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Bachelor thesis on
Social Media & Mental Health

The Mediating Role of Perceived Social Support
between Gender and Social Media Use.

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Abstract

During the last decade, Social media developed to the most used online activity for adolescents. Social support has been identified as an important reason to use social media. Whereas most studies have explored online social support, literature also suggested offline, or so-called in-person social support as a possible correlator, as well as gender. The aim of this study was to investigate whether perceived social support mediates the relationship between gender and social media use.

Using a cross-sectional online survey-based design, the associative relationship between gender, perceived social support and social media use was examined. A sample of 265 participants completed the survey that included items from the Multiple Scale of Perceived Social support (MSPSS) and another self-constructed questionnaire for social media use.

The results indicated no statistically significant mediation of perceived social support in relationship between gender and social media use. However, it was found that gender correlates significantly with both perceived social support and social media use. It could be concluded that women are more likely to use social media and were found to perceive their social support to be higher. The study's results indicate a need for further research of the role of social support in the context of social media use to explore how those variables are related.

Introduction

The fast-developing field of online technologies has significantly changed our lives. The internet is a reason why less people communicate nowadays face-to-face (Chou, Condrón, & Belland, 2005). Today, almost half of the entire population (48%) on earth are internet users. A decade ago, it has been only 20,5% (International Telecommunication Union, 2017), which shows that internet use is on an upward trend that will even rise further in the upcoming years. Out of the 48% internet users worldwide, adolescents make up the majority of internet users with 23,4% (International Telecommunication Union, 2017). Among this user group, social media use is the most popular activity (Baker & Moore, 2008; Raacke & Bonds-Raacke, 2008)

Social Media Use

Social media is a key element in the change of our communication over the years (Chou, Hunt, Beckjord, Moser, & Hesse, 2009). Ellison, Steinfield and Lampe (2007) defined Social Networking Sites (SNSs), which form the base of social media, as web-based applications that allow their users to construct a profile and list connections with other users. All SNSs have in common that their users are able to interact with real-life friends and meet other people based on similar interests (Kuss & Griffiths, 2011). Thus, they facilitate social interaction online (Hughes, Rowe, Batey, & Lee, 2012). SNSs can differ in their orientation, e.g. LinkedIn is a SNS that is work-oriented, and Tinder is one that is used to initiate romantic relationships (Ellison, Steinfield, & Lampe, 2007).

SNSs are the most popular and fastest growing type of internet sites (Hughes, Rowe, Batey, & Lee, 2012). Active participation in online social networking increased by 30% in only one year (from 2009 to 2010) (Griffith & Kuss, 2011). On average, social networking accounts for one of every six minutes of the time that people spend online (Oh, Ozkaya, & LaRose, 2014). More than 89% of adolescents uses at least one Social media platform on a regular basis (Nesi, 2017). Basically, we live in a culture of continual online networking. The percentage of use is continually rising because the number of SNSs and the availability of mobile devices increases every year (Donelli & Kuss, 2016).

Using social media at such high rates may have negative consequences. It was found that using social media for two or more hours a day may lead to internalizing problems and worse academic performance (Tsitsika et al., 2014) and that for adolescents feelings of loneliness rise when they use social media (Teo, Lee, & Chai, 2016). Still, these negative effects are not influencing the rising usage rates and thus do not threaten its popularity.

Literature gives different explanations for the popularity of social media use. Griffith and Kuss (2017) stated that social media draws on fundamental human needs. On one side it provides a possibility for self-expression. Griffith and Kuss (2017) even described social media use as “a way of being”, because social media profiles express who we are, and thus influences how we define our identity. A study by Livingstone (2008) supported this statement. It was found that adolescents used social networking sites in order to express and actualize their identities. They explained that today’s adolescents necessarily need to use SNSs in order not to miss out and to stay up to date (Griffith & Kuss, 2011). On the other side, another human need that is provided by social media use is social support. In offering a network for establishing relationships and allowing for communication about daily life and shared interests, social media is expected to serve as a new source of social support (Kim & Lee, 2011). Social media can be seen as a medium that is capable of providing social support in various ways for persons who seek help on different topics, for example daily stress or medical issues (Fox, 2011).

Social support

Social support is defined as ‘an exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient’ (Shumaker & Brownell, 1984). Social support can be expressed in various ways, such as *emotional support*, which means supporting others on an emotional level, e.g. through showing acceptance, *instrumental support*, which means providing specific sources of help, such as money or therapy, *informational support*, which is educating or advising others, and *affirmational support*, which is supporting behaviors of others (Taylor, 1999).

Receiving social support from others can be beneficial, including helping people to cope with stress as well as to relieve stress (Cohen & Wills, 1985). It is built up from encouragement, monitoring and regulation, or co-participation in desirable behaviours (Thoits, 1995), which results in positive emotional experiences, stress reduction, and self-esteem enhancement (Zimet, Dahlem, Zimet, & Farley, 1998). Furthermore, it improves physical health (Haber, Cohen, Lucas, & Baltes, 2007) and overall Quality of Life (Petito & Cummins, 2000; Khalil & Abed, 2014), and decreases mental health issues, such as depression (Cohen & Hoberman, 1983; Russel & Cutrona, 1991; Jensen et al., 2014) or anxiety (Monroe, Imhoff, Wise, & Harris, 1983; Lee & Robbins, 1998).

Social support has expanded its reach into the online context going along with the development of social online technologies, like social media platforms (Oh, Lauckner, Boehmer, Fewins-Bliss, & Li, 2013; Oh, Ozkaya, & LaRose, 2014). Its availability and

convenience make it attractive, which is why it can fill in lack of offline/in-person support. A study by Cole, Nick, Zelkowitz, Roeder, and Spinelli (2017) found that people, who perceived their in-person support to be low, were more likely to use online social support. In the vice versa case, when in-person support was considered to be high, online social support was more redundant. This finding is consistent with those of other studies (Longman, O'Connor, & Obst, 2009; Ybarra, Mitchell, Palmer, & Reisner, 2015)

In-person and online social support are found to be nearly similar. Online social support not only shares some beneficial effects with in-person social support (Cummings, Sproull, & Kiesler, 2002; Beaudoin & Tao, 2007), it was also found that receiving online social support is considered to be equal to receiving in-person social support of significant others, such as spouses (Hampton, Goulet, Rainie, & Purcell, 2011). Additionally, research suggested a 50% overlap between individual's online and real-life friends (Reich, Subrahmanyam, & Espinoza, 2012).

Gender Differences

Social media is not only closely connected to social support, gender also plays an important role. While there is no significant difference of overall internet use between men and women (Fallows, 2005), there are differences in their motivation of use and their time spend online. There is evidence that males engage in more task-oriented tasks, such as reading the news online or checking their financial status, while females are more likely to engage in behaviors that maintain relationships (Guadagno, Muscanell, Okdie, Burke, & Ward, 2011). For utilization, the study of Andreassen et al. (2016) found that males are more likely to use the internet to play online games and females are more likely to engage in social media use. This matches the results of the studies of Hargittai (2008) and Barker (2009), which found that females are reported to have a higher overall use of social media.

Speaking of gender differences in social media use, females and males are equally likely to use Facebook (Hargittai, 2008) and students were found to be equally likely to have a user profile on a social media platform (Raake & Bonds-Raacke, 2008). Again, the more significant differences of gender lie in the motivation of use. Females, for example, are found to use social media to maintain contact with friends, while males predominantly seek new friends (Pew Research, 2007). This supports the result of the study of Raake and Bonds-Raacke (2008) that men are more likely to use Social media platforms for dating. Furthermore, women are more likely to update their user profiles on a regular basis (Raake & Bonds-Raacke, 2008), present a social portrait that revolves around others, such as family or significant others (Magnuson & Dundes, 2008), and present less personal information (Raake & Bonds-Raacke, 2008). In

contrast to the latter, men tend to upload more risky photos and information on their profiles (Peluchette & Karl, 2008). Additionally, it was found that men use social media for social compensation and social identity gratifications. Females reasons for use are predominantly passing time and entertainment (Barker, 2009).

There are also gender differences documented in literature of social support. Women tend to perceive their social support as higher in comparison to men (Matthew, Stansfeld, & Power, 1999). They are also more likely to provide frequent and effective support and rely more heavily on social support, because of their greater sensitivity for needs of themselves and others (Flaherty & Richman, 1989). It was found that young women are also more likely to receive support from friends rather than from family (Day & Livingstone, 2003; Cheng & Chan, 2004). For young men it is vice versa (Cheng & Chan, 2004). This result is consistent with what the study of Colarossi (2001) found. Young women not only received more social support from friends than men, they also reported more supportive friends. However, both men and women reported to be equally satisfied with the support they received from others. All of the above-mentioned literature supports that gender is an important area to study, because in a wider context gender differences are likely to affect physical and mental health outcomes (Matthew, Stansfeld, & Power, 1999; Colarossi, 2001).

Current Research

There is already a lot of research confirming online social support as well as predictor and as outcome of Social media use (Ellison, Steinfield, & Lampe, 2007; Wangberg, Andreassen, Prokosch, Santana, Sørensen, & Chronaki, 2007; Park, Kee, & Valenzuela, 2009), whereas research on in-person social support lacks, although literature is suggesting a relationship between these variables. The study by Cole, Nick, Zelkowitz, Roeder, and Spinelli (2017) found that people who perceive in-person social support to be low, are more likely to use online social support for compensation. Thus, it can be suggested that the perception of in-person social support correlates positively with social media use, because social media is able to provide this compensation.

Till now, research on (perceived) social support and its relationship with social media has focused mainly on the most used social media platform 'Facebook' (Ellison, Steinfield, & Lampe, 2007; Park, Kee, & Valenzuela, 2009; Griffith & Kuss, 2011; Kim & Lee, 2011; Hughes, Rowe, Batey, & Lee, 2012; Manago, Taylor, & Greenfield, 2012; Jelenchick, Eickhoff, & Moreno, 2013; Mustafa, Short, & Fan, 2015); and less on social media use in general. Furthermore, there are some studies that focused on social support provided by specific groups or people (Tiller et al., 1997; Day & Livingstone, 2003; Cheng & Chan, 2004; Shirey, 2004),

but for adolescents it was found that they draw their social support from multiple sources such as friends, family or significant others (Zinn, Palmer, & Nam, 2017). Additionally, the rapidly increasing use of social media asks for a deeper understanding of possible associating factors to be able to provide suiting support in the future. Also, Gender differences are needed to be studied further to provide improved and specialised support, for adolescents who might use social media excessively or lack social support. The constant results in literature of a significant relationship between gender and social media use may suggest a strong, significant association in this study.

Based on the described literature above, this study will examine if Perceived social support mediates the relationship between Gender and Social media use. The current study aims to gain deeper understanding about the factors that are likely to positively correlate with adolescents' use of social media by studying whether Perceived social support acts as a mediator in the aforementioned relationship. This study answers the research question: *“Does Perceived social support mediate the relationship between Gender and Social media use in a population of European adolescents?”*.

H1: There is a statistically significant relationship between gender, perceived social support and social media use.

H2a: Gender and perceived social support predict social media use.

H2b: Gender predicts perceived social support.

H3: Perceived social support mediates the relationship between gender and social media use.

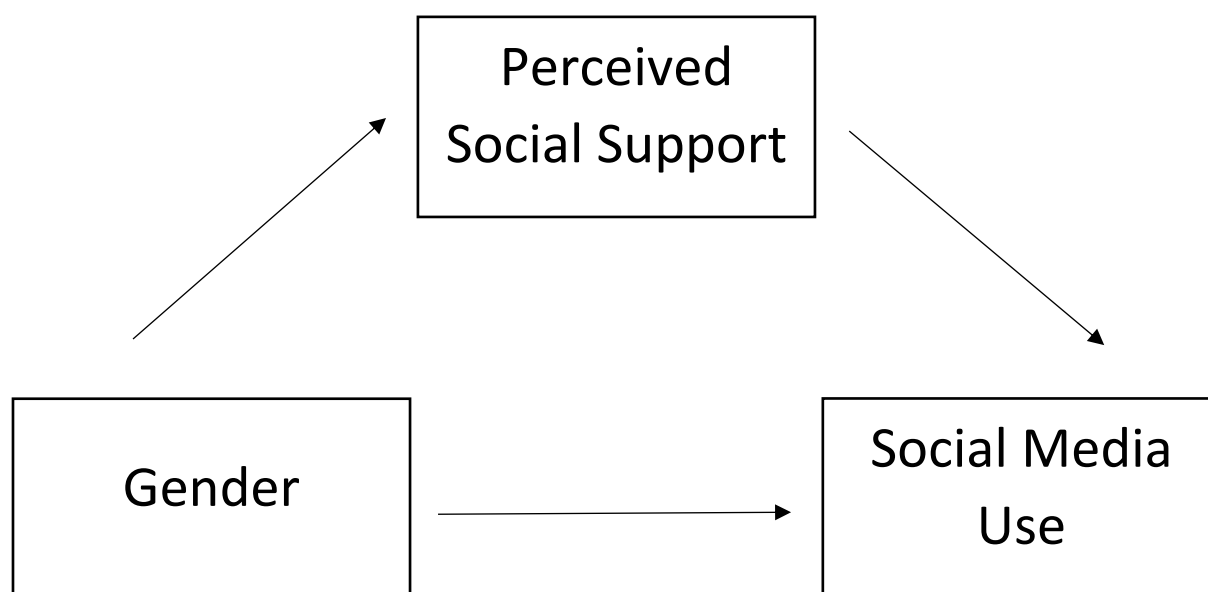


Figure 1. Hypothesized Model for the Relationship between Gender, Perceived Social Support and Social Media Use.

Method

Design

The study researched whether Perceived social support mediates the relationship between the independent variable Gender and the dependent variable Social media use. To explore this, a quantitative, cross-sectional, online survey-based design was chosen. The advantage of this design is that little resources are required, and it provides a reasonable amount of data within a short time span (Kelley, Clark, Brown, & Sitzia, 2003).

Participants

Convenience sampling was used to collect the data, which means using a readily accessible pool of participants. The advantage of this method is, that the participants of this pool fit with specific target criteria, like age, occupation, availability, and proximity, which assure that the sample is representative. Additionally, it keeps the time of participant response to a minimum and therefore data collection (Etikan, Musa, & Alkassim, 2016). It was chosen for this non-probability sampling method because the timespan of the research was limited. The inclusion criteria were (1) the use of any social media platform, (2) a good English proficiency, and (3) an age between 18 and 29 years old. All participants were reached via social media (mostly Facebook) and the University of Twente's SONA system, which is a psychology test subject pool for bachelor students provided by the University of Twente. Both participant groups

received information about the goal of the study and the expected duration (30 minutes). All of the participants took part voluntarily in the study.

In total, 265 participants out of initially 356 participants, finished filling out the questionnaires and fulfilled the criteria for participating. The socio-demographic characteristics of the participants are shown in table 1.

Table 1

Socio-demographic characteristics of the participants (N = 265).

Item	Category	Frequency	Percentage	Mean	SD
Gender					
	<i>Male</i>	64	24.2		
	<i>Female</i>	201	75.8		
Nationality					
	<i>German</i>	210	79.2		
	<i>Dutch</i>	37	14.0		
	<i>Other</i>	18	6.8		
Current Occupation					
	<i>Student</i>	240	90.6		
	<i>Full-Time</i>	23	8.7		
	<i>Part-Time</i>	2	.8		
Age		265	100.0	21.06	2.02

Materials

The data for this study was collected in collaboration with three other researchers who used different scales in order to answer their individual research questions. This study used a demographic questionnaire, a social media use questionnaire and the Multiple Scale of Perceived Social Support (MSPSS) to answer the research question.

Demographics. A demographic questionnaire was used to gather information relating to participants' gender, age, nationality, and current occupation.

Social Media Use. Items about social media use were formulated to gather information about which social media platforms participants use, how active they are online, how many friends

they have on Facebook and in real life, what their main activities on social media sites are and how they feel when they look at their friend's posts. In total, ten items were asked. For example, for the item "Which social media platforms do you use?" the options "Twitter", "Facebook", "Instagram", "Snapchat", "Youtube", and "Others" were given. It was possible to select more than one option at once and in case of "Others" the participant could fill in the non-listed social media platforms he/she uses. For all other questions only one option could be selected, e.g. for the item "What is your main activity on social media?", with the options "Just looking at other profiles", "Judging other posts (pictures, state, shared information) by leaving a like or commenting on those", "Creating own posts", "Following idols", and "Other" (see Appendix B). The Cronbach's alpha on these items was $\alpha=.30$ and is considered low. Even if some items would be left out, the Cronbach's alpha would not reach a value of $>.70$, which would be acceptable (Tavakol & Dennick, 2011).

Multiple Scale of Perceived Social Support (MSPSS). The Multiple Scale of Perceived Social Support (MSPSS) developed by Zimet, Dahlem, Zimet and Farley (1988) was used to measure the Perceived Social Support of the participants. It consists of 12 items with a 7-point Likert scale ("Very strongly Disagree" to "Very strongly Agree") and can be divided into three subscales (*Significant Other*, *Family*, and *Friends*). Thus, each subscale consists of four items, e.g. the item "There is a special person who is around when I am in need." belongs to the *Significant Other* subscale, the item "My family really tries to help me." measures the perceived social support someone receives from their *Family*, and the item "I can count on my friends when things go wrong." belongs to the third subscale *Friends* (see Appendix C). The MSPSS was chosen because it has an excellent psychometric reliability (.93) (Tavakol & Dennick, 2011), and it is fitting well with the study in the aspect that it measures the general perceived social support of our social environment. The mean total score shows the level of perceived social support. A score ranging from 1.0 to 2.9 is considered as low support, a score of 3.0 to 5.0 is considered to be moderate support, and a score from 5.1 to 7.0 is considered to be high support (Zimet, Dahlem, Zimet, & Farley, 1988).

Procedure

Before the start of the data collection, the Ethical Committee of the University of Twente approved the study. The data collection started on 5th of April and ended on 1st of May. The survey website tool Qualtrics was used in order to transform the questionnaires into an online survey, so it would be possible to gather data from a wide range of participants in a short amount of time. The participants were contacted either via SONA or via social media (Facebook). In

either way, they received information via a recruitment message about the goal of the study and that it would approximately take half an hour to fill out the survey completely. On social media, the post contained a link that would direct the participant to the survey. This made it possible to include participants who do not have access to SONA. Before they could participate in the study and fill out the questionnaire, they had to read an information text on what the study is about and got informed via an informed consent form, about what they can expect and what their rights are. The informed consent form (Appendix A) included the goal of the research about studying the relationship between social media use and mental health. Furthermore, it informed the participant about anonymity of the data. The e-mail address of one researcher was included to give participants the opportunity to ask questions that were not sufficiently answered. They had to accept the informed consent form in order to continue with the study. At the start of the survey, participants had to fill out the demographic questions. After, that they had to fill in the scales that were presented to measure different variables. At the end of the study, the participants were thanked for participating and were informed that if they would like to receive any further information about the results of the study, they could contact the researcher via email. Finally, a notification informed the participants that they finished the survey and answers had been recorded.

Data Analysis

The statistic program SPSS v24 (IBM 2016) was used for all statistical analyses. In addition, the PROCESS macro by Hayes (Hayes, 2012) for SPSS was installed for conducting a mediation analyses to determine whether Perceived social support was functioning as a mediator in the relationship between Gender and Social media use. To operationalize the variable of Social media use, the item “*On average, how many hour/hours do you use social media per day?*”, was used with the options “less than one hour”, “1 to 2 hours”, “3 to 4 hours”, “5 to 6 hours”, and “others, namely_____”, because hours was a more accurate assessment than days or times per week.

First, descriptive statistics were computed for the variables Perceived social support, Gender and Social media use. These included mean-scores and standard deviations. Skewness and Kurtosis were used to test if the data was normally distributed, and for both -1 and +1 were set as cut-off points. Within this interval, the data is considered to be normally distributed (Groeneveld & Meeden, 1984). Furthermore, for the mediator variable Perceived social support and the dependent variable Social media use, the Cronbach’s Alpha coefficients were scrutinized. An Alpha value of $\alpha > 0,70$ was presumed to be acceptable (Tavakol & Dennick, 2011).

For the next step, Pearson's correlation coefficients were analysed to investigate the relationship between the variables (H1). The statistical significance was set at $p < 0.05$ (Paternoster, Brame, Mazerolle, & Piquero, 1998). Following this, the mediation model was calculated with the PROCESS macro by Hayes (2012) to test H2a, H2b, and H3. In the first regression analysis, Social media use served as dependent variable and Gender and Perceived social support served stepwise as independent variables (H2a). In the second regression analysis, Perceived social support served as dependent variable and Gender served as independent variable (H2b).

To investigate hypothesis H3, the indirect effect was calculated to test whether Perceived social support mediates the relationship between Gender and Social media use. PROCESS is executing bootstrap confidence intervals, which makes it an advantageous method in the case of a not normally distributed (Hayes, 2012), which applies for this study data. If the confidence interval does not include zero, it is presumed to be a statistical significant mediation.

Results

Descriptive statistics, Reliability and Correlations

For the descriptive statistics, means and standard deviations were calculated (Table 2). Skewness and Kurtosis were calculated as well. Based on this, Gender was not normally distributed, as illustrated in Table 2, but it is impossible to exclude outliers here to improve normality. For Perceived social support and Social media use, extreme outliers (3x Interquartile range) were excluded.

Pearson correlations were executed for testing H1. As shown in Table 2 and Figure 2, there was a weak, negative and statistically significant correlation between Gender and Social media use ($r = -.222$; $p < 0.01$) and between gender and perceived social support ($r = -.224$; $p < 0.01$). For the first result it means that females use social media more than males and for the later that females perceive their social support to be higher. Perceived social support ($M = 5.78$; $SD = .88$) was weak but positive and statistically non-significant ($r = .008$; $p = .893$) related to social media use ($M = 2.55$; $SD = .76$). This positive association means that the higher the Perceived social support is, the higher is the use of social media. Taken together, the results of the correlation analysis did not confirm the first hypothesis.

Table 2

Descriptive statistics, Alpha coefficients and Correlations for the Variables.

Item	Frequency (in %)	Mean	SD	Skewness	Kurtosis	α	Gender	PSS
PSS		5.78	.88	-.60	-.19	.86	-.224**	
SMU		2.55	.76	-.08	-.32	.30	-.222**	.008
Gender				1.21	-.53			
	Female	75.8						
	Male	24.2						

Note. ** $p < 0.01$

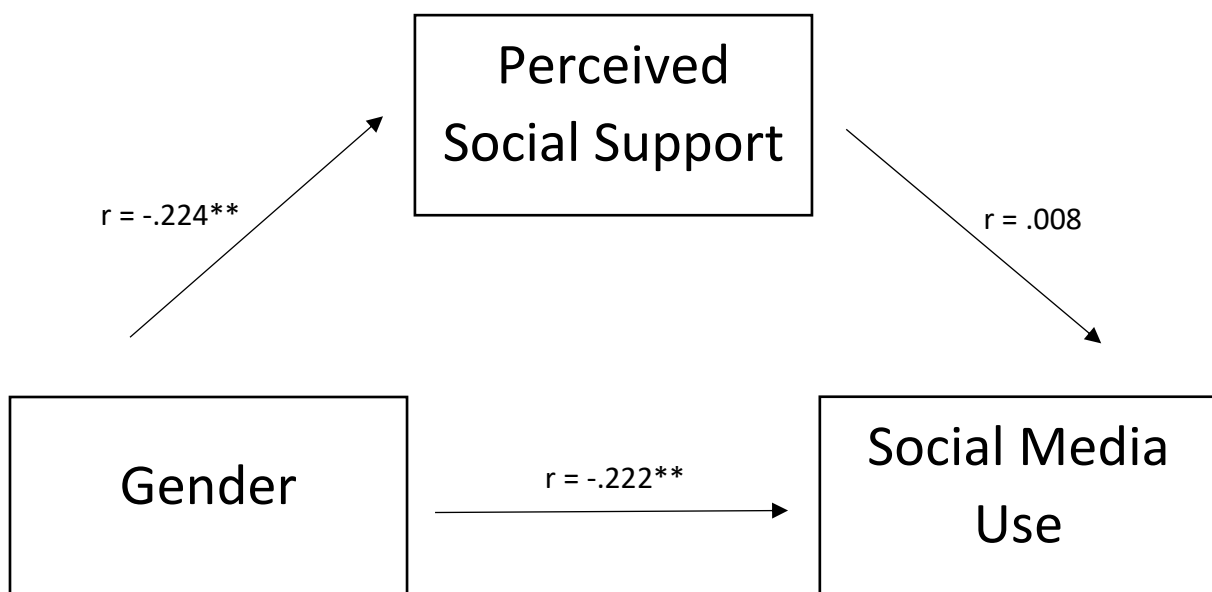


Figure 2. Correlation model for the variables Gender, Perceived social support, and Social media use to illustrate results for H1.

Mediation analysis

The mediation model was calculated by using the PROCESS macro. In step 1 of the mediation model, the total effect (path c) got calculated, thus the regression of Gender on the outcome variable Social media use. As figure 3 illustrates, the total effect was significant, $b = -.39$, $t(263) = -3.69$, $p < 0.01$. Approximately 5% of the variance in Social media use was accounted for by Gender ($R^2 = .0491$).

The second step calculated path a. As can be seen in figure 3, the regression of Gender on the mediator, Perceived social support, was significant, $b = -.46$, $t(263) = -3.73$, $p < 0.01$.

Approximately 5% of the variance in Perceived social support was accounted for by Gender ($R^2 = .0502$). Hypothesis H2b is thus supported by the outcomes.

In step 3, the mediator Perceived social support, controlled for Gender (path b), was not significant, $b = -.04$, $t(262) = -.70$, $p > .05$ (Figure 3). It can be concluded that both Gender and Perceived social support does not significantly correlate with Social media use (H2a).

In step 4, the direct effect (path c') of the mediation model showed that, controlling for the mediator, Gender was a significant correlated, $b = -.41$, $t(262) = -3.75$, $p < 0.01$ (Figure 3), which is not consistent with full mediation. Again, approximately 5% of the variance in Social media use was accounted for by the variables Gender and Perceived social support ($R^2 = .0509$).

This was also confirmed by the results of H3, where the indirect effect of the mediating variable Perceived social support on the relationship between Gender and Social media use was tested. A bootstrap confidence interval approach was done to test this with 1,000 bootstrapping samples and a 95% confidence interval (Shrout & Bolger, 2002). The outcome was non-significant with a confidence interval slightly around zero, $b = .0227$, $SE = .0365$, 95% $CI = [-.0309; .0776]$. The interval includes zero, as shown in Table 4, thus it can be concluded that Perceived social support does not mediate the relationship between Gender and Social media use. H3 is therefore rejected.

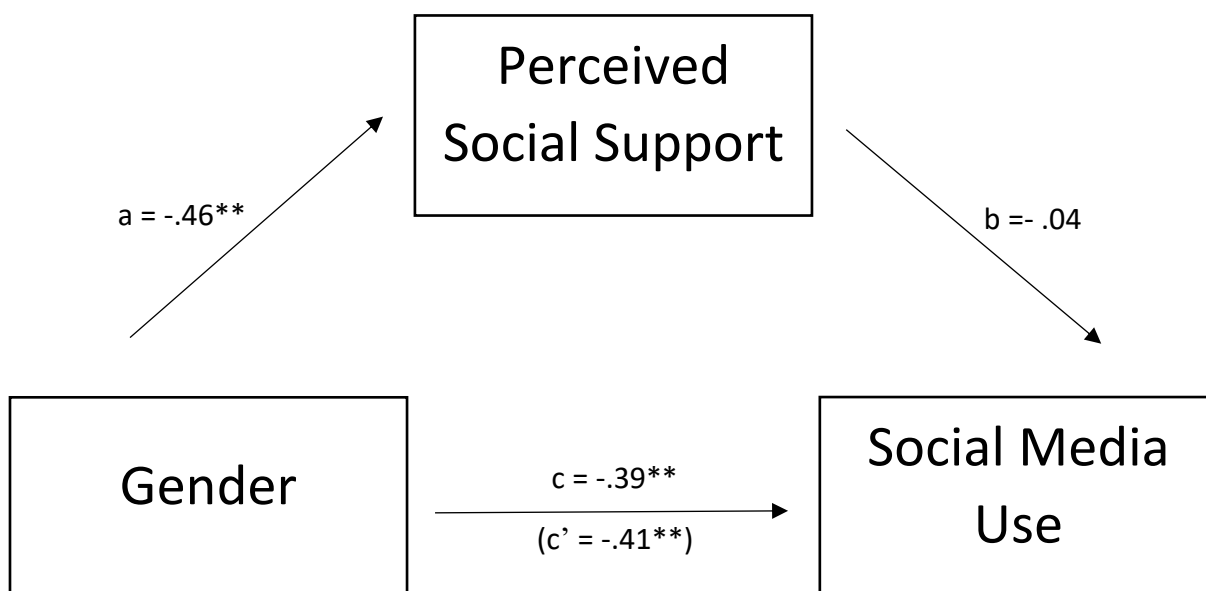


Figure 3. Regression coefficients for the relationship Gender and Social media use as mediated by Perceived social support.

** $p < 0.01$

Table 3

Multiple Regression analyses executed with PROCESS macro (Step 1 – 4).

	<i>B</i>	<i>SE</i>
Step 1		
<i>constant</i>	3.0336	.1396
<i>Gender</i>	-.3918**	.1063
Step 2		
<i>constant</i>	6.3527	.1628
<i>Gender</i>	-.4622**	.1240
Step 3 + 4		
<i>constant</i>	3.2705	.3640
<i>Gender</i>	-.4090**	.1092
<i>PSS</i>	-.0373	.0529

Note. $R^2 = .05$ for step 1, $R^2 = .05$ for step 2, $R^2 = .05$ for Step 3+4; ** $p < 0.01$

Table 4

Indirect effect of Perceived social support (PSS) on the relationship between Gender and Social media use (SMU).

	<i>b</i>	<i>BootSE</i>	<i>BootLLCI</i>	<i>BootULCI</i>
PSS	.0227	.0365	-.0309	.0776

Discussion

The study examined the relationship between Gender, Perceived social support, and Social media use by using a cross-sectional survey design in a population of European adolescents. To gain deeper understanding about the factors that are likely to correlate with adolescents' use of social media, the aim was to research whether Perceived social support acts as a mediator in the above-mentioned relationship to provide a more comprehensive picture of the mechanisms through which Gender is associated with Social media use.

Contrary to the expectation, Perceived social support did not mediate the relationship between Gender and Social media use in a population of European adolescents. The mediation

model implied that all variables significantly correlate with each other (H1). However, this is only the case between Gender and Social media use (path c) and between Gender and Perceived social support (path a). Gender and Social media use were found to be inversely related. In light of the determined statistical value for the variable Gender, which was “1” for females and “2” for males, it means that women use social media in average more than men. This result was expected because there are various studies who can support this finding (Hargittai, 2008; Barker, 2009). Furthermore, for the significant negative relationship between Gender and Perceived social support, it means that women perceive their social support to be higher in comparison to men. This can be supported by the study of Colarossi (2001), which found that women are more likely to report having a greater number of supportive friends and being supported by friends more frequently than men. The last path (b), which is also part of H1, was not found to be statistically significant, which means that Perceived social support did not correlate significantly with Social media use.

For H2a it was not found that both Gender and Perceived social support correlate with Social media use significantly (H2a). As predicted by H1, again, only the relationship between Gender and Social media use, while controlling for the mediator, was significant (path c'). Path b was not significant when controlling for Gender. For H2b the mediation model did indicate that Gender correlates with Perceived social support, even though it is controlled for Social media use (path a). Here it remains the same as for H1, that females perceive their social support to be higher.

Based on the results before, a mediation effect of Perceived social support could not be supported, because to find a significant mediation, it is essential that all of the foregoing hypotheses are supported. The non-significance of the mediation model was confirmed by finding no significant indirect effect for Perceived social support as a mediator between Gender and Social media use.

Possible explanations are that one study found that Facebook out of all other social media forms is the most likely for finding significant results for the relationship between Perceived social support and Social media use (Hampton, Goulet, Rainie, & Purcell, 2011). The study of Oh, Ozkaya, and LaRose (2014) gave the explanation that when measuring social media use in general and linking the use with Perceived social support, a relationship is likely to be weak, because not all elements of social media platforms are associated with social support, for example, posting statuses, playing games or checking profiles. One study even found that people use social media to improve their in-person social support. They strengthen their in-person connections by reconnecting with old friends and family (Subrahmanyam,

Reich, Waechter, & Espinoza, 2008). Together with the study of Shaw and Gant (2004), these studies found a stronger relationship for Perceived social support as an outcome of Social media use. Based on their results, Social media use might result in an increased level of Perceived social support, which is not in line with the results of the current study.

Strength & Limitations

One of the study's strengths regards using an online survey-based design for data collection. This design allows to collect a reasonable amount of data in a short amount of time. This was important for the current study, because the timeframe for data collection was limited. Additionally, collecting the participants by means of convenience sampling had the advantage that a representative sample could be collected within a short amount of time and in an inexpensive way. The researchers were able to select from a readily available pool of participants who fit the criteria of the study, like in this case, European adolescents from each gender (male and female) who use social media. Furthermore, using the aforementioned design, anonymity of the participants could be maintained, because the survey did not ask for names or specific identification and no contact in-person contact was required between researchers and participants.

Another strength of this study is the use of the Bootstrap method for determining the significance of a mediation, which has the advantage over e.g. the sobel test, because it can be used for not normally distributed data and still produce a significant result. Additionally, the bootstrapping method decreases chances for Type 1 error more successful than other methods (Preacher & Hayes, 2008).

Furthermore, it is positively to mention that although the study failed to report a significant indirect effect for the mediator Perceived social support in the relationship between Gender and Social media use, it still increased and deepened the understanding into the importance of Gender for Social media use. It could be significantly shown that females spend more time on social media in comparison to males. This result matches what Andreassen et al. (2016), Hargittai (2008), and Barker (2009) found in their studies. This is an important result, because interventions regarding excessive social media use could provide more specialised programmes, which in turn produce better therapy results.

Based on the interpretation of the results of this study above, the following limitations should be taken into account. First, although the sample size of participants ($n=265$) is sufficient to be generalizable, the sample was not representative for gender, because women outnumbered

men. For future research, an equal amount of men and women should be included to have normally distributed data and to avoid no representative data.

Secondly, the Cronbach's alpha for the Social media use questionnaire was found to be not acceptable ($\alpha=.30$). Additionally, the reliability would not rise above the acceptance-level of $\alpha > .70$ (Tavakol & Dennick, 2011), if items would be deleted. It is recommended to construct an improved questionnaire to test Social media use, which meets the acceptance level of reliability. Suggestions for improving are using more detailed ordinary scales, especially for items like "*On average, how many hour/hours do you use social media per day?*", where the response options "less than one hour", "1 to 2 hours", "3 to 4 hours", "5 to 6 hours", and "others, namely ____" were given. In this study, there was too much overlap, because participants could use social media for 2-4 hours, but this falls into two response options, which produces inaccurate results.

As a third limitation, when exclusively using subjective self-report measures, there is no control about the truthfulness of the participant's answers, even though they got instructed to answer as truthful as possible. On one side, a reason for this can be that there is no control about the environment that might distract or mislead the participant. On the other side, there is the possibility of response bias, thus that some participants answer not truthfully because they think their answer is not socially acceptable, even though it is anonymous. Participants might also display demand characteristics, which means they interpret the survey's purpose and unconsciously change their answers to fit their interpretation. At last, subjective measures are difficult to interpret because of ordinal scales, which draw the participants' answers in a predisposed category made by the researcher (Jahedi & Méndez, 2014). It is recommended to add objective measures that can be compared to the subjective ones, to be confident that no bias are involved and the results are reliable. For example could social media use objectively tested by evaluating user statistics.

Furthermore, the chosen cross-sectional survey design can be another limitation. It is not possible to make causal associations because exposure and outcome are assessed at the same time. For this research, it has the consequence that it cannot be certainly assumed that Gender actually correlates with the outcome Social media use, because it might be possible that Social media use is an antecedent of Gender. To overcome this limitation, it is suggested to research the mediating effect of Perceives social support on the relationship between Gender and Social media use with a longitudinal or explanatory study. With those designs, exploring the different patterns between the variables is more effective because it is studied for a longer time period. Causal relationships can be explored with these designs. Another option to explore causal

assumptions might be the use of qualitative research, e.g. by using in-depth interviews to get deeper understanding of the underlying mechanisms of the relationships between the variables. This method might be beneficial because there is deeper insight possible in the reasons for social media use and its association with perceived social support.

Conclusion

Based on these study results it can be concluded that Perceived social support might not mediate the relationship between Gender and Social media use, thus has no indirect effect on this relationship. All correlations were weak, so there might be other variables who have more influence on Social media use. Still, it was found that women perceive their social support of family, friends and significant others as higher than males. Additionally, they were found to use social media more. Further research on Perceived in-person social support is needed to explore its association with Social media use. This is important to get a better understanding of how both constructs are related and to use this information to improve support for adolescents who use social media excessively.

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APPENDIX

A Introduction to the study & Informed Consent

Thank you for your interest in participating in this research.

Goal of this research:

Nowadays, Social media use, like using Instagram, is increased a lot and can have both positive and negative impact on the well-being of its users. Goal of this research is to study the relationship between social media use and mental health. Therefore, we make use of an online questionnaire.

Expectations of the participant:

This research will take about 15 to 30 minutes to complete. A working internet connection and your own laptop/computer/tablet are required to successfully participate. During this research you have to answer multiple choice questions about demographic data, such as age and gender, questions about your Social media use and a few questionnaires that measure mental health. Please carefully read the instructions before answering the questions and please answer the questions as honest as possible.

Further information:

All your information will be used only for academic purposes and all data will be anonymized. You can withdraw from this research at any time without giving an explanation and without consequences. If you have any questions or comments, feel free to contact us: s.bohlouli@student.utwente.nl.

B Social Media questions

Which Social Media platforms do you use?

- a. Facebook
- b. Instagram
- c. Twitter
- d. Snapchat
- e. Youtube
- f. Other: _____

On average, how many days in a week do you use social media?

- a. Every day/week
- b. 5 to 6 days/week
- c. 3 to 4 days/week
- d. 1 to 2 days/week

On average, how often do you use social media per day?

- a. More than 9 times/day
- b. 5 to 8 times/day
- c. 2 to 4 times/day

On average, how many hour/hours do you use social media per day?

- a. Less than one hour
- b. 1 to 2 hours
- c. 3 to 4 hours
- d. 5 to 6 hours

e. Other, namely: _____

How many friends do you have on facebook?

- a. over 500
- b. 300-500
- c. 100-299
- d. below 100

How many real friends do you feel like you have in real life?

What is your main activity on social media?

- a. Just looking at other profiles
- b. Judging other posts (pictures, state, shared information) by leaving a like or commenting on those
- c. Creating own posts
- d. Following idols
- e. Other: _____

How often do you upload a picture or share information on social media?

- a. Never
- b. 1-2 times/month
- c. 1-2 times/week
- d. 3-4 times/week
- e. 6-7 times/week
- f. More than 1 time/day

Do you feel that some friends on social media are enjoying life better than you, based on their pictures and posts?

- a. No
- b. Sometimes
- c. Yes

If your peers receive more feedback (comments or likes) on their posts than you, does that bother you?

- a. Not really
- b. Sometimes
- c. It affects me on some level

C Multiple Scale of Perceived Social Support (MSPSS)

Instructions:

We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

1. There is a special person who is around when I am in need.
2. There is a special person with whom I can share my joys and sorrows.
3. My family really tries to help me.
4. I get the emotional help and support I need from my family.
5. I have a special person who is a real source of comfort to me.
6. My friends really try to help me.
7. I can count on my friends when things go wrong.
8. I can talk about my problems with my family.
9. I have friends with whom I can share my joys and sorrows.
10. There is a special person in my life who cares about my feelings.
11. My family is willing to help me make decisions.

12. I can talk about my problems with my friends.