

The Mediating Effect of Envy on Time Spent on Highly Visual Social Media and General Life

Satisfaction in University Students

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### Abstract

The goal of this study was to examine the mediating effect envy has on the relationship between time spent on highly visual social media (HVSM) and general life satisfaction. While there has been quite some research done on the topic of social media in general, HVSM hasn't been the topic of many studies, at yet remains to fully be investigated. A sample of 180 university students, 76.1% female, 23.3% male, 0.6% other, with an average age of 21.6 years, answered an online questionnaire. The results showed a positive association between time spent on HVSM and envy, and a negative association between envy and general life satisfaction. No significant mediating effect of envy could be found. HVSM has grown to a substantial part of, mainly, young peoples life's, but exploring its use and influences on mental health are still in the very beginning and the topic of HVSM remains to be investigated in depth.

*Keywords:* highly visual social media, envy, general life satisfaction, university students, mediation

## **The Mediating Effect of Envy on Time Spent on Highly Visual Social Media and General Life Satisfaction in University Students**

In our modern world social media gets more important every day. The term social media describes the whole of online communication channels, social networkings sites, blogs, websites, and applications. It is estimated that two thirds of adult internet users are using social media platforms regularly. Social media is an important part of, not only but mostly, young people's lives (Beyens, Frison & Eggermont, 2016). This high use of internet and especially social media is changing how people interact and communicate (Dong, Cirillo & Diana, 2017), and raises questions about how using social media shapes lives and influences mental health.

### **Spending time on Social Media and Highly Visual Social Media**

Even though social media are a fairly new phenomenon in Psychology, due to the fast growth of its importance in everyday life there has already been a lot of research done on this topic (Holland & Tiggemann, 2016). Much of the research done about social media is linked to Facebook, because it is the most used social networking site. Facebook is a free social networking site that allows users, among other things, to form groups, post updates on their own profile and send private messages, its focus lays not on visual content, a big part of it consists of written content. In the fourth quarter of 2017 Facebook had 2.2 billion active users ("Number of Facebook users worldwide 2008-2017", 2018).

Highly visual social media (HVSM) on the other hand uses mostly photo and video content generated by their users. Examples of HVSM are, amongst others, Snapchat and Instagram. Just Instagram, a highly visual social networking site that uses user-generated photo and video content with short text captions, had 800 Million monthly active users in September 2017, with adolescents and young adults as biggest user group ("Instagram: number of monthly active users 2013-2017", 2018).

Most of the research done is about classic social media, like Facebook, and not HVSM like, Instagram, findings of previous research discussed here will therefore be mostly about social media instead of HVSM. While there have been some favourable effects linked to the use of social media, there have also been findings that the use of social media can have negative

effects on mental health and wellbeing.

### *Positive effects of social media use*

Amongst others, positive effects that have been linked to social media use are a higher feeling of connectedness because of the possibility to connect with friends and acquaintances whenever they wish to and have the time along with the option to contact several people at the same time (Barry, Sidoti, Briggs, Reiter & Lindsey, 2017). Research also found that getting positive feedback from others online can result in greater self esteem (Valkenburg, Peter & Schouten, 2006).

Furthermore there have been findings that, especially amongst adolescents with less strength when it comes to social and psychological assets, perceived social support, the feeling that one is cared of and is part of a supportive social network, can be higher when social media is being used (Fang, Chao & Ha, 2017).

### *Negative effects of Social Media use*

Negative effects of social media use can be diverse and have a great negative impact on one's life. They include feeling isolated from significant others as well as society in general (Al-Dubai, Ganasegeran, Al-Shagga, Yadav & Arokiasamy, 2013), more perceived psychological stress (Chen & Lee, 2013), lower self-esteem (Vogel, Rose, Roberts & Eckles, 2014), and negative influences on mood. There have also been findings that Facebook users might perceive other Facebook users as happier than themselves and that more and more social media users are showing signs of pathological social media use (Frost & Rickwood, 2017).

There have also been findings though, that not mere exposure to social media can be addressed for negative effects on mental health, what seems to be important is the quality of use of social media. For example using social media for upward social comparison seems to lead to depression in later life. On the other hand, when used well, for example for authentic self-presentation, or for example posting photos without altering them, social media can have positive effects. These findings suggest that not the quantity but the quality of social media use are important factors when preventing negative effects of social media on mental health (Dong,

Cirillo & Diana, 2017).

While in the beginnings of social media focus was put on written content, the last years have shown a rise in highly visual social media (HVSM), especially amongst young users ("Social media and young people's mental health and wellbeing", 2017). Highly visual social media (HVSM) uses mostly photo and video content generated by their users.

There is less research done that focusses on the influence of HVSM instead of social media as a whole, although it is rising fast during the last years. There have been findings though that when talking about HVSM the highly visual focus leads to users who are trying to create the most positive picture of themselves online (Winter, 2013).

Social media in general and HVSM in particular give users the opportunity to compare themselves to others at any given time, even if they are physically alone and the alteration of photos through, for example, filters or even Photoshop is very common. This, in turn, leads to a highly idealized posted content with which other users compare themselves. (Park & Baek, 2018). This aspect of HVSM is believed to promote upward social comparison, which is associated with depression (Lin et al., 2016) and lower life satisfaction (Marengo, Longobardi, Fabris & Settanni, 2018).

Not only the number of users, but also the time spent on HVSM indicates how important looking further into this topic is. In 2018 60% of Instagram users and 63% of Snapchat users used the social media platform on a daily basis ("Social Media Fact Sheet", 2018) and 38% reported that they use Instagram several times a day (Smith & Anderson, 2018). Worldwide, in 2017, the average daily use of social media, not HVSM, was 135 minutes per person ("Global time spent on social media daily 2017 | Statista", 2018).

Since HVSM is growing so fast over the last years, and is being used extensively every day by many people, having more insight into this kind of social media platforms can help exploring how social media shapes our lives, and its effects on mental health and general life satisfaction.

### **General Life Satisfaction**

Life satisfaction is "the degree to which a person positively evaluates the overall quality of his/her life as-a-whole. In other words, how much the person likes the life he/she leads" (Saris, Scherpenzeel, Veenhoven & Bunting, 1996). The decrease of life satisfaction has been found to

be a possible result of social media use (Valkenburg, Peter & Schouten, 2006).

If a person feels negatively about his or her life and thus experiences less life satisfaction, it can have a major negative influence on all aspects of a person's life. This is why life satisfaction is an important factor when talking about the influence that HVSM has on the daily lives of people. Negative influences can include depressive symptoms, social anxiety/ anxiety, and it can even negatively influence one's physical health (Huebner, Suldo & Gilman, 2006).

Spending time on social media can contribute to lower general life satisfaction by making users believe that they have less or insufficient access to goods that other users and influencers present on the platforms. This upward social comparison has been found to significantly lower life satisfaction (Hill, Martin & Chaplin, 2012).

Moreover, the alteration of photos through for example Photoshop on social media and HVSM is believed to, like mentioned earlier, promote upward social comparison, which in turn again is associated with lower general life satisfaction. Thus spending time on HVSM might be negatively associated with general life satisfaction, since this relationship has been shown earlier between time spent on social media and general life satisfaction (Marengo, Longobardi, Fabris & Settanni, 2018).

## **Envy**

Envy is “the unpleasant emotion that can arise when we *compare* unfavourably with others” (Smith & Kim, 2007, p. 46). Envy is often mixed up with jealousy, but these are two different emotions. While jealousy describes the feeling of fear of losing something to someone else, envy describes the emotion occurring when someone has something we do not or cannot have (Smith & Kim, 2007). The negative feeling of envy, with the rise of social media, has been more present in many people's lives since it is so easy to see perfectly presented lives online (Winter, 2013).

By definition, in order to experience envy, upward social comparison has to take place (Festinger, 1954). That means one person has to be aware of the advantageous status of the other person (Chae, 2017). Like mentioned earlier, this upward social comparison has not only shown to have a negative impact on mental health, but also on the general life satisfaction of users of social media (Marengo, Longobardi, Fabris & Settanni, 2018).

Research suggests that envy is more likely to arise when the advantageous person is

similar to the person with fewer advantages. These findings play an even bigger role today when talking about envy that takes place through HVSM. Platforms like Instagram promote upward social comparison, because so called “influencers” present their lives in the most positive way possible online through photos (Appel, Gerlach & Crusius, 2016). Influencers are normal people, that have an above average influence on purchasing decisions made by other users.

Unlike classic celebrities, who are often perceived and accepted as “naturally superior”, HVSM users can relate to influencers more and perceive them as people like you and I. This might lead to stronger feelings of envy towards influencers than classic celebrities.

The connection that has been shown by previous research between envy and lower general life satisfaction through upward social comparison shows why the feeling of envy is an important factor when talking about the influences of HVSM use (Chae, 2017; Appel, Gerlach & Crusius, 2016; Krasnova, Wenninger, Widjaja & Buxmann, 2013).

### **Current research**

This study aims to explore the relationship between time spent on HVSM, general life satisfaction, and envy. Consistent with the findings discussed earlier, the following research question will be answered.

*RQ:* How does envy mediate the relationship between the time spent on highly visual social media and general life satisfaction?

In addition the following hypotheses will be tested to help answer the research question.

*H1:* Time spent on highly visual social media is negatively associated with general life satisfaction.

*H2:* Time spent on highly visual social media is positively associated with envy.

*H3:* Envy is negatively associated with general life satisfaction.

*H4:* The association between time spent on highly visual social media and general life satisfaction is mediated by envy.

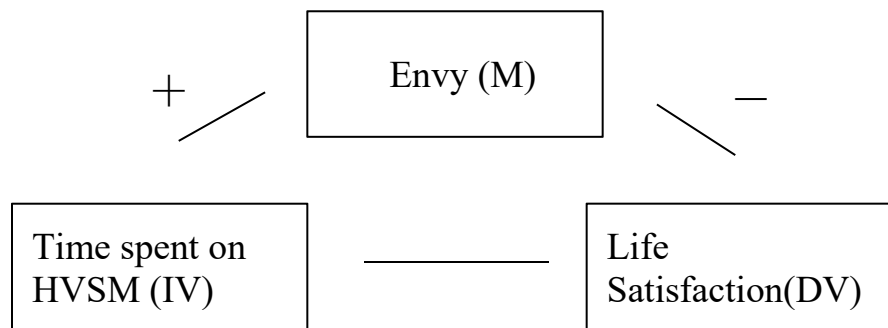


Figure 1. Expected research model with independent variable (IV), dependant variable (DV), and mediator (M).

## Method

### Design

For this study a cross-sectional online survey-based research design has been chosen. The method of sampling was convenience sampling. This design is being fitted because gathering data online has been shown to be easy, fast, and it is possible to get data from a wide array of, in this case, university students. For example from German university students and Dutch university students. This makes it more likely to gather responses that are representative for the whole population of university students. The students had the possibility to fill the questionnaire in whenever they wanted and wherever they wanted and could even pause and continue at a later point of time (Visser, Krosnick & Lavrakas, 2014).

Time spent on HVSM acted as independent variable. The dependent variable was general life satisfaction. The expected mediating variable between the two was envy.

### Participants

Participants in this study included 253 currently enrolled university students. After clearing the dataset, 180 participants were left for analysis. 70 participants were removed from the dataset, because they did not complete the questionnaire, and three participants were removed, because they did not agree with the informed consent. Most participants were female, 76.1%, and almost 61% were living in Germany at the time of the study being conducted.



Table 1.

*Sociodemographic characteristics of participants*

		M(SD)	Frequency	%
Age (in years)		21.65 (3.65)		
Gender	Male		42	23.3
	Female		137	76.1
	Other		1	0.6
Residence	Germany		109	60.6
	Netherlands		61	33.9
	Another European country		7	3.9
	Outside of Europe		2	1.1

*Note.* N = 180

**Procedure**

The questionnaire has been approved by the ethics commission of the University of Twente. All participants voluntarily filled in an online questionnaire. Participants were gathered by advertising for the questionnaire on social media and on the SONA system of the University of Twente. The SONA system is a subject pool software through which students of the University of Twente can gather points for participating in different studies. Participants were further recruited on different social media platforms, including Facebook and Instagram, where a

brief recruitment text was posted with some information like how long finishing the questionnaire will take, and what the questionnaire is about.

Before the questionnaire started the participants were informed about their right to end the study whenever they wish to, that their data is solely collected and confidently used to conduct this study, and the topic of the study they are about to take part in, through an informed consent. The participants had to agree to this informed consent by clicking “Yes”. At the end of the questionnaire there was an appreciation page with additional information on how to get in contact with the researcher in case they had any open questions or were interested in the results. The participants took 38 minutes on average to finish the questionnaire.

## **Materials**

This research was part of a broader research, but only the questionnaires relevant for this paper will be discussed.

### *Demographics*

In the beginning of the questionnaire the participants answered in total five demographic questions about their age, current employment status, highest degree, current residency, and sex. One of the questions was, for example, “How old are you?”. The participants answered the demographic questions using multiple-choice answer options.

### *HVSM use*

Participants were also asked how much time they spend only on HVSM every day. Answer options were: zero to one hour, one to two hours, two to three hours, or more than three hours a day.

### *The Dispositional Envy Scale*

The dispositional envy scale was designed and developed by Smith et al. to measure differences in individual tendencies towards the feeling of envy (Smith, Parrott, Diener, Hoyle & Kim, 1999). It consists of eight items that the participants had to respond to using a 5-point

Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. An example item of the scale is “I feel envy every day”.

The dispositional envy scale showed good validity, stability and internal consistency with a Cronbach's alpha around .80 in studies conducted with U.S., Brazilian, and Argentinean samples. Generally a Cronbach's alpha between .70 and .80 is seen as acceptable, and between .80 and .90 as good (Mola, Analía Saavedra & Reyna, 2014). In this study the Cronbach's alpha for this scale was .86.

To fit the scale to this studies needs, the last item has been changed from “Frankly, the success of my neighbours makes me resent them”, to “Frankly, the success of people I know makes me resent them”. This alteration of the scale has been made because of the assumption that students, the target group of this study, do not usually take notice of their neighbours or feel the need to live up to them.

### ***The Satisfaction with Life Scale***

The Satisfaction with Life Scale (SWLS) is a 5-item scale designed and developed by Diener et al to measure one's life satisfaction. Participants indicate how much they agree or disagree with each of the five items using a 7-point Likert scale that ranges from 7 = strongly agree to 1 = strongly disagree. (Diener, Emmons, Larsen & Griffin, 1985) One example item of the scale is “In most ways my life is close to my ideal”.

The SWLS has been reviewed and used several times and showed good validity and reliability as a measure of life satisfaction with a Cronbach's alpha of .90 (Pavot, Diener, Colvin & Sandvik, 1991, Rosengreen, Jonasson, Broghard & Lexell, 2015). In this study the satisfaction with life scale had a Cronbach's alpha of .88.

The scale measures satisfaction with life as a whole, the participants are free to integrate or exclude and weigh different parts of their lives, like finances or school, in whatever way they choose. This makes the satisfaction with life scale applicable in a wide range of age groups and research (Pavot & Diener, 1993).

### **Data analysis**

The mediation analysis was conducted using the statistical program SPSS with the add-on regression path analysis tool PROCESS developed by Andrew F. Hayes. First the dataset was

cleared and the descriptive statistics analysed then the regression analysis was conducted.

In step 1 the goal of the analysis is to confirm the significance of the relationship between the independent variable time spent on HVSM and the dependent variable general life satisfaction by showing regression of time spent on HVSM on general life satisfaction.

Step 2 of the analysis seeks to confirm the significance of the relationship between time spent on HVSM as independent variable and the mediator envy by showing regression of time spent on HVSM on envy.

Step 3 of the analysis is aiming to confirm the relationship between the mediator envy and the dependent variable general life satisfaction in the presence of the independent variable time spent on HVSM. This is by showing regression of envy on time spent on HVSM in the presence of general life satisfaction.

The fourth and last step of the analysis aims to confirm the insignificance of the relationship between the independent variable time spent on HVSM and dependent variable general life satisfaction in the presence of the mediator envy, by showing no regression of time spent on HVSM on general life satisfaction, in the presence of the mediator envy.

## **Results**

### **Descriptive statistics**

The descriptive statistics of the regression analysis are presented in table 2. Participants reported to spend almost two hours a day solely on HVSM, with a standard deviation of almost one hour. All three variables showed to be distributed normally with skewness between -.482 and .650 and kurtosis between -.679 and -.443.

Table 2.

*Descriptive statistics of independent variable time spent on HVSM, dependent variable general life satisfaction, and mediator envy used in the regression analysis.*

	M(SD)	Minimum	Maximum	Skewness	Kurtosis
Time spent on HVSM (in hours/day)	1.9 (0.94)	1	4	.650	-.679
Life Satisfaction	23.4 (6.1)	5	34	-.482	-.473
Envy	18.6 (6.1)	8	34	.255	-.443

### Hypotheses testing

It was tested whether envy mediates the relationship between the independent variable time spent on HVSM and the dependent variable general life satisfaction.

In step 1 of the mediation model, the regression of time spent on HVSM on general life satisfaction was not significant  $b = .14$ ,  $t(177) = .32$ ,  $p = .75$ . It is therefore concluded that time spent on HVSM is not associated with general life satisfaction. In conclusion this means that no mediation can be found in this model, since there is no significant relationship between the independent variable time spent on HVSM and dependent variable general life satisfaction. It has still been decided to continue with steps 2 and 3 of the regression analysis to further investigate the relationship between the independent variable, dependent variable, and mediator.

In step 2 the regression of time spent on HVSM on the mediator envy showed to be significant,  $b = 1.1$ ,  $t(178) = 2.28$ ,  $p = .023$ . It can be concluded that time spent on HVSM is positively associated with envy and that the second hypothesis, that time spent on HVSM is positively associated with envy, can be accepted.

Step 3 of the mediation process showed that the relationship of the mediator (envy), controlling for general life satisfaction, was significant as well,  $b = -.42$ ,  $t(177) = -6.20$ ,  $p < .001$ . The third hypothesis, that envy is negatively associated with general life satisfaction, can thus be accepted as well.

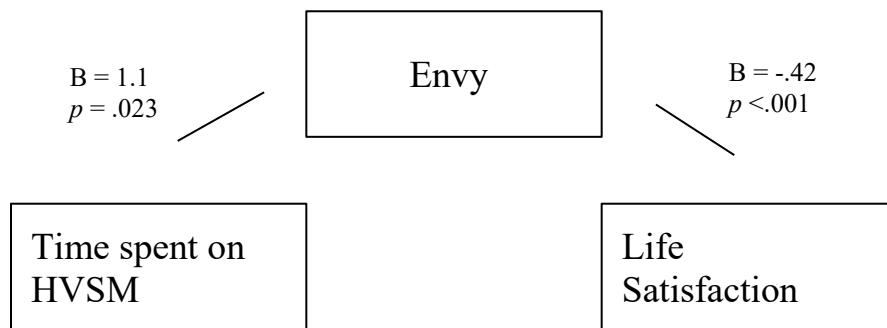
Step 4 of the analyses, controlling for the mediator (envy), whether time spent on highly visual social media was a significant predictor of low general life satisfaction has not been conducted because, as mentioned earlier, if there is no direct relationship found between the independent variable and the dependent variable in step 1 of the analysis, it can be concluded that no mediation can take place.

Table 3.

*Summary of outcomes of the three steps of the conducted regression analysis and corresponding p-values.*

	Predictor variable	B	P-value	R <sup>2</sup>
Step 1				
General Life Satisfaction	Time spent on HVSM	.14	.75	.0025
Step 2				
Envy	Time spent on HVSM	1.1	.023	.0285
Step 3				
General Life Satisfaction	Envy	-.042	<.001	.1806
	Time spent on HVSM	-.32	.51	

*Note.* B= unstandardised regression coefficient, N=180



*Figure 2.* Research model with regression coefficients (B) of direct regression of time spent on HVSM on envy, and regression of envy on life satisfaction, and corresponding p-values.

## Discussion

The goal of this study was to explore whether envy mediates the relationship between time spent on HVSM and general life satisfaction.

There was no significant direct effect found between time spent on HVSM and general life satisfaction. This is a finding that is not consistent with previous research (Frunzaru & Boțan, 2015) that suggested that more time spent on social media generally can lead to less general life satisfaction especially through negative effects of social media use like more perceived psychological stress (Chen & Lee, 2013). This inconsistency with previous research might have been found because most studies focus on social media in general and not HVSM in particular. This finding also means that no mediating effect can be found in this model, because there is no direct effect between time spent on HVSM and general life satisfaction.

Even though no mediating effect of envy on general life satisfaction and time spent on HVSM can be found in this model, there was a significant direct relationship between the time spent on HVSM and envy. This finding is consistent with previous findings that suggested that social media plays a role in enhancing the feeling of envy. This has been found to be the case because users of social media often carefully select and enhance their photos which leads to an overly positive picture presented online. This, in turn, leads to upward social comparison, which is an important factor in promoting feelings of envy (Appel, Gerlach & Crusius, 2016).

There was also a significant relationship between the feeling of envy and general life

satisfaction. This is consistent with prior findings as well; in particular Krasnova et al. found that more perceived envy leads to less life satisfaction because of enhanced upward social comparison and negative feelings and views about oneself (Krasnova, Wenninger, Widjaja & Buxmann, 2013).

These findings suggest that spending time on HVSM can have negative effects, and even though no mediating effect of envy could be found they show that spending time on HVSM can enhance negative emotions like envy. This shows that the time spent on HVSM should be used in a careful and ,sensible way and not too extensively.

### **Strength, limitations and recommendations for future research**

One strength of the study was the relevance of HVSM. Even though there has been a lot of research conducted on the topic of envy, life satisfaction and social media, HVSM has not been the topic of so many studies yet. This is important though because HVSM puts a much higher focus on photographic and video content than “classic” social media, and is therefore expected to have a higher impact on upward social comparison and in turn envy, than text based social media like Facebook (Winter, 2013).

One limitation of this study is that guessing and reporting the time spent on HVSM everyday can be challenging and therefore not representative. This is because social media, especially HVSM, is often used not deliberately, but unconscious (Pempek, Yermolayeva & Calvert, 2009). This is the case because often social media is being used many times a day, but often only for a short amount of time. It is therefore unlikely that one knows exactly how much time he or she spends on HVSM.

Participants in this study reported to spend about two hours, with a standard deviation of almost 1 hour, a day only on HVSM. Statistics of 2017 that reported that worldwide, the average daily use of social media was 135 minutes per person, but on social media in general ("Global time spent on social media daily 2017 | Statista", 2018). This inconsistency shows that estimating the time spent on social media and therefore also HVSM can be challenging.

Future research exploring this topic might consider using an application on the phones of participants that measure how much time exactly is spent on HVSM. This would not only have a positive impact on a potential study and the reliability of its outcomes, but it would also highlight if there is a significant misconception between the subjective and objective time spent on HVSM.



Exploring further factors that influence the relationship of time spent on HVSM, general life satisfaction, and envy could be interesting. Specially as mentioned in the introduction not only the time spent on social media, but also the quality of time spent on social media plays a role when talking about the negative influence on life satisfaction and mental health. Using social media to actively engage in social behaviour might have more positive influences on mental health and life satisfaction, whereas passively using social media might have a negative influence on mental health and life satisfaction (Scott, Bay-Cheng, Prince, Nochajski & Collins, 2017).

### **Conclusion**

This study demonstrated no association between time spent on HVSM, envy, and general life satisfaction in a sample of university students. The research question “How does envy mediate the relationship between the time spent on highly visual social media and general life satisfaction?” can be answered saying that envy showed no significant mediating effect, because there was no significant direct relationship between time spent on HVSM and general life satisfaction.

Nevertheless the findings suggest a relationship between time spent on HVSM and envy, and envy and less general life satisfaction. Even though no mediating effect of envy could be found, these findings show that further investigation of the topic is of high interest. Especially because up to this point most research focusses on social media in general, and not on HVSM and its influences, more insight into the topic might add to understanding social media as a whole better. Exploring further how much time is actually spent on HVSM, and how that time is spent, would add more depth to the discussion about how much time spent on social media and HVSM is considered acceptable and how much time would have too many negative influences.

During the last years HVSM has grown to a substantial part of, mainly, young peoples life's, but exploring its use and influences on mental health are still in the very beginning. The multitude of negative influences that social media can have on mental health and life satisfaction show that this fairly new phenomenon should not be ignored, but further investigated on, so spending time on HVSM can be a positive and fun experience.

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