In this study, the Cronbach's alpha was .728, which is acceptable.

Benign and Malicious Envy Scale (BEMAS)

The Benign and Malicious Envy Scale is a 10-item questionnaire measuring the two forms of envy. It was developed by Lange and Crusius (2015) and measures envy on a six-point Likert scale ranging from “strongly disagree” to “strongly agree”. An example for a benign envy item would be “If I notice that another person is better than me, I try to improve myself”. As for malicious envy, an example is “I feel ill towards people I envy”.

In a cross-cultural study across the United States, Germany, Russia, and Poland the BEMAS showed very good reliability with Cronbach's alpha ranging from .85 to .9 (Kwiatkowska, Rogoza, & Volkodav, 2020). In this study the Cronbach's alpha laid at .793, meaning it is acceptable.

Procedure

Using a computer, tablet, or another electronic device, participants completed the online questionnaire via Qualtrics. At first, the subjects were presented an information sheet that explains the purpose and content of the study, as well as how the data is acquired and contact information of the research team. Further, participants were asked to give informed consent about having read and understood the previous information. The next section contained questions about the subjects' demographics, such as nationality, age, and gender. Subsequently, there was information provided on how to find one's screen time on both iOS and Android devices. After these preliminary questions, the questionnaires on social media use and Instagram use were presented. The remaining questionnaires were presented randomly to make sure the order does not affect the results. The average time it took to complete the questionnaire was two hours and 40 minutes.

Data Analysis

For the data analysis, the program SPSS Version 27 was used. Due to incomplete questionnaires or falsely answered attention checks, 178 of the responses had to be excluded. 74 responses remained to be used. The mean scores of the time spent on social media, “Positive and Negative Affect Schedule” and “Benign and Malicious Envy Scale” were

calculated and further used throughout the data analysis. The main regression assumptions were tested and approved (see Appendix, Figures 1-3, Table 1). In detail, the assumption of a linear relationship was tested by creating a scatterplot showing the relationship between the variables. Further, the assumption of homoscedasticity was tested by designing a scatterplot of the residuals. As for the normal distribution, a normal probability plot was drawn. Since the outcome was not completely clear, further testing in form of a Shapiro-Wilcox test was carried out, and eventually the assumption was approved for all scales except for the Malicious Envy scale. As the population in this study exceeds the number of 30 participants, according to the Central Limit Theorem it is acceptable to continue working with the scale (Ross, 2017). In order to test hypotheses one through three, as well as five and six, a Pearson correlation was conducted. In order to test for the direction of the correlations a multiple regression analysis was administered. Subsequently, Benign and Malicious Envy were tested for mediation using PROCESS, in an effort to test hypotheses four and seven.

Results

The data was prepared for further use by excluding participants who were missing answers or falsely answered the attention checks. The remainder of the data was computed into means of the various variables. The mean negative scale of the Positive and Negative Affect Schedule was subtracted from the mean positive scale in order to get a variable that represents the balance of emotions felt throughout the week, thus illustrating the state of Emotional Wellbeing.

Descriptives

To get an overview of the variables, the histograms of the items are created (see Appendix, Figures 4-6). The ranges, as well as the means can be seen in Table 1. As one can see, participants spent at least two and at most 42 hours on social media during their week, which provides quite a big range. As for Emotional Wellbeing, the minimum laid at -1.6 while the maximum was 3.6, showing that the participants mostly had well-balanced affect throughout their week. As for Malicious and Benign Envy, none of the participants experienced extreme envy with a maximum score laying at five out of six. Further, the mean of Malicious envy was $M = 2.08$ while Benign Envy had a significantly higher mean at $M = 3.6$.

Table 1

A table showing the descriptive statistics of the variables, including the mean, minimum and maximum of results, as well as the standard deviation.

Predictor	Mean	Min.	Max.	Std. Deviation
Time on Social Media	16.89	2	42	9.28
Emotional Wellbeing	.99	-1.6	3.6	1.05
Malicious Envy	2.08	1	5	.81
Benign Envy	3.64	1	5	.83

Correlations

Presented below is Table 2, which displays the correlations between each variable. The results demonstrate the hypotheses one, two, three, as well as five and six. For reasons of clarity, the hypothesis are repeated below. The alpha level used for all further statistical tests is .05.

H1: There is a negative relationship between time spent on social media and Emotional Wellbeing.

The results show that time spent on social media has a significant and negative relationship with Emotional Wellbeing, $r(70) = -.488$, $p < .001$, meaning the hypothesis can be accepted.

H2: There is a positive relation between the time spent on social media and Malicious Envy.

Further, hypothesis two can be rejected due to not being significant, $r(70) = .175$, $p = .137$.

H3: There is a negative relation between Malicious Envy and Emotional Wellbeing.

As for the third hypothesis, the two variables are significantly negatively correlated, allowing us to accept the hypothesis, $r(70) = -.356$, $p = .002$.

H5: There is a positive relation between the time spent on social media and Benign Envy.

When it comes to Benign Envy, there is no significant relationship with time spent on social media, rejecting the fifth hypothesis, $r(70) = .085, p = .471$.

H6: There is a negative relation between Benign Envy and Emotional Wellbeing.

Lastly, there is also no significant relationship between Benign Envy and Emotional Wellbeing, which allows us to reject the sixth hypothesis $r(70) = -.143, p = .223$.

Table 2

A correlation matrix displaying Pearson's R as well as the significance, showing the relationships between each predictor variable.

		Emotional Wellbeing	Social Media Use	Benign Envy	Malicious Envy
Emotional Wellbeing	<i>R</i>		-.49*	-.14	-.36*
	<i>p</i>		<.001	.223	.002
Time on Social Media	<i>R</i>			.09	.18
	<i>p</i>			.471	.137
Benign Envy	<i>R</i>				.28*
	<i>p</i>				.015
Malicious Envy	<i>R</i>				
	<i>p</i>				

Note. * = Significant ($p < 0.05$).

In order to test for the direction of the correlations a multiple linear regression analysis was carried out and presented in Table 3. The regression was calculated to predict Emotional Wellbeing based on Social Media Use, and Malicious Envy, as those are the only significant correlations. The negative relationship of time spent on Social Media with Emotional

Wellbeing is once again significant, yet the effect value is much lower, $b = -.050$, $t(70) = -4.356$, $p < .001$. Further, Malicious Envy stands in significant relation to Emotional Wellbeing with a similar effect size as within the correlations, $b = -.351$, $t(70) = -2.6$, $p = .011$.

Table 3

A table showing the results of a multiple linear regression analysis including the predictor variables with Emotional Wellbeing as the dependent variable.

Predictor	Beta value	Lower CI	Upper CI	β	t	p
Constant	2.688	1.682	3.695		5.327	<.001
Time on Social Media	-.050	-.072	-.027	-.438	-4.356	<.001*
Malicious Envy	-.351	-.620	-.082	-.272	-2.600	.011*

Note. * = Significant ($p < 0.05$).

Mediation

To investigate whether Benign or Malicious Envy are mediators in the relationship between Social Media Use and Emotional Wellbeing, a mediation analysis was conducted using PROCESS.

H4: Malicious envy acts as a mediator in the relationship between time spent on social media and emotional wellbeing.

Hypothesis four can be rejected, as Malicious Envy has an insignificant effect when taken into account with Social Media Use, $b = -.039$, $t(3,70) = -.03$, $p = .976$.

H7: Benign envy acts as a mediator in the relationship between time spent on social media and emotional wellbeing.

Moreover, hypothesis seven can also be rejected due to being insignificant, $b = .18$, $t(3,70) = .149$, $p = .882$. Thus, no mediation of either variable took place.

Discussion

The purpose of this study was to investigate the relationship between social media use and Emotional Wellbeing, with a focus on envy as a mediating factor. Experiencing envy is an uncomfortable feeling, negatively playing into the balance of affect throughout the week (van de Ven, 2016). Such experience could be brought upon by watching friends or strangers live a life you aspire to have. Social media sites such as Instagram and TikTok allow you to watch hundreds of people live their daily lives, without any indication of negative aspects (Chou & Edge, 2012).

Although the mediation model did not reach statistical significance, several tendencies were identified such as the finding that the time spent on social media has a significant negative relation to Emotional Wellbeing. This finding is especially interesting, since a lot of studies have found very differing results. Moreover, Malicious Envy was found to significantly and negatively affect Emotional Wellbeing, unlike the similar concept Benign Envy. Yet, there was no relationship between the time spent on social media and any form of envy.

Going into detail, these findings have not only brought interesting results, but they also raised more questions for the future. What can be noted about social media's relationship with Emotional Wellbeing, is that the correlation of the two factors is much stronger than the regression. This proposes that the relationship is not the way around we expected it to be. Emotional Wellbeing appears to be the variable that affects social media use. An explanation for this could be the theory of escapism (Kırcaburun & Griffiths, 2019). This theory suggests that those who have higher ideals than they could achieve are likely to feel the need to escape their lives, which very well fits in the context of this study. Often the need for escape is also triggered by negative emotions in one's daily life (Kırcaburun & Griffiths, 2019). As the present study assessed affect in the last week, it is possible that those who experienced negative affect in their past week visited social media sites and escaped from those unwanted feelings. This may result in a downward spiral of one's mental health. Negative feelings seem to lead to visiting social media, which in turn may strengthen these. Further studies may focus on the aspect social media has on wellbeing when a person already is in a vulnerable state.

Furthermore, Malicious Envy had a strong negative relationship with Emotional Wellbeing. Here, the regression was similarly strong as the correlation, which assures us that

Malicious Envy negatively affected Emotional Wellbeing. It is unclear what the reasoning for feeling envious was since the relationship with social media use was not significant. There are many possible reasons as to why young adults may feel envious of others such as scholastic success, experiences, or looks. Some of them can be fostered by social media, yet they are not necessarily caused by it, which is also proven in this study. Further research could focus on the prevalence of envy in young adults and other age groups, where such feelings may stem from and what relation they have to wellbeing.

Moreover, it appears Malicious Envy is a more uncomfortable feeling than Benign Envy and negatively affects one's mood throughout the week. Whereas Malicious Envy had strong negative correlations to Emotional Wellbeing, Benign Envy's impact did not reach statistical significance. Reason for that might be that experiencing Benign Envy is rather motivating than frustrating. Seeing others succeed might not only bring about negative feelings but also be proof of the fact that such success is achievable (van de Ven, 2016).

This study brought new insights into the topic of social media's relationship with mental health in that it showed a strong, negative correlation. Previous studies have mostly studied Facebook's impact on mental health, whereas this study did not exclusively ask for time spent on a specific social media site. This provides more general outcomes that better represent today's social media use, since most users do not spend time exclusively on one site. Further, many participants were sorted out using attention checks which was essential in this study, as it was quite extensive. Moreover, this study asked for the exact time spent on social media and provided aid in how to find one's screen time. Other studies ask for an estimate of time spent online or general screen time, which is not as specific.

Yet, this study has some limitations. The survey took participants longer than expected and many had to take breaks which likely disrupted their attention. The time between starting the questionnaire and continuing it might have brought differing results in that the screen time was different and not representative of the affect participants felt throughout the week. Further, the study was distributed mostly throughout a German population yet was only offered in English. In addition to the lengthiness of the study, this could have been rather difficult for participants. Another limitation within the population is the fact that it consists mostly of females, which may skew the results slightly. Without these issues, there may have been more significant results.

As for the design of the study, one could also have done an experience sampling study where participants do a survey daily right after consuming social media content. It would be interesting to see whether envy gives stronger results when being measured right after

consuming content on social media sites. The timely issue of envying others could be an interesting aspect to measure in further studies, as it could be the case that such feelings become weaker when no longer engaging in social comparison.

Conclusion

The present study aimed to identify the relationship between Social Media and Emotional Wellbeing as well as Envy as a mediating factor. Results show that Social Media and Emotional Wellbeing seem to have a strong correlation. Further, the study illustrates that Malicious Envy and Emotional Wellbeing have a strong relationship unlike Benign Envy. This indicates that Malicious Envy brings upon more negative emotions than Benign Envy. Yet the findings raise the question of the origin of feeling envious. Researching envy in young adults in a more general sense could bring explanations for our findings.

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Appendix

Figures

Multiple linear regression assumptions

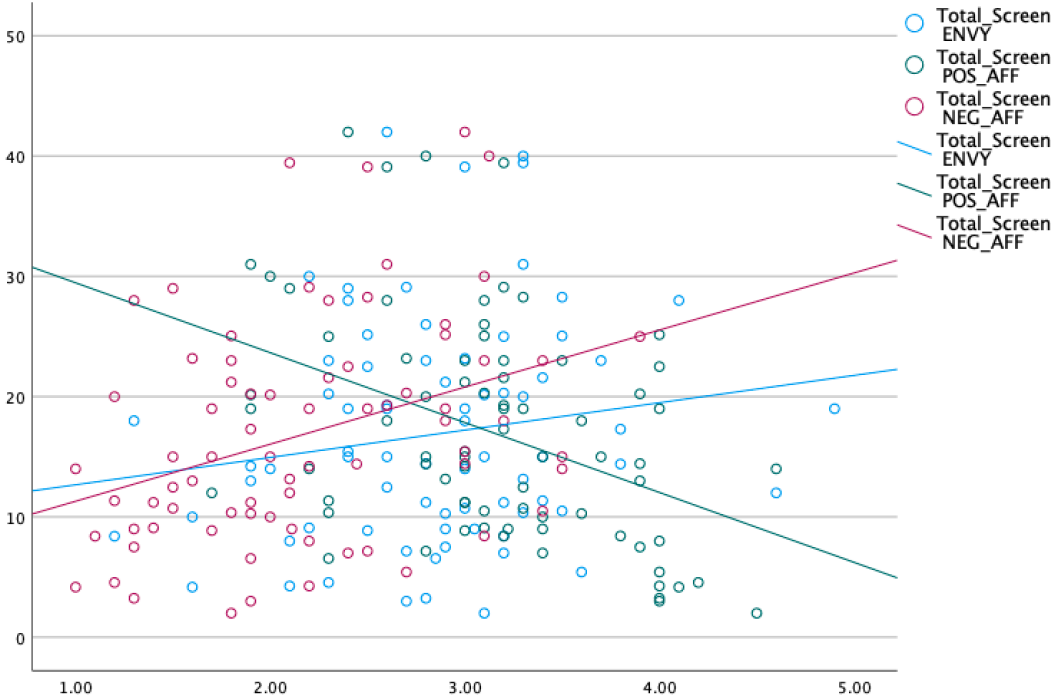


Figure 1. Scatterplot showing the relationship between Social Media Use and Envy, as well as Positive Affect and Negative Affect, satisfying the assumption of a linear relationship.

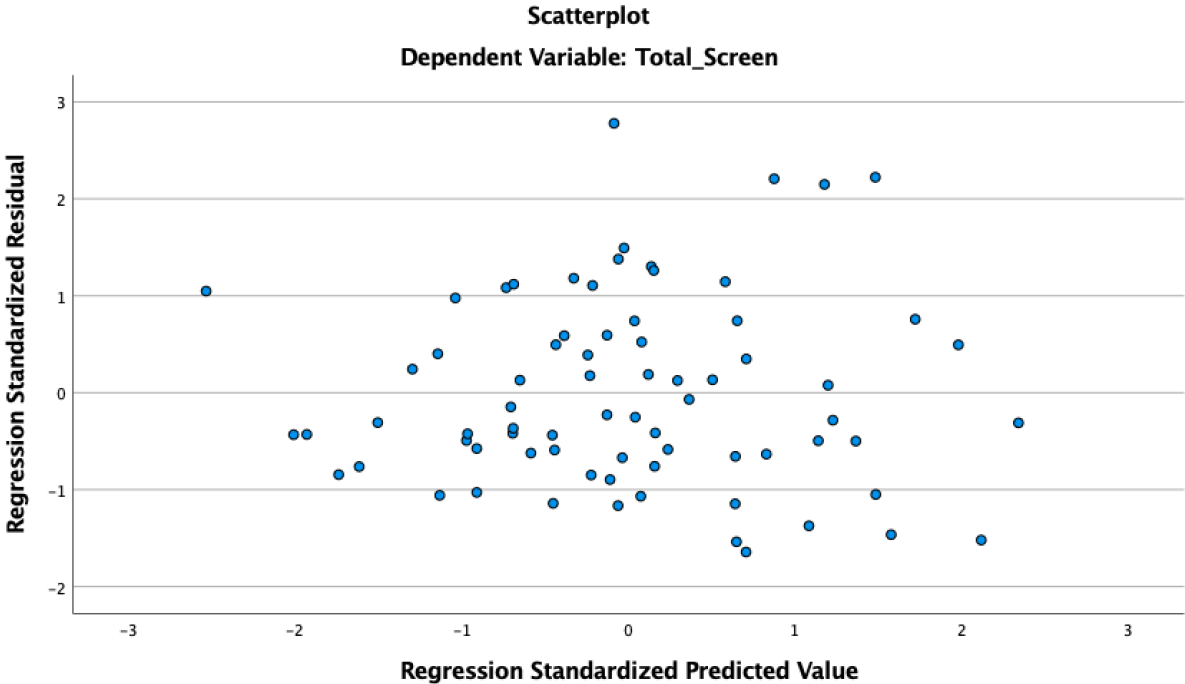


Figure 2. Scatterplot showing the residual values versus the predicted values, satisfying the multiple linear regression assumption of homoscedasticity.

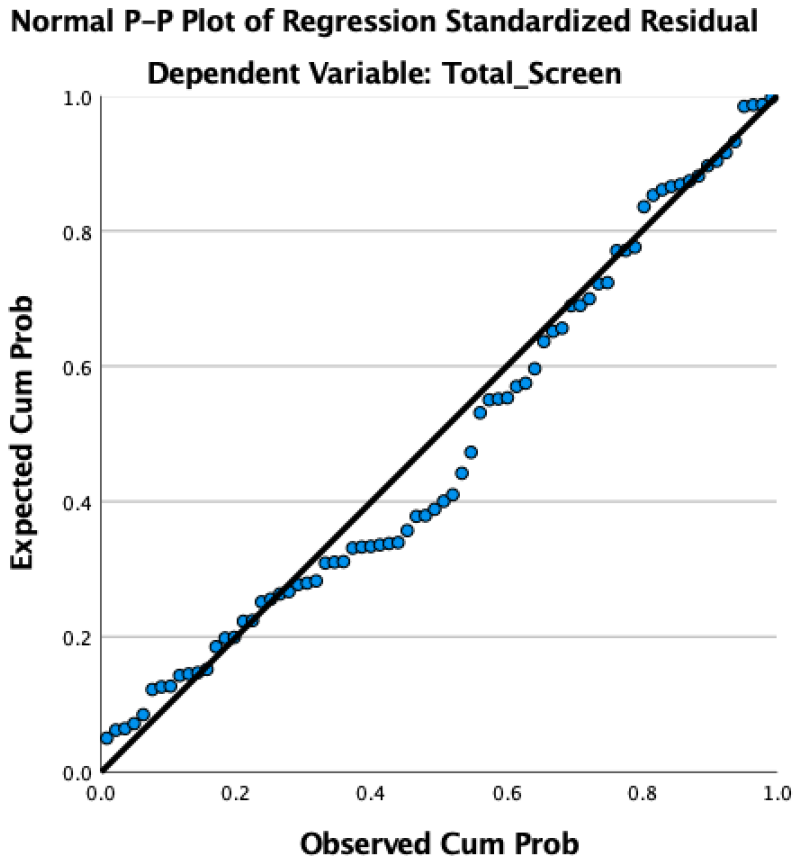


Figure 3. Normal probability plot showing the standardized residuals satisfying the multiple linear regression assumption of a normal distribution.

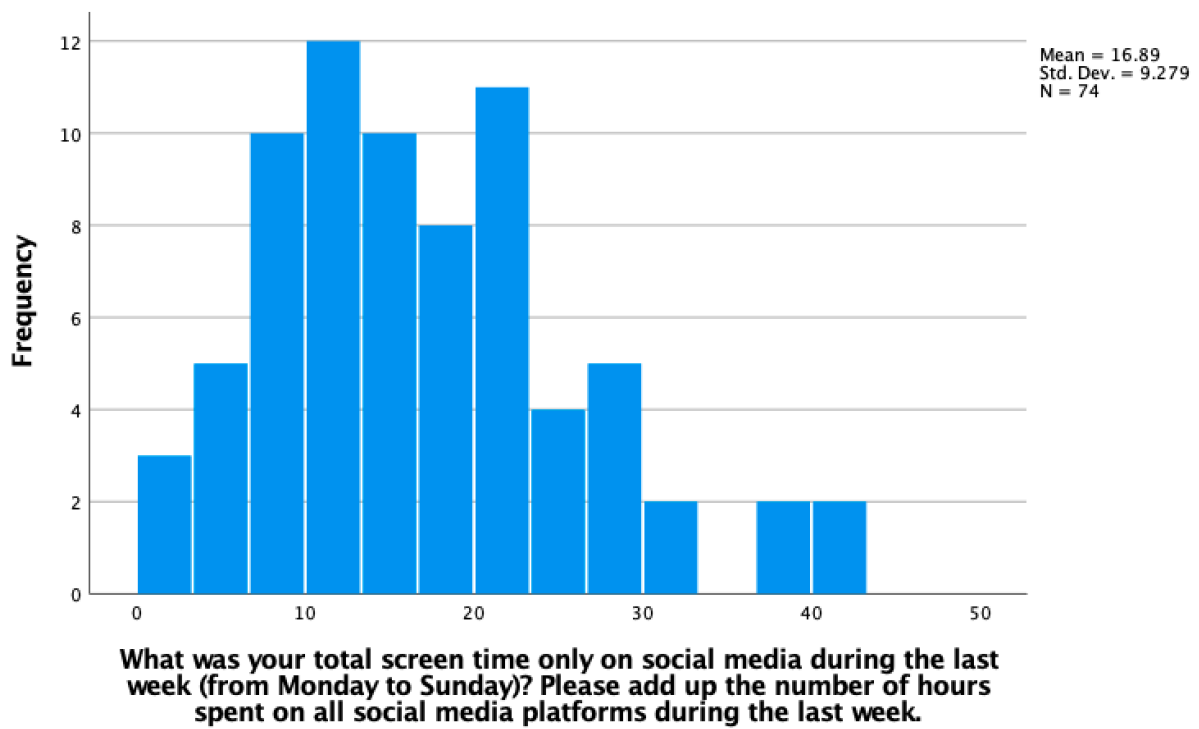


Figure 4. Histogram portraying the mean distribution of Social Media Use.

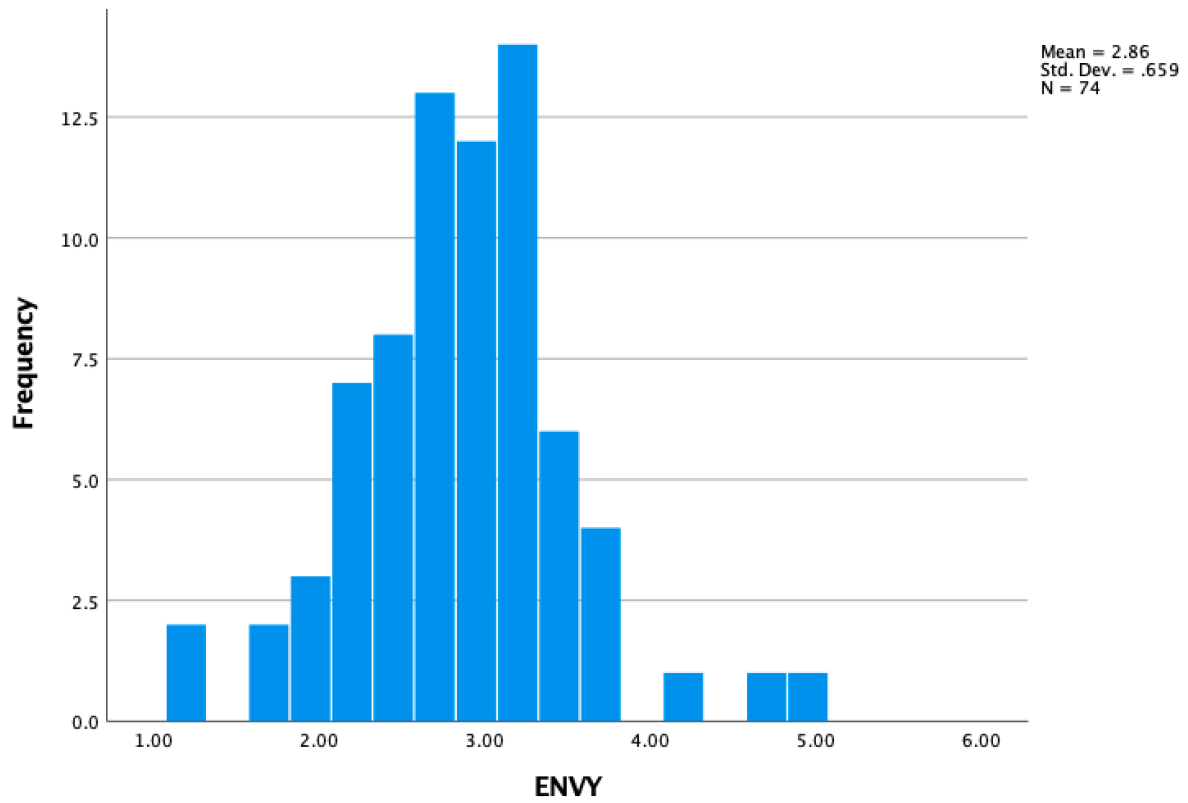


Figure 5. Histogram portraying the mean distribution of Envy.

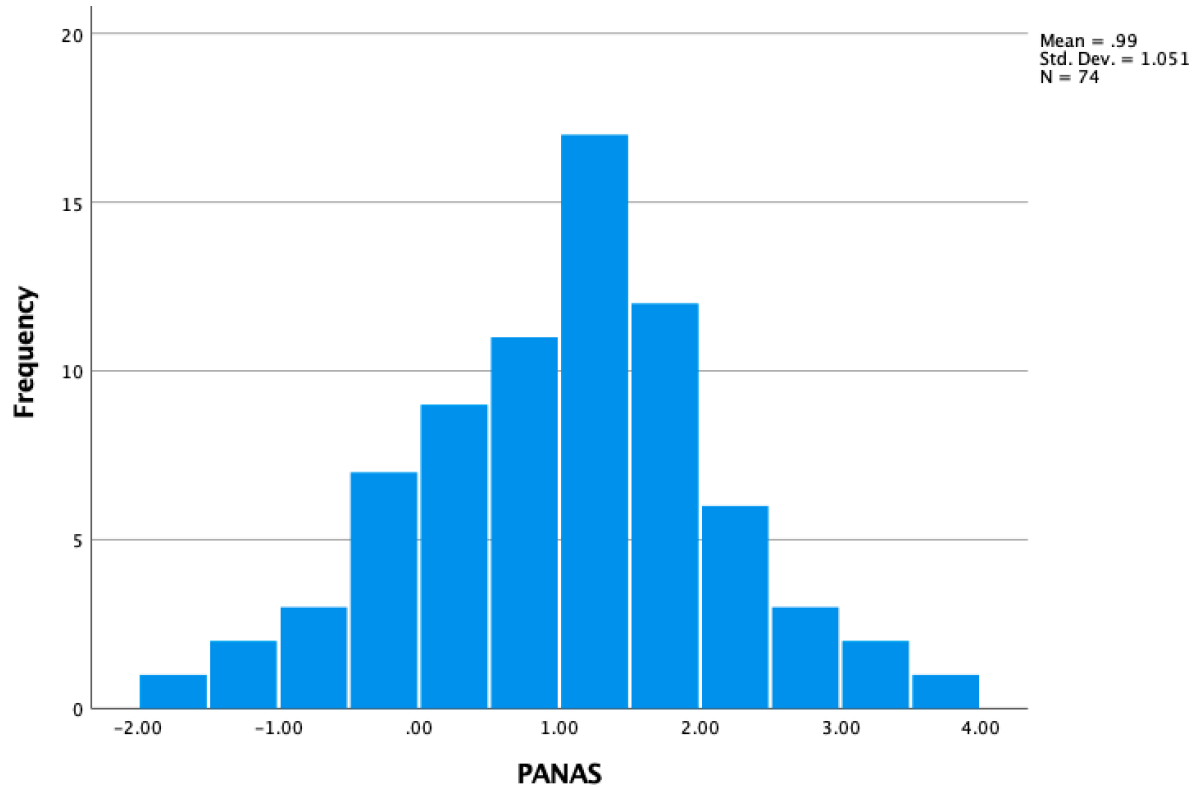


Figure 6. Histogram portraying the mean distribution of Positive and Negative Affect.

*Tables***Table 1.**

Table showing the Variance Inflation Factor, satisfying the assumption of there being no multicollinearity (VIF values between 1 and 10).

<i>Variables</i>	<i>Tolerance</i>	<i>Variance Inflation Factor (VIF)</i>
Positive Affect	.911	1.098
Negative Affect	.888	1.127
Benign Envy	.917	1.090
Malicious Envy	.817	1.224