

**Investigating the Relationship Between Time Spent on Social Media, Self-Esteem and
Loneliness in its users.**

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Abstract

Since the evolution of social media networking sites, it has been a constant question without a definite answer whether social media sites have a negative or positive effect on user's well-being. This study aims to bridge the gap in existing literature by investigating the relationship between time spent on social media and its effect on user's self-esteem and loneliness in college students. This study used a quantitative cross-sectional design. A convenience sample of 115 participants were recruited via online social media platforms, 88 females (76.5%) and 27 males (23.5%). The participants completed a survey consisting of 4 questionnaires including, demographic questionnaire, Rosenberg Self-Esteem Scale, UCLA Loneliness Scale and the Social Media Activity Intensity Scale (SNAIS). A relationship between loneliness and social media activity intensity was found after running Pearson Correlation analysis along with a significant relationship between age and social media activity intensity; There was no significant relationship between self-esteem and social media. Hierarchical Multiple Regression showed that after controlling for age and time spent on social media, there was still a significant relationship between loneliness and social media activity intensity. Further research is needed to determine the direction of the relationships.

Key words: Social Media, Self-Esteem, Loneliness.

Table of Contents

1. Introduction.....	8
1.1 Social Media.....	8
1.2 Self-Esteem.....	10
1.3 Loneliness.....	12
1.4 Current Study.....	14
2. Method Section.....	16
2.1 Participants.....	16
2.2 Design.....	16
2.3 Materials.....	17
2.4 Procedure.....	19
3. Results.....	21
3.1 Descriptive Statistics.....	21
3.2 Inferential Statistics.....	22
4. Discussion.....	26
4.1 Review of Aims and Hypothesis.....	26
4.2 Summary of Main Results.....	26
4.3 Implications of Current Study.....	28
4.4 Strengths and Limitations.....	30
4.5 Future Research.....	31
4.6 Conclusion.....	32
5. References.....	34
6. Appendices.....	43
6.1 Information Sheet.....	43

6.2 Consent Form.....44

6.3 Demographics.....44

6.4 Rosenberg Self-Esteem Scale.....44

6.5 UCLA Loneliness Scale.....45

6.6 Social Media Activity Intensity Scale.....46

6.7 Debriefing Sheet.....47

Introduction.

1.1 Social Media.

Social media and its users have become a forever growing element of modern society over the last decade (Andreassan, Pallesen, & Griffiths; 2017; Kuss & Griffiths, 2011). There is an abundance of social media applications (Instagram, Facebook, Snapchat, WhatsApp, Messenger, Twitter etc.) which makes it impossible to avoid and a constant communication avenue with other users. Due to the ever-increasing numbers of online users' multiple studies have been looking into problematic social media use (PSMU) and its impact on the mental health issues, such as anxiety and depression. Ko, Yen, Yen, Lin and Yang (2007) found that the more time a user spent on their social media platforms the more their depressive symptoms increased. Wegmann, Stodt and Brand (2015) found that similar to depressive symptoms, that there was also a positive correlation between PSMU depression and anxiety.

The 21st century in particular marked an astronomical increase in the use of social media networking sites around the world. According to internetworldstats.com the number of internet users worldwide is standing at 4,536,248,808 as of the 30th of June 2019, that is 58.8% of the world's population and a 1,157% growth since 2000. Users are relying on social media now more than ever. Since the creation of social media, the usage has been particularly high among young adults and college students because students embrace new media quickly (Lenhart, Purcell, Smith, & Zickuhr, 2010). According to Duggan and Brenner (2012), 83% of 18-29 year olds publicise information about themselves and their lives via social media networking sites. Social networking sites (SNSs) are often used by means for users to compare themselves to other users, self-worth, self-enhancement and self- evaluation

(Haferkamp & Kramer, 2011). In 2001, college students spent an average of 8 hours per day online (Kuh, 2001). More recent reports show an increase in female college students, female college students can spend on average up to 10 hours per day online, while male college students can spend on average 8 hours per day (Wood, 2019). 92% of young adults aged between 18 and 29 years have a smartphone, giving them 24-hour access to SNSs (Perrin, 2019). It has also been shown that college students with low self-esteem tend to disclose more personal information online and exaggerate certain information to impress others (Zywica & Danowski, 2008).

Zaremohzzabieh, Samah, Omar, Bolong and Kamarudin (2014) found that users spend their time on Facebook to avoid their offline responsibilities such as work, college, relationships and social activities, which leads us to believe that like many other activities, social media should be used in moderation. Rather than the social media networking sites having an effect on users, it is the own individuals experience on the sites, if used correctly and appropriately, social media could be a wonderful thing which connects people.

Heatherton and Polivy (1991) found that opinions of others, regardless of whether the other person is a friend or not, the feedback they give have a very strong effect on the individual's self-esteem. This would explain why social media users thrive off the interactions they get on their post's whether it be negative or positive, the likes users get are essentially a psychological "high". Sherman, Payton, Hernandez, Greenfield and Dapretto (2016) found that there was significant amount of brain activity in participants when they see their own photos received a large number of likes, in particular, the nucleus accumbens which is located in the striatum, was especially activated. This is part of the brains reward circuitry, therefore "likes" act as a reward for its users, hence the psychological "high". This same brain activity is seen when a person is gambling, eating chocolate and other addictive behaviour. Findings from other studies show similar results (eg., O'Connor, 2016) also

showed that Facebook had such a strong impact on people that it activates the brains reward system. This is where the addiction to social media can stem from, people get addicted because they like the way getting “likes” makes them feel. PSMU is the feeling of having constant concern about social media (Shensa et al, 2017). This will not only have an influence on users’ self-esteem but their psychological well-being, personal life, jobs and everything in between. Social media has been found multiple times to be associated with a host of emotional, health, relational and performance problems for users who find themselves obsessing over the platforms (Kuss & Griffiths, 2011; Marino, Gini, Vieno & Spada, 2018).

1.2 Self- Esteem.

Self-esteem has many different definitions; the one being used for this study is that self-esteem is a person’s overall sense of his/herself value or worth. It is considered a measure of how much a person values or likes him or herself. Previous studies have shown that low levels of self-esteem in individuals can be a risk factor for other psychological problems such as anxiety and depression (Leary, 2004; Mruk, 2010). It also plays a role on humans’ development, relationship formation, coping ability and motivation (Mruk, 2010). Low self-esteem has also been seen as a risk factor for substance abuse and violent behaviour (McClure, Tanski, Kingsbury, Gerrard & Sargent, 2010). Self- esteem plays a huge role in the mental and physical health of individuals, but it is difficult to measure. Vogue et al. (2014) along with many others, used the Rosenberg Self-Esteem Scale while measuring for self-esteem in her study which found that the more time users spent on Facebook the more likely they were to suffer from feelings of low self-esteem.

SNSs are often a platform used as means of comparison against peers and other users self-worth and self-enhancement (Haferkamp & Kramer, 2011). Chang and Chen (2014) found that college students are influenced to “check-in” and share their location if their peers

are doing the same, which seems to have an effect on the self-esteem of users as they compare their own lives to the element of others' lives that they share online. Previous studies have found that users that make upward comparisons when exposed to social media have lower levels of self-esteem (Vogue et al., 2014). The social comparison theory was first proposed in 1954 by Psychologist Leon Festinger, he suggested that people have an innate drive to evaluate themselves and mostly in comparison to others. Upward social comparison is when we compare ourselves to people, we believe are better than ourselves, this often drives people to improve their current level of ability. Downward comparison is when people compare themselves to people worse off, this often happens when people are trying to feel better about their own abilities. Downward and upward comparison can often have both positive and negative effects on people. Steers, Wickham and Acitelli (2014) also supported these findings and found that there was a correlation between the amount of times a user logs into their Facebook account and depressive symptoms in the user.

Valkenburg, Peter and Schouten (2006) found that SNSs have an indirect effect on the self-esteem of its users. Positive feedback tends to enhance user's self-esteem whereas negative feedback decreased levels of self-esteem. This study, like many others suggests it is not the amount of time users spend on social media that has the effect on user's self-esteem, but it is how they spend that time. When the usage of social media gets to an addictive stage with its users, that is when it has a negative association with self-esteem (Andreassen et al., 2016). Stapleton, Luiz and Chatwin (2017) displayed how the magnitude of Instagram use influenced how dependent the users were on the approval of others, which has a detrimental effect on users' self-worth. Although Instagram did not directly affect self-esteem, the significant moderation suggested that the level of intensity that participants use Instagram was influential when the participants self-worth is dependent on approval of others. The findings from this study enhanced the link between SNS use to low self-esteem.

Leary (2004) found that low self-esteem levels lead to an accumulation of other psychological problems such as depression, social anxiety and loneliness. Vogel, Rose, Roberts and Eckles (2014) suggest that people are likely to compare their imperfect “offline” selves with an idealised “online” various of their peers which leads to feelings of inadequacy which then results in the individual’s feelings of loneliness increasing and increased levels of low self-esteem.

1.3 Loneliness.

Loneliness is defined as “the unpleasant experience that occurs when a person’s network of social relations is deficient in some important way, either quantitatively or qualitatively” (Peplau & Perlam, 1981). In mental dissonance theory, it is shown that higher levels of self-esteem lead to lower levels of loneliness (Van Baarsen,2002). This proposition has been proven by multiple researchers, empirical results showing that a high susceptibility to loneliness in early adulthood is attributed to low levels of self-esteem (Mahon, Yarcheski, Yarcheski, Cannella, & Hanks, 2006; Man & Hamid, 1998 & Mcwhirter, Besett-Alesch, Horibata, & Gat, 2002). A research done on college students also found that self-esteem, depression and loneliness are interrelated (Ouellet & Joshi, 1986). When loneliness is combined with a variable such as self-esteem it can result in a heightened sense of loneliness and carry on like this for a long period of the individual’s life (Verhaegen, Quilter, Bungee, Vandals, MAs, Ladder & Harris, 2015). Loneliness has been suggested to play a role in other negative psychological effects such as depressive symptoms, alcoholism and increased suicidal thoughts (Lee & Goldstein, 2016). There is a serious lack of research done on loneliness in young adults, most research on loneliness focus on elderly participants, however, Luhmann and Hawkley (2016) suggest that loneliness is not only confined to the elderly, and there is a need to look at loneliness among younger adults too. These findings suggest that self-esteem is an important influencing factor in loneliness, more than likely

because people with low self-esteem may think of themselves as social failures or blame themselves for having little to no social contact with others which in turn increases their levels of loneliness.

Oberst, Wegmann, Stodt, Brand, and Chamarro, (2017) suggest that individuals that use social media are seeking some sort of social connection to combat the feelings of loneliness. It has remained a question without a conclusive answer whether SNSs make people more or less lonely. SNSs give users a rich opportunity to be victim to social comparison. Users with a higher Social Comparison Orientation (SCO) tend to have a more negative experience with SNSs (Yang, 2016). SCO is defined as “the inclination to compare one’s accomplishments, one’s situation and one’s experiences with those of others” (Buunk & Gibbons, 2006). As mentioned earlier, SNS use and its implications are different for all users, but when exploring how SCO moderate the relationship between social media and loneliness, Yang (2016) found that SCO moderated the relationship between SNSs (Instagram in particular for this study) and loneliness such that Instagram interactions was related to lower levels of loneliness only for low SCO users.

Overall findings of the relationship between SNSs use and loneliness have been mixed. Kim, LaRose and Pent (2009) began their study with the assumption that social media and the social interaction that comes with it would be beneficial for the users, but later results suggested that the online interaction was doing more harm than good for users’. Valkenburg and Peter (2007) suggest that individuals that use social media are more likely to maintain their online relationships rather than their offline relationships. It also suggests that the emotional support and commitment from these online relationships are unreliable therefore the extra effort required to maintain these relationships seems to be unsuccessful which can lead to feelings of loneliness.

1.4 Current Study.

This study will look at the impact of the time spent on social media has on the levels of self-esteem and loneliness in its users'. The literature reviewed above states clearly the facts and relationships between social media, self-esteem and loneliness. A great amount of research has been done on how social media affects user's self-esteem but the results have been inconclusive as some studies suggest that the social media can boost users' self-esteem by the amount of positive feedback they get; Other studies suggest that due to upward social comparison users find themselves comparing their lives to the element of other users lives that they have posted online. This is the same with results found in past studies looking at the relationship between social media and loneliness. Some studies suggested that the more time users spent online the less lonely they felt as they were connecting with other users and other findings suggest the amount of time they spent on social media increased users' level of loneliness because they were exposed to how other users were spending their time and as a result felt left out and alone. The main aim of this study is to bridge that gap in previous findings, expand the research further than just Facebook (eg. Instagram and Snapchat) and increase the research done on loneliness in college students in particular as the relationship between self-esteem and loneliness has not been investigated in relation to social media use.

This study will focus mainly on Facebook, Instagram and Snapchat as previous studies (e.g., Emanuel, 2016; Choukas-Bradley, Nesi, Widman & Higgans, 2018) found that they were the most frequently used social media sites. Emanuel (2016) found that Instagram was the most used social networking site (29%) followed by Snapchat (24%) and Facebook (23%). Another reason for the chosen platforms for this study is because a lot of previous studies only focus on Facebook (Hong et al., 2014; Koc & Gulyagci, 2013; Zaremohzzabieh, Samah, Omar, Bolong & Kamarudin, 2014).

The participants for the current study have been narrowed down to college students over the age of 18 for many reasons. Firstly, 74% of college students are active online users (Duggan, Ellison, Lampe, Lenhart & Madden, 2015). Secondly, 92% of young adults aged between 18 and 29 years have a smartphone, giving them 24-hour access to SNSs (Perrin, 2019). College students are also less likely to have privacy concerns about their online activity (Kim, 2016). It has also been found that university students tend to suffer more with their psychological wellbeing (Chiesa & Seretti, 2009; Bayram & Bilgel, 2008) therefore it would be hoped to get the most accurate results from these participants.

There is an abundance of research already done in this area but because social media is an ever-increasing platform it is crucial to constantly carry out research in this area to try bridge the gap in current findings and get a better understanding of how social media effects its users'.

Hypothesis 1:

There will be a relationship between age of users' and the impact social media has on the self-esteem and loneliness of users.

Hypothesis 2:

There will be a relationship between levels of self-esteem and time spent on social media.

Hypothesis 3:

There will be a relationship between levels of loneliness and time spent on social media.

Method Section

2.1 Participants

A total of 115 people took place in the study, 76.5% were female ($n = 88$), and 23.5% were male ($n = 27$). After filtering through all the responses to the survey 21.7% of participants were not college students, therefore the data they provided was inadequate and could not be used. Therefore, for this study the data of 90 participants were used. Participants ages ranged from 18 - 42 ($m = 21.11$, $SD = 2.7$). The population of interest used for the current study was any individual over the age of 18, currently in third level education and who actively use social media platform(s). 97.4% of all participants are active Instagram users, 92.2% of participants are active Facebook users, 54.8% of participants are active Twitter users and 93.9% of participants are active snapchat users.

2.2 Design

A quantitative design was used for this study. It was cross sectional, within group, self-report design. Participants were sampled using a form of convenient sampling through an online questionnaire. A form of snowball sampling was also used as it was suggested to participants that if they were interested and willing, they could re-share the survey onto their own social media accounts in hope of getting more participation. The survey was reshared a total of 27 times to other individuals accounts.

This is a quantitative piece of research, therefore descriptive statistics, a Pearson correlation and a hierarchical multiple regression were conducted using the IBM Statistics SPSS 24 software. The criterion variables were self-esteem and loneliness while the predictor variables were, age, education status, frequency of social media use and intensity of use.

2.3 Materials

The self-report questionnaire for the current study was composed using Google Forms. The survey included four different questionnaires, which was distributed online on social media platforms. This survey also included an information sheet (see Appendix 1) which provided participants with all information regarding the study and what they would be required to do. Then followed the consent form (see Appendix 2) which outlined any potential risks, benefits, rights of the participant and that consent was completely voluntary. The questionnaire began with a demographic questionnaire (see Appendix 3). Following this was the Rosenberg Self-Esteem Scale (see Appendix 4) to measure levels of self-worth in participants (Rosenberg, 1965), The UCLA Loneliness Scale (see Appendix 5) to assess how often participants feel disconnected from others (Russell, 1996) and lastly the Social Networking Activity Intensity Scale (SNAIS) (see Appendix 6) to measure participants social networking use (Li et al., 2016).

Part 1: Demographics.

A series of demographic questions in relation to participants personal information and social media usage were collected. Information on age, gender and whether they were currently attending a form of third level education was collected. The survey was completely anonymous; therefore, participants did not have to provide any identifiable information (e.g. name or date of birth). Facebook, Snapchat, Twitter and Instagram were the only four platforms included. Participants were asked to indicate what platforms out of the 4 included they used, and on average, how much time they spent on each one daily.

Part 2: Rosenberg Self-Esteem Scale.

The Rosenberg Self-Esteem Scale is used to measure participants levels of self-esteem. This is a 10-item scale which is measured on a 4-point Likert scale which measures

both the participants positive and negative feelings about themselves. The scores differ from 0 being *Strongly Disagree*, 1 being *Agree*, 2 being *Disagree* and 3 being *Strongly Disagree*. As the scale measures both positive and negative feelings, questions 2, 5, 6, 8, 9 are reverse scored, meaning 0 = 3, 1 = 2, 2 = 1 and 3 = 0 for the specific questions. Higher scores indicate higher levels of self-esteem. 30 is the highest possible score and anything below 15 potentially indicates problematic self-esteem in the individual. This scale has been shown to be valid and reliable form of self-esteem assessment (Blascovich & Tomaka, 1991; Tinakon & Nahathai, 2012). The internal consistency of the scale measure by Cronbach's Alpha reported a score of 0.77 (Rosenberg, 1965).

Part 3: UCLA Loneliness Scale.

The UCLA Loneliness Scale was used to measure participants levels of loneliness. This is a 20-item scale which is measured on a 4-point Likert scale from 1- 4, 1 being *Never* 2 being *Rarely*, 3 being *Sometimes* and 4 being *Often*. Participants could score up to 80, with the higher score indicating higher levels of loneliness in the participant. Both negative and positive questions of feelings were asked in this scale therefore reverse coding took place for questions 1, 5, 6, 9, 10, 15, 16, 19, and 20 meaning 1 = 4, 2 = 3, 3 = 2 and 4 = 1. Russel, Peplau, and Ferguson (1978) reported highly significant internal validity ($r(45) = .79, p < .001$). Within the current population a Cronbach's Alpha of .95 was obtained.

Part 3: Social Networking Activity Intensity Scale (SNAIS)

SNAIS is used to measure the intensity of participants activity on social media platforms. It is a 14-item scale which is measured on a 4-point Likert scale. It is an easily self-administered scale with good psychometric properties. The SNAIS exhibited acceptable reliability, within the current population a Cronbach's Alpha of 0.89 was obtained. The scores range from 0 to 4, 0 being *Never*, 1 being *Few*, 2 being *Sometimes*, 3 being *Often* and

4 being *Always*. There was no reverse coding needed. The higher the score obtained the higher levels of social media activity intensity.

2.4 Procedure

For the purpose of this study Facebook, Instagram, Snapchat and Twitter were the social media platforms chosen as they are shown to be the most popular and have versatility in the demographics of users (age, gender, usage). The survey took between 10-15 minutes to complete which includes the reading of the information sheet, consent form and debriefing sheet. An agree or disagree option was given for consent rather than a signature to keep all participants fully unidentifiable.

Participants were recruited online via Facebook, Instagram, Snapchat and Twitter. A link was posted on the various social media platforms to get individuals attention. In the post along with the link there was a small description of what the study entailed and how to participate, this post was also made public so other users could share the link onto their own profiles/ feeds in hope to encourage more participation. The study was reshared to other profiles a total of 27 times. The link can be access via smartphone or computer device.

Once the link was opened the participants were greeted with the information sheet and consent form which has an abundance of information regarding the study, for example, inclusion criteria, potential risks and the rights as a participant, this is to ensure the participants clearly and fully understand what was required of them. It was made clear to participants that they could withdraw from the study at any given time but once the data was submitted it would not be retrievable again due to anonymity. If participants did not meet the criteria, they were encouraged not to go any further to avoid inaccurate data.

Participants then proceeded onto the questionnaire which consisted of part 1 to 4 where participants answered questions for each scale. Before each section began there was

information provided for the participants to make it clear how to answer the questions about to follow. Participants were not able to proceed any further unless all questions in the section were answered. When section 1 to 4 were complete participants were then redirected to a debriefing sheet (see Appendix 7) which thanked them for their cooperation and provided the researcher and supervisors email, some information on the study and a list of helplines they could contact if they felt in anyway worried or distressed after taking part.

Once data collection was finished, the researcher transferred all the data collected on Google Forms onto an excel spread sheet where the data was made into a SPSS code book, this was then uploaded to SPSS to form a data set to be used for statistical analysis. All participants data was completely anonymous and was stored safely on password protected files, only the researcher had access.

Results

3.1 Descriptive Statistics

Table 1 (for explaining information regarding categorical variables)

Frequencies for the current sample on each categorical variable (N = 90)

Variable	Frequency	Valid Percentage
Gender		
Male	18	20.0
Female	72	80.0
Education Status		
Third Level	90	100.0
Other	0	0

The results in table 2 show the mean, standard error mean, median, standard deviation and range for age, time spent on social media, self-esteem, loneliness and social networking activity intensity. The descriptive statistics suggest low levels of self-esteem, moderate levels of loneliness and social networking activity intensity.

To investigate if outliers are affecting the mean score, the trimmed mean (5%) score was inspected. There were no problems with the trimmed mean which indicates outliers were not affecting mean score. Investigation into distributions were assess through histograms, skewness, kurtosis and Kolmogorov-Smirnof. The histograms for the three total scores were all relatively well distributed by observation. Further investigation of normality was assessed

through Kolmogorov-Smirnov tests, probability plots and box plots. The Kolmogorov-Smirnov test indicated normality. All scores had a value of more than .05. Further details of descriptive statistics for continuous variables are shown in table 2.

Table 2 (**Presenting descriptive statistics for continuous variables**)

Descriptive results for the current sample of continuous variables and total scores for current sample (N = 90)

	Mean (95% Confidence Intervals)	Std. Error Mean	Median	SD	Range
Age	21.11 (20.55 - 21.67)	0.28	11	2.70	18-39
Time on Social Media	278.03 (226.74 – 329.32)	26.17	10	248.26	15-1650
Total Self-Esteem	15.46 (14.51 – 16.41)	0.49	13	4.62	3-27
Total Loneliness	46.54 (44.11 – 48.97)	1.24	11	11.75	26-75
Total Social Networking Activity Intensity	29.17 (27.34 – 31.00)	0.94	12	8.88	8-50

Note: Std. = Standard. SD = Standard Deviation.

3.2 Inferential Statistics

Correlation Analysis for hypothesis 1.

The relationship between age and social media use was investigated using Pearson product-moment correlation coefficient. Preliminary analysis for correlation was carried out first to check for violation of assumptions of linearity and homoscedasticity. When looking at

the relationship between age and time on social media there was a small, significant negative correlation between the two variables ($r = -.28$ [95% CI = $-.48 - -.15$], $n = 86$, $p < .001$). This result indicates that the two variables share approximately 8% variance in common which indicates that the younger the age the more frequent social media use (see Table 3).

The relationship between social media use and self-esteem was also investigated using Pearson product-moment correlation coefficient. When looking at the relationship between social media use and self-esteem there was a small, nonsignificant positive correlation between the two variables ($r = .08$, $N = 90$, $p > .001$). This indicates that the two variables share approximately 0.64% variance. The results indicate that there was no significant relationship between social media activity and self-esteem.

The relationship between social media use and loneliness was also investigated using Pearson product-moment correlation coefficient. When looking at the relationship between social media use and loneliness there was a small, significant, negative correlation between the two variables ($r = .26$, $N = 90$, $p < .001$). This indicates the two variables share approximately 6.8% variance. The results indicate that reports of lower levels of loneliness are associated with higher levels of social media activity.

Table 3 (for displaying correlations between variables)

Correlations between all continuous variables

Variables	1	2	3	4	5
1. Age	1				
2. Self-Esteem	.05	1			
3. Loneliness	-.02	-.70**	1		

4. Social Networking Activity Intensity	-.36**	.08	-.26*	1	
5. Time on Social Media	-.28**	-.23*	.17	.17	1

Note. Statistical significance: * $p < .001$

Hypothesis 2 & 3.

Table 4 (Multiple regression model predicting social media activity scores)

	<i>R</i>	<i>R</i> ²	<i>R</i> ² Change	<i>B</i>	<i>SE</i>	β	<i>t</i>
Step 1	.36	.13	.11				
Age				-1.10	.34	-.33	-3.21
Time on Social Media				.03	.004	.08	.77
Step 2	.47	.22	.19				
Age				-1.07	.33	-.33	-3.26
Time on Social Media				.004	.004	.12	1.09
Self-Esteem				-.30	.26	-.16	-1.15
Loneliness				-.30	.10	-.39	-2.93

Note. R^2 = R-Squared; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; Statistical significance: * $p < .05$; ** $p < .01$; *** $p < .001$.

Hierarchical multiple regression was performed to investigate the ability of social media activity intensity to predict levels of self-esteem and loneliness after controlling for demographic variables (age and time spent on social media). Preliminary analyses were carried out to ensure no violation of the assumption of normality, linearity, and

homoscedasticity. Additionally, the correlations amongst the predictor variables (age and time on social media) were examined (see Table 3). All correlations were weak to moderate ranging between $r = -.70$ to $.05$. This indicates multicollinearity was unlikely to be a problem (Tabachnick & Fidell, 2013).

In the first step of hierarchical multiple regression, two predictors were entered: age and time spent on social media. This model was statistically significant $F(2,87) = 6.64, p < .005$ and explained 13.2% variance in social media activity intensity (see table 4 for full details). After the entry of self-esteem and loneliness to Step 2 the total variance explained was 22.4% ($F(4, 85) = 6.13, p < .005$). The introduction of self-esteem and loneliness explained an additional 9.1% variance in social media activity intensity scores, after controlling for age and time spent on social media; a change that was not statistically significant ($R^2 \text{ Change} = .19; F(2, 85) = 5.01; p > .005$).

In the final model, loneliness and age predicted social media activity intensity to a statistically significant degree. Both were negative predictors. Loneliness ($\beta = -.39, p < .05$) being the strongest predictor (see Table 4 for full details).

Discussion

4.1 Review of Aims and Hypotheses

The current study was conducted in hope of gaining a deeper understanding into the possible association between time spent on social media and the levels of self-esteem and loneliness in its users'. More specifically, the relationship between social media use and its effect on levels of self-esteem and loneliness in college students who use social media. This investigation was conducted through the analysis of 3 hypotheses, with hypothesis 2 and hypothesis 3 being the main focus of the study;

Hypothesis 1:

There will be a relationship between age of users' and the impact social media has on the self-esteem and loneliness of users.

Hypothesis 2:

There will be a relationship between levels of self-esteem and time spent on social media.

Hypothesis 3:

There will be a relationship between levels of loneliness and time spent on social media.

4.2 Summary of Current Study.

The results obtained from the correlation analysis for hypothesis 1 show that there is a significant small negative correlation between age and social media use. Therefore, with these results, the null hypothesis is rejected, where the null hypothesis assumes that there is no relationship. These results suggest that the younger the participant the more likely they are

to report more intense activity on social media. This relationship is supported by previous literature (Hargittai & Hsieh, 2010; Panteli & Marder, 2017).

The relationships between social media use and levels of self-esteem and levels of loneliness were also investigated using correlation analysis to see if there is an individual relationship between social media and self-esteem and social media and loneliness. For hypothesis 2, the association between social media activity intensity and the levels of self-esteem in users, results showed that there was small, nonsignificant relationship between the two variables. These results fail to reject the null hypothesis and tells us that self-esteem is not related to social media use.

The results from the correlation analysis for hypothesis 3 showed that there was a small, significant relationship between the two variables. Therefore, based on these results the null hypothesis will be rejected, once again where the null hypothesis assumes that there is no relationship. This shows that social media activity intensity and loneliness are related and therefore influenced by the other construct, although the direction of the relationship has yet to be determined.

A hierarchical multiple regression was carried out to investigate if self-esteem and loneliness predict social media activity intensity better together, controlling for age and time spent on social media. The overall model was significant, with loneliness being the strongest predictor, followed by age but self-esteem did not make a significant impact. Both age and loneliness had a negative relationship with social media activity. Interestingly, this shows that higher levels of social media use actually decrease levels of loneliness. These results contradict the suggested hypothesis that higher levels of loneliness would increase social media activity intensity. This is not a huge surprise as there has been a couple of mixed results on this topic in previous research. It is important to mention that frequent social media

use does not signify social media addiction or problematic use (Griffiths, 2010), this also suggests that social media does not always have a negative effect on individuals mental health and well-being (Jelenchick, Eickhoff & Moreno, 2013).

4.3 Main Implications

The above findings add to existing research which shows how social media use can affect user's self-esteem and loneliness. There are many past studies done that support hypothesis 2 suggested in this study, one being that for every hour spent on Facebook daily results in 5.6 decrease in the self-esteem score of the individual (Jan, Soomro & Ahmad, 2017). Previous research has shown that social media use is positively associated with the satisfaction of individuals need for self-worth (Toma & Hancock, 2013), this contradicts hypothesis 2 which could be a possible explanation for why the results found were not significant. It is worth noting that because hypothesis 2 had significant results that social media has no direct effect on self-esteem but there could be a significant moderation suggestive that the intensity that participants use social media was influential when the participants self-worth is dependent on the approval of others.

In relation to the beneficial outcomes of social media use, Best and colleagues (2014) found 13/43 reviewed studies displayed positive results which shows higher levels of social media use was associated with higher levels of self-esteem and over all wellbeing. Alternatively, Pankratov et al. (2013) found that the upward comparative of unrealistic information on social media regarding appearance is promoting thin ideals and emphasizes an importance of appearance, which is having negative mental and physical effect on users. It should also be noted that due to the small age range of this study that social media could possibly have a more severe effect on the levels of self-esteem in younger users. Past research has shown that self-esteem is high in childhood and then lowers during adolescence but rises

again throughout adulthood (Orth & Robins, 2014; Wagner, Gerstorf, Hoppmann, & Luszcz, 2013).

Ellison, Steinfield & Lampe's (2007) research found that Facebook use helped students with low self-esteem overcome barriers. Similar results found that people with low self-esteem strive to look popular online by exaggerating and engaging in actions to make them appear more popular and involved (Zywica & Danowski, 2008) this indicates that users with low self-esteem are more active on social media in an attempt to hinder feelings of low self-esteem.

Past research on loneliness is very age bias. There is an abundance of literature based on older adults. This implies that loneliness in the younger generation is not an issue to be examined. The results from this study shows that the younger generation of individuals are more than likely to experience feelings of loneliness in their lives. This suggests that further research should be warranted. Although the results found contradict the initial beliefs about the relationship between loneliness and social media, it is still a risk that young adults that spend time on social media are at risk of developing feelings of loneliness if their experience on social media is that of a negative one. This relationship needs to be researched further to confirm or deny the potential negative association. Kraut et al. (1998) investigated internet use in households in the USA and results showed using the internet was associated with increased levels of loneliness. Loneliness can cause adverse health outcomes such a cognitive decline (Leigh-Hunt et al., 2017), which can carry on through an individual's entire life, so it is important to address these feelings in younger adults or individuals in middle adulthood before they exacerbate other feelings such as low self-esteem (Shankar et al., 2017).

Results from hypothesis 3 supports the idea that social media platforms may serve as an outlet for lonely and social avoidant individuals as it is seen as an easier way for

apprehensive individuals to communicate and interact with others. Sheldon (2008) investigated the motives behind peoples use for Facebook and results showed those that suffer with anxiety or a fear of social interaction used Facebook to pass the time and feel less lonely. Results from hypothesis 3 also might just be due to less lonely users are more social which leads to higher engagement in online interactions. Social Media platforms in general may actually facilitate social connectedness.

In general, using social media platforms to interact with others or to browse content may reduce the feelings of loneliness. On the contrary, higher levels of social media use could be a sign of loneliness and the interactions with other users could be a call for support.

4.4 Strengths and Limitations

This study boasts two main strengths; one being the high internal reliability of the scales utilised in the study. The UCLA loneliness scale and the Rosenberg self-esteem scale have been used multiple times in previous research which aided the choice of these scales. They were found to be the more effective and accurate for the variables in question. This is desirable in self-report studies. Although there were very few studies found using SNAIS it still proved to be effect and reliable. The studies being self-report gives participants the opportunity to answer the questions freely and honestly in the comfort of their own surroundings making the procedure less daunting. This would aid more open, honest answers as the participants are certain all data provided is 100% anonymous.

Another strength is that this study aids to bridge the cap in existing literature. There is a lack of concrete results in this field of research that determines the strength and direction of relationships found. This study was unique in that it looked at college students as the population in question as research on college students in Ireland is lacking.

Although, this study is not without limitations. One limitation being that the study is cross-sectional, which does not allow for inference of causation making it hard to determine the direction of the relationship. A Longitudinal study would be more beneficial as it would not just be based off a participant's feelings at one moment in time, with longitudinal it would have an opportunity to report feelings overall.

The biggest limitation this study had was the sample size. An original sample size of 115 was collected but after filtering through the data collected, 25 out of the 115 were not college students which was the target population, therefore 25 cases of data had to be removed from the study as it was not adequate. The sample was also very female dominant, over 70% of the sample were female participants, which causes for caution to be taken when attempting to generalising the results. The sample was also collected on social media platforms which causes bias in favour of social media, it also suggests that a large portion of the sample spend a considerable amount of time on social media. The fact that the population in question was college students over the age of 18 the age range was limited which reduces the adequate power to assess hypothesis 1.

4.5 Future Research

If this study was to be replicated in future it could be improved by collecting more demographic information and different variables on participants, for example, personality traits, motives behind their use of social media, how people use social media and their negative/positive experiences with social media, this would explain results further and distinguish the direction and strength of the different relationships.

It would also be beneficial to run a longitudinal study in an attempt to infer causation and ascertain directionality. Although the knowledge of the significance of a relationship between two variables is helpful, further research into the relationship over a long period of

time, monitoring how social media negatively and positively effects the relationships would be more beneficial and allow for directions of relationships to be assessed. The Social Media Activity Intensity Scale worked well in this situation as time was limited in this study, but the intensity of activity could definitely be better monitored and recorded.

Another recommendation would be to investigate gender difference between the relationships with social media and levels of self-esteem and loneliness, as it has been shown in previous research that males and females use social media for different reasons, therefore splitting the data into groups based on gender could give a better insight into the results found. Future research should also obtain data from individuals who are not on social media but have similar demographic information (age, gender, level of education, country of origin etc) to those on social media, then comparing results of the two groups, this could yield greater diversity and understanding in results.

4.6 Conclusion

To conclude, findings from this study suggests that the amount of time an individual spends on social media does not impact an individual's levels of self-esteem and loneliness, it is in fact how their time on social media is spent. The intensity of the activity has more of a significant effect on user's responses' than the amount of time spent on social media platforms. As there is no relationship between social media and self-esteem, no conclusions can be drawn on the role social media plays on self-esteem, it can only be hoped that with the suggestions made for future research that the relationship can be further explored.

In sum, the main finding of this study suggests that social media acts as a buffer for loneliness. Apprehensive individuals find online an easier and safer environment full of rich opportunity to interact with others. Although, the direction of the relationship is yet to be confirmed, so it is still not concrete whether social media has a negative or positive effect on

its users'. Social media is a forever growing platform, becoming more prominent in individuals day to day life constantly, its effects both negative and positive, will inevitably grow along side it, this alone provides enough reason for research in this area to continue expanding throughout the years in order to better understand how it can be used beneficially without any psychological issues being caused.

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Appendix

6.1 Appendix 1: Information Sheet.

Information sheet

This study is looking into the relationship between hours spent on social media and self-esteem and loneliness in its users in hope to get a better understanding for how and why social media is affecting its users' and to bridge the gap in existing literature.

There is a total number of 4 questionnaires which need to be completed which will measure your demographics, social media use, loneliness and self-esteem. The data you provide will be used as part of a final year students thesis and presentation. Overall it should take no more than 30 minutes to complete. Your participation in this study will be completely voluntary. Participants must be over the age of 18 to take part. Participants must also be currently attending a third level education.

The only information that is obligatory is your age, gender and if you are in college. You have the right to withdraw at any time before the final submit button, where you will have a final chance to withdraw. Once you click submit your data will be stored anonymously. The people who have access to your data is the researcher and it will be on password protected computers.

The benefits of this research are that it will allow people to understand the reason why perhaps individuals who have problematic social media use experience greater levels of loneliness and low self-esteem.

Although there is no known or expected risks of this study there is always a risk of participants becoming distressed. It should be noted that sensitive subjects, such as self-esteem and loneliness, will be discussed throughout, making it possible for participants to become distressed. There will be a debriefing section at the end with a number for a helpline and online support sites linked.

If you require any further information please feel free to email myself, the researcher or my assisting supervisor for this study. My email is x16496462@studnet.ncirl.ie and my supervisors email is Matthew.Hudson@ncirl.ie.

Your participation in this study is greatly appreciated because without your data it would not be possible to carry this out so thank you kindly for your time and participation.

6.2 Appendix 2: Consent Form.

Consent Form

I understand, and I have been told about the nature of the study.

I understand I have the right to withdraw from the experiment.

I understand that all data stored will be anonymous.

I consent to participate in the explained study in the information sheet.

6.3 Appendix 3: Demographics

Demographics

This will be some personal information about yourself for purposes of making the results more accurate.

1. Gender? Male Female
2. Age? _____
3. Are you in third level education? Yes No
4. Social Media used? Instagram Facebook Twitter Snapchat
5. Average time spent on Instagram in a day? Answer in minutes _____
6. Average time spent on Facebook in a day? Answer in minutes _____
7. Average time spent on Snapchat in a day? Answer in minutes _____
8. Average time spent on Twitter in a day? Answer in minutes _____

6.4 Appendix 5: Rosenberg Self-Esteem Scale.

Rosenberg Self-Esteem Scale.

Below is a list of statements dealing with your general feelings about yourself.

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree.

1. On the whole, I am satisfied with myself. SA A D SD

2.* At times, I think I am no good at all. SA A D SD

3. I feel that I have a number of good qualities. SA A D SD
4. I am able to do things as well as most other people. SA A D SD
- 5.* I feel I do not have much to be proud of. SA A D SD
- 6.* I certainly feel useless at times. SA A D SD
7. I feel that I'm a person of worth, at least on an equal plane with others.
SA A D SD
- 8.* I wish I could have more respect for myself. SA A D SD
- 9.* All in all, I am inclined to feel that I am a failure. SA A D SD
10. I take a positive attitude toward myself. SA A D SD

Items with an asterisk are **reverse scored**, that is, SA=0, A=1, D=2, SD=3

6.5 Appendix 4: ULCA Loneliness Scale.

UCLA Loneliness Scale

INSTRUCTIONS: Indicate how often each of the statements below is descriptive of you.

1 = Never 2 = Rarely 3 = Sometimes 4 = Often

- *1. How often do you feel that you are "in tune" with the people around you? - 1, 2, 3, 4
2. How often do you feel that you lack companionship? - 1, 2, 3, 4
3. How often do you feel that there is no one you can turn to? - 1, 2, 3, 4
- 4 How often do you feel alone? - 1, 2, 3, 4
- *5. How often do you feel part of a group of friends? - 1, 2, 3, 4
- *6. How often do you feel that you have a lot in common with the people around you? 1, 2, 3, 4
7. How often do you feel that you are no longer close to anyone? - 1, 2, 3, 4
8. How often do you feel that your interests and ideas are not shared by those around you? - 1,2,3,4

- *9. How often do you feel outgoing and friendly? - 1, 2, 3, 4
- *10. How often do you feel close to people? - 1, 2, 3, 4
- 11. How often do you feel left out? – 1, 2, 3, 4
- 12. How often do you feel that your relationships with others are not meaningful? – 1, 2, 3, 4
- 13. How often do you feel that no one really knows you well? - 1, 2, 3, 4
- 14. How often do you feel isolated from others? - 1, 2, 3, 4
- *15. How often do you feel you can find companionship when you want it? – 1, 2, 3, 4
- *16. How often do you feel that there are people who really understand you? – 1, 2, 3, 4
- 17. How often do you feel shy? – 1, 2, 3, 4
- 18. How often do you feel that people are around you but not with you? - 1, 2, 3, 4
- *19. How often do you feel that there are people you can talk to? – 1, 2, 3, 4
- *20. How often do you feel that there are people you can turn to? - 1, 2, 3, 4

Scoring: Items 1, 5, 6, 9, 10, 15, 16, 19, 20 are all reverse scored.

6.6 Appendix 6: Social Networking Activity Intensity Scale.

Social Networking Activity Intensity Scale.

How often have you performed the following online social networking activities in the last month? 0 = never 1 = few 2 = sometimes 3 = often 4 = always.

1. Sent messages to friends on message board? Never, Few, Often, Always
2. Chatted with friends via instant messaging function? Never, Few, Often, Always
3. Replied to comments made by social networking friends? Never, Few, Often, Always
4. Commented on friends' status, logs, and photos? Never, Few, Often, Always
5. Shared/Forwarded content? Never, Few, Often, Always
6. Browsed others' logs/photos/statuses/albums? Never, Few, Often, Always
7. Updated self-status? Never, Few, Often, Always

8. Posted photos/videos on personal web profile? Never, Few, Often, Always
9. Wrote logs/weibo? Never, Few, Often, Always
10. Decorated personal web profile (changed image/contact information/privacy setting)?
Never, Few, Often, Always
11. Surfed entertainment/current news? Never, Few, Often, Always
12. Watched video/listened to music? Never, Few, Often, Always
13. Played games/applications? Never, Few, Often, Always
14. Bought/gave virtual goods (e.g. birthday gifts)? Never, Few, Often, Always

6.7 Appendix 7: Debriefing Sheet.

Debriefing Sheet.

Thank you for participating in this study. I hope you enjoyed the experience. This section provides background about my research to help you learn more about why I am doing this study. If you have any questions or comments regarding the study, please email me at x16496264@student.ncirl.ie or my supervisor at Matthew.Hudson@ncirl.ie.

You have just participated in a research study conducted by Megan Armstrong, a final year Psychology student in the National College of Ireland.

The purpose of this study was to see if there is a relationship between the amount of time spent on social media and the self-esteem and loneliness of its users.

As you know, your participation in this study is voluntary. If you so wish, you may withdraw after reading this debriefing page, by closing this web page, at which point all records of your participation will be destroyed. You will not be penalised if you withdraw. You will be unable

to withdraw once you submit your data as this study is anonymous.

The data obtained from this study will be analysed, and the results will be presented in my

final year thesis. I will also present my results to fellow students and my lecturers as part of this project.

If you feel in any way worried or distressed after taking part in this study please contact one of these helplines:

Aware - available 10 am to 10 pm everyday.

Call: 1800 80 48 48

Email: supportmail@aware.ie

Website: www.aware.ie

Mental Health Ireland - available 9 am to 5 pm Monday to Friday.

Call: (01) 284 1166

Email: info@mentalhealthireland.ie

Website: www.mentalhealthireland.ie

The Samaritans - available 24 hours a day.

Call: (01) 116 123

Email: jo@samaritans.ie

Website: <https://www.samaritans.org/>