Problematic Social Media Use and Depression/Anxiety: The moderating role of Social Safeness.

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Abstract

Research has shown that the relationship between Problematic Social Media Use (PSMU) and Depression/Anxiety (DA) rests heavily on a person's own ability to feel socially connected. A person's ability to feel socially connected and belong in their social world is called Social Safety (SS). This study aims to determine how much SS can impact the relationship between PSMU and DA. The survey was distributed via social networks. The sample consisted of 100 subjects, 40 were male and 60 were female. The age ranged from 18-65. A standard convenient sampling method was utilized. The scales used were the Bergen Social Networking Addiction Scale, The Social Safeness and Pleasure Scale and the Depression/Anxiety/Stress Scale. A hierarchical regression was utilized for the aim of this study. DA significant predictors were Age PSMU and SS. Due to the higher increase with Depression after SS was added, an interaction was utilized (PSMU X SS). The interaction was not significant. Based on these results, Cognitive Behavioural therapy (CBT) could be a suitable intervention to alleviate PSMU, in turn this could decrease levels of DA. In addition, based on these results, to further reduce DA, perhaps Compassion Focused Therapy could be utilized.

1. **Introduction**

Social safeness

Human beings are naturally social creatures and a human's social systems are far more complex than other species (Gilbert et al., 2008) Gilbert et al., (2008) goes on to describe that when a person's experiences a sense of safeness within their relationships, it positively impacts their beliefs, choices and feelings. Gilbert et al., (2008) defined Social Safeness (SS) as a person's ability to perceive and believe their world as a safe and emotionally warm place. Gilbert, (2005) theorizes that SS is acquired at a young age, Mikulincer, Shaver, Gillath, & Nitzberg, (2005) supported this theory in their study. They found that a person who had experienced their world as a safe and emotionally warm place, developed greater motives for social connection. These positive feelings and experiences relate back to a person's subjective feelings of belongingness, compassion and connection to their social world. People who struggle to acquire these experiences and feelings struggle with trust, attachment and belonging (Gilbert et al., 2009). Mikulincer et al., (2005) concluded that a person's SS is a rigid characteristic. Based on this research, Gilbert et al., (2009) formed the "Social Safeness and Pleasure Scale".

Social safeness, Depression/Anxiety

Gilbert et al., (2008) tested the SS scale against the Depression, Anxiety Stress Scale (DAS – 21). Results indicate that a person who has high SS, has lower feelings of DAS. Their data suggests individuals who may have high scores of Social Safety, feel safe and connected in their social world, and in turn has lower DAS. Kelly Zurroff, Leybman & Gilbert, (2012) applied the theory in experimental study over seven days. Participants were given diary's, the diary measured a person's SS, perceived and received support. SS had a negative relationship with Depression, even more so than the questionnaire of positive and

negative effect (i.e. high shame = negative effect). Gilbert, McEwan, Catarino, Baiao & Palmeira, (2014) analysed SS in relation to DAS, their results showed a significant relationship. The sample included was a depressed sample, thus, the results are more conclusive. Marta-Simões, Mudes, Ferrera, (2017) applied Gilbert's and Kelly's future recomendations to their study. They aimed to see if SS can mediate the link between shame and Depression in a sample of 179 participants. In this case, a mediation analysis indicates that the reason for shame to be associated with Depression is due to SS scores (Simões, Mudes, Ferrera, 2017). Self-reassurance and SS explained 45% of the relationship between a person's own shame and Depression. This is quite interesting because the literature suggests that shame is one of the biggest predictors of Depression (Bilevicius et al., 2018). The results discussed suggest that SS is underpinning a unique affect system, which was originally proposed by Gilbert, (2005). On the other hand, the relationship between Anxiety and SS is scarce in the literature. Then again, Gilbert et al., (2008) found that there is a strong relationship.

Social Media Use (SMU)

Social media sites/social networking sites (SMS, SNS) are virtual communities on the internet. These communities allow people to build online profiles. These profiles allow people communicate through online posts, these posts can be influenced by texts, comments and likes (Oberst, Wegmann, Stodt, Brand & Chamarro, 2017). These forms of communication are becoming increasingly prevalent in people's lives (Oberst et al., 2017) and Studies have found that it is a becoming a major part of adolescents, teenagers and children's lives (Correa, Hinsley & De Zuniga, 2010). Recent research has focused on how these virtual SNS affect people psychologically, results from these studies indicate that there are advantages by using the SNS. For example, improved social capital, this is how big someone's network of social relations is (Ellison, Steinfield & Lampe, 2007), an increase in

self-esteem has been noted (Oberst et al., 2017) and social connectedness alike (Spies, Shapiro & Margolin, 2013). In addition to these positive gains, there has been studies linking SMU to Depression and Anxiety (Seabrook, Kern & Richard, 2016).

Problematic Social Media Use

The rewarding nature of the SNS can lead to excessive checking and engagement with sites (Banyai et al., 2017) and research has suggested that this can lead people to become Problematic Social Media Users (PSMU). Problematic users have three prominent characteristics; They have a strong worry about the sites, a strong motivation to engage with the sites and put a lot of effort into their virtual communities (Andreassen, & Pallesen, 2014). In terms of this study, the main concern is a person's motives behind SMU and PSMU, this will be discussed extensively. It is important to note that there has been conceptual confusion around defining exactly what PSMU is (Banyai et al., 2017). Seabrook, Kern & Richard, (2016) went further and reviewed the literature to look at how Problematic use, Depression and Anxiety relate to each other. From their results, the reasons between SMU, PSMU and DA are bi-directional in nature. Nevertheless, a few studies have found interesting this results that are applicable to this study.

Wegmen, Stodt & Brand (2015) suggested that PSMU is due to self-regulation and internet user expectancy. In other words, how a person can control their usage and the expectation of positive experiences via the SNS. Results indicated that these two acted as mediators in the relationship between PSMU, Anxiety and Depression. Wegmen et al., 2015 additionally noted that social competence and user gratifications could influence the relationship. This is how a person handles their social motivations and interactions. Casale & Fiorventi, (2015) backed this up, as they found that a person's problematic use and Anxiety was mediated by motives to belong and feel connected. Lee-won, Herzog, Park, (2015)

suggested that social reassurance could play a major factor in the relationship between Anxiety and PSMU. Social reassurance is the motivation for a person to seek interactions and belong. These results indicate that a person's problematic use, Depression and Anxiety could be mediated/moderated by a person's social motivations. The following section will discuss relevant theories that indicate SS could be an important factor in the link between PSMU and DA.

Theories of Social Safeness and Social Media Use.

The user and gratification theory of SMU.

The user and gratification theory (UGT) concentrate on what people intend to do with media, rather than how the media affects people (Katz et al., 1973). This approach aims to understand the different motives behind media use. Due to the prevalence of SMS and the users, research has applied the theory to try and understand motives behind social media use (Park, Kee & Valenzuela, 2009). Park et al., (2009) found that there were four prominent motives behind Facebook use; socializing, which is an interest in talking and interacting with people about relevant issues. Entertainment, which is engaging with friends for recreational purposes. Self-seeking, which is having a concern for a their own and others wellbeing. Information, seeking information and news on relevant events. It's important to note the UGT theory has received quite a few criticisms. The fact there are several different medias, thus there are a lot of different motives, in turn making the UGT theory quite convoluted. Also, the fact that the information is very subjective to the individual, making findings hard to be generalizable (Lonnetti, Reeves & Bybee, 1977). In distinguishing between PSMU and SMU, they're not particularly negative criticisms. Further research has applied the UGT to investigate Problematic Social Media Users motives (Kircaburun, Alhabash, Tosuntas & Griffiths, (2018). They investigated the effects personality, different SNS, demographics have

on a person's motives behind PSMU. There were 1008 participants involved in the study. The results found there were three main motivations behind PSMU; To seek social connections, present a more popular oneself, and pass time, take note these results are more applicable to women than men (Kircaburun et al., 2018). Rae & Lonberg, (2015) found that when a person is motived by seeking connections, this leads to higher Anxiety and Depression.

From studies such as Kircaburun et al., (2018), research has formed two hypotheses to try and understand why SMU may increase Depression and Anxiety. Firstly, the argumentation hypothesis states that people engage in SMU for improving already stable social relationships and receive support. Secondly, displacement hypothesis states that people who use it for seeking new connections, end up displacing their stable face to face relationships (Glaser, Liu, Hakim, Villar & Zhang, 2019) Ahn & Shin, (2013) further found that these hypotheses' can be separated with a characteristic.

Gilbert's theory of social mentality and SS

The importance of these motivations and hypothesis's is the link to SS and Gilbert's theory of social mentalities. Gilbert (2014) suggested that people form a social mentality. A person's social mentality is composed of inner mechanisms that allow a person to form and maintain a role in their social relationships. Gilbert, (2014) states, that if these needs were not acquired from a young age, there can be psychological consequences. Gilbert, (2014) theorizes that a person's problematic motives for social relationships, can have serious implications for their well-being.

To contextualize these theories, an example would be to take a person who has a poor social mentality/low SS. Due to the rewarding nature of the SNS, this person spends a lot of their time on their SNS. This person's motivations are skewed, due to their poor social mentality. They try to fill their friends list up, but these are brittle connections, and they

displace their already stable relationships. All the while that person becomes more socially isolated and struggles to feel safe in their online and offline world. This scenario is based of theory, nevertheless, the studies supporting these theories back up the motivations SMU and PSMU are different, also the studies conclude that a person's ability to feel connected could be influencing the link between PSMU and DA, which in this case potentially relate to a person's social mentality. In addition, the theory of problematic behaviour itself states that it is important to look at environment, demographics their psychological factors (Boyd, Young, Grey, & McCabe, S. 2009). Essentially, this study is applying this recommendation as it is investigating if a person's characteristic of SS, can influence the relationship between PSMU and DA. To understand why this is a relationship worth investigating, the following section will discuss the literature between PSMU and DA.

 Problematic Social Media Use, Depression and Anxiety.

The literature for DA and PSMU has received a lot of empirical support (Shansa et al., 2017; Shansa et al., 2018; Lin et al., 2016). However, some authors have found that there is a miniscule relationship (Andreassen et al., 2016) Lin et al., (2016) acquired 1719 participants in a nationally representative study. They investigated frequency and time spent on SNS. Results indicate that those with higher scores of the two variables had higher scores of Depression. Future recommendations from the study was that more sociodemographic should be investigated. Shansa et al., (2017) applied these recommendations to their study. This study investigated the associations between PSMU and Depression, while controlling for social media use. The results from 1749 participants indicated that PSMU was strongly associated with Depression. Furthermore, Shansa et al., (2017) indicates that the relationship between PSMU and Depression is potentially down too an individual's own individual characteristics.

The relationship between Anxiety and PSMU is not conclusive. With the inclusion of SS, a new angle could be offered. Vanucci, Flannery & Ohannessian, (2017) investigated 563 adults and their frequency on the sites. Their analysis indicated that their time spent directly influenced higher Anxiety. After controlling for numerous demographics, Vanucci et al., (2017) found that the when a person has high SMU, this is directly linked with a higher chance of scoring above clinical levels of Anxiety. There was an interesting review conducted on how mood, Anxiety disorders and PSMU interact (Anderson, Steen & Stavropoules, 2016). A total of 29 studies were reviewed by Anderson et al., (2016), Overall results show that students use the sites more publicly to receive and get support, thus using it problematically Anderson et al., (2016) further concluded that anxious individuals seek online relationships to compensate for their difficulties in their face to face skills and lack of safeness in their social relationships.

Most of the studies discussed are cross-sectional (collected at one-time point). Which has been criticised by Hunt, Marx, Lipson & Young, (2018), as it is hard to draw conclusions from such results. Hunt et al., (2018) applied these criticisms, and conducted an experimental study to back up the consensus in the literature. 143 undergraduate students' frequency was investigated over a three-week period. There was a control group, while another group had a ten-minute allowance on a specific platform (i.e. Instagram). The group who had limited time in comparison to the control group had significant reductions in depressive scores. Also, the baseline measure for Anxiety significantly decreased. Take note that PSMU was not investigated, but even the people who had the ten-minute allowance still had considerably high scores of Depression and Anxiety. In addition, there was a large decline in response rate over the course of the study, making it quite hard to draw conclusions.

The reason why this relationship is so important was highlighted by Hussan & Griffiths, (2018). They conducted a review of how PSMU relates to psychiatric disorders of

Anxiety, Depression & Stress. Overall There were seven studies for Depression, six for Anxiety and two for Stress. Results indicate that the effect PSMU has on all disorders was significant. The effect had small to medium effect sizes. Such findings indicate the necessity for more studies to further understand this relationship.

Problematic Social Media Use and Social Safeness

As far as the literature goes, there is a very limited amount of research that has investigated the interaction of PSMU and SS. Nevertheless, there are some studies that were found, and some important findings, which gives further reason that this relationship is worth investigating. Also, take note, there is a possibility of a bi-directional relationship. For example, do people use social media problematically due to their lack of safety, or do people use social media problematically, thus influencing their SS.

The first study is by Akin & Akin, (2015). Their study examined how much SS mediates the link between problematic Facebook use (PFU) and life satisfaction. Life Satisfaction is the degree of a positive emotions experienced (Akin & Akin, 2015). Overall the results showed that Social Safeness partially mediated the link between PFU and life satisfaction. This study showed interesting results, however there are quite a few methodological concerns. The mean score for PFU was considerably low (30.52), It only concentrated on Facebook use and some researchers argue that a mediation analysis in cross sectional data is not valid, the results would be highly over exaggerated or underestimated (Maxwell & Cole, 2007).

Uysal, (2014) investigated if the SS scale and flourishing can influence PFU. Flourishing is an experience of life going well (Huppert & So, 2012). Their results revealed that a SS predicted PFU. On the other hand, flourishing and SS were positively correlated. In other words, a person who had high Social Safeness would experience a higher sense of

flourishing in their life. What is interesting is that Uysal, (2014) found that Social Safeness was still the best predictor even when controlling for age, gender, time, and flourishing. This indicates that a person's Problematic Social Media Use could potentially be influenced by their SS scores.

This study is applying Uysal, (2014) results and investigating if a person's Social Safeness can impact the relationship between PSMU and DA. Uysal, (2014) found that Social Safeness was the best predictor, this gives reason to believe that if a person's Social Safeness is low it can directly influence the relationship between PSMU and DA. Due to the prevalent literature indicating that there is a strong link between PSMU and DA. It is important to understand how much a person's social safety can influence the relationship.

2. Rationale, Aims & Hypothesis.

PSMU has a significant influence on Depression and Anxiety (Hussain & Griffiths, 2018). The theory and research indicate that a problematic user has different motives behind the use (Kircaburun et al., 2018). Furthermore, Kircaburun et al., (2018) study on problematic user's motives backs up the argumentation and displacement hypothesis. These hypotheses indicate that it is potentially down to the individuals own characteristics (Glaser et al., 2019). Then again, the relationship between PSMU Depression and Anxiety is not fully understood (Seabrook et al., 2016). Seabrook et al., (2016) pointed out a person's ability to feel socially connected and belong is a major factor (Casale & Fiorventi, 2015). This study hopes to further understand the relationship between PSMU, Anxiety and Depression by investigating the core characteristic of a person's social safeness. A persons Social Mentality originates from their SS According to Gilbert, (2010). Also, the theoretical basis of SS is a person's ability to perceive and believe their world as a safe, warm place. Gilbert, (2009) theorizes that these feelings relate to a person's sense of belongingness, compassion and connection to their social world. Lastly low SS has been shown to be associated with high Depression and Anxiety (Gilbert et al., 2008; Marta-Simões et al., 2017; Kelly et al., 2012).

This study aims to investigate the effect SS has on the relationship between PSMU and DA. This relationship is lacking in conclusive reasons. This effort hopes to shed light on a potential new angle that could help researchers understand this relationship.

➢ Is PSMU and SS in relation to DA as strongly related in comparison to the other literature discussed

➢ What are the predictors of DA (Gender, Age, PSMU and Education), and can SS play a role in this relationship by increasing or decreasing DA when controlling for the other variables?

➢ Depending on the result of the second research question, can SS act as a protective factor for DA, even with high PSMU, or can SS act as a risk factor for further DA, even with high PSMU.

From these research questions, a few hypotheses have been formed. Firstly, PSMU and SS will be significantly correlated with Depression/Anxiety (H1&H2). In addition, SS will be significantly increase the relationship of DA, while controlling for Age, Gender, Education and PSMU. Lastly Low Social Safety will result in a higher relationship between PSMU and DA, while High Social Safety will reduce the relationship (H3&H4).

3. Methods

Participants

There were 101 participants, 40 (39.6%) were male, 60 (59.4%) were female while the final participant chose not to share their gender (1%). There were 67 (66.3%) in third level education, 32 (31.5%) were not in third level education and 1 (1%) chose not to share their 3rd level education status. the participant who did not share their gender and education status were not included in the final analysis. Participants were drawn on all different populations i.e. college students, elderly full-time work. There was one inclusion, participants had to be over 18 years old. There were no exclusion criteria. Anyone with access to SNS could have taken part in the study. The age ranged from 18 – 65 years old. They were recruited using a non-probable type of sampling was used, also there was potentially snowball sampling involved in the study. Conditions for the participants were the same for each person. The conditions included were the information sheet, consent form, three questionnaires and a debriefing form.

Design and data analysis.

This is a quantitative study; the design is a within groups. All participants went through the exact same procedure. It is a correlational study. For the four hypotheses', the criterion variable will be the Depression and Anxiety Sub-scales. The predictor variables for the regression analysis include Gender, Age, Education, PSMU AND SS. The following results section will include descriptive statistics (mean, SD, median, range). Inferential statistics include correlational analysis's, two hierarchical regressions and an interaction affect.

Measures

Online surveys were presented on google forms. There were three well validated questionnaires used: The Depression, Anxiety & Stress Scale (DASS – 21), The Social

Safeness and Pleasure Scale and The Bergen Social Media Addiction Scale. On the survey, participants were presented with an information sheet and consent form. Participants answered the questionnaires anonymously.

DAS - Scale

The (DAS – 21) scale measures a person's prevalence of Depression, Anxiety and Stress over the course of a week. It was developed by Lovibond and Lovibond, (1995). The three aspects are measured over a four-point Likert scale 1-4 (1 being "Did not apply to me at all" and 4 being "Applied to me very much or most of the time"). They are split into 7 items per measurement. The scale measures a person's feelings of DAS in the last week.

Depression

Hopelessness, Restlessness, Apathy, Unvalued Life, Self-Deprecation, Laziness and Misery are all measured. The questions associated are 3, 5, 10, 13, 16, 17 and 21. i.e. "I experienced trembling (e.g. in the hands") -3

Anxiety

Personal Anxiety, Muscular Effects, Situational Anxiety and Automatic Anxiety are all measured in the subscale. The questions included are 2, 4, 7, 9, 15, 19 and 20. i.e. "I tended to over-react to situations" - 2

Stress

Agitation/Reactiveness Impatience, Hyperactivity and Nervous Arousal were assessed. They were non-specific to a question. The questions include 1,6, 8, 11, 12, 14, 18. i.e "I found it difficult to work up the initiative to do things" - 1

To calculate a total score, each item in the subscales were added, then multiplied by 2 for a final score.

Social Safeness and Pleasure Scale

The second questionnaire used was the "Social Safeness and Pleasure Scale" which was developed by Gilbert et al., (2008). It measures the positive effects that a person experiences in their world. More specifically it measures if a person perceives their world as a safe, warm and soothing place. Also, if that person feels socially connected to their social world (Gilbert et al., 2008) ranging from 1 ("almost never") to 5 (almost all the time") respondents then measures how they felt about the statements by choosing these one of the options. To calculate a final score from the 11 questions, the responses were added to get a number out of 60. i.e. "I feel content within my relationships" - 1

The Bergen Social Media Addiction Scale.

The Bergen Social Media Addiction Scale is adapted from Andreasen, Torsheim, Brunborg, & Pallesen, (2012) original "Bergen Facebook Addiction Scale". Andreasen et al., (2012) original Facebook addiction scale measured all the elements of addiction: salience, conflict, mood swings, withdrawal, relapse and tolerance. Each question was answered ranging from 1-5. It measured someone's social networking usage in the last week. A 5-point Likert scale was used, it ranged from rarely being (1) and often being (5). An example of the question was "You have used social media in order to forget about personal problems in the past week" To calculate a final score the sum of the 6 answers were added together. The adaption involved replacing the word "Facebook" with "social media".

Cronbach's alpha

The DAS scale had a very high alpha of $(a = .95)$. The Stress subscale which consisted of 7 items $(a = .87)$, the Depression subscale which had 7 items as well $(a = .87)$ and lastly the Anxiety scale consisted of 7 items $(a = .86)$. The Cronbach's alpha for the 11-item social

safety and the 6-item Problematic Social Media User scale also showed very high reliability. SS *(a = .96)* PSMU *(a = .88).*

Procedure

Participants were collected through a few social media platforms i.e. Facebook, Instagram, snapchat. The questionnaires were made on a google form document. The document was distributed through a few online methods (i.e. Status's, included in biographies, sharing the posts via newsfeed). As mentioned, the type of sampling used was convenience and snowball sampling. For example, perhaps a friend or colleague shared this study's questionnaire via Facebook, this would be an example of snowball sampling. Participants were presented with the information sheet at the very start. The information sheet included all relevant information about the study. For example, the person's role in the study, the nature of the study and what it hopes to achieve. Once this was understood and read, the consent form was presented. This section asked the participant a series of questions (i.e. I understand, and I have been told about the nature of the study). If the participant did not give permission or felt the study was not explained, the study would terminate. Also, age, 3rd level status and gender was required after the consent form. The following section consisted off the DAS – 21 scale, the Social Safeness and Pleasure Scale and the Social Networking Addiction Scale. To the best of their ability participants were asked to rate their Problematic Social Media Use, Depression, Anxiety and Stress in the last week. The SS scale assessed an individual's characteristic of social safety. A full synopsis of the questionnaires was presented just before going through each scale. This included a Description of the scale itself and the way scales were scored. The scales were found online through other articles, and then written up on the google form document. It took roughly 10 minutes complete the survey. Lastly a debriefing sheet was presented. Due to the sensitive topic of Depression and Anxiety being included, the

debriefing sheet included further contact details for the Author, Supervisor and the nitline service. Until the sample was at an adequate amount for analysis the survey stayed open for more participants. Once enough people were in the sample the data was then transferred to an excel document, and finally IBM statistics for analysis.

4. Results

Descriptive statistics

Table 1. (**Frequencies for categorical variables)**

Frequencies for the current sample of gender and 3rd level education Status.

Variable	Frequency	Valid Percentage
Gender		
Male	40	40
Female	60	60
Education		
Yes	68	68
No	32	32

There were 101 participants. However due to statistical reasons one participant was excluded from the final sample.

Descriptive Statistics

The results for all descriptive are presented in table 2. To investigate if outliers are affecting the mean score, the trimmed mean (5%) score was inspected. There were no problems with the trimmed mean, indicating outliers were not affecting the mean score. Investigations into distribution were done via histograms, skewness, kurtosis and Kolmogorov-Smirnof. The histograms all had relatively okay distributions. The Kolmogorov-Smirnof tests indicated that the tests of normality were all being violated. None of the scores reached over .05 indicating that all distribution was problematic. The Highest score was .004 which was the SS scale. On the other hand, the Anxiety subscale and the problematic scale was .000 (see appendix C for more details). For this reason, some of the following analyses will use non-parametric tests.

Table 2.

Descriptive statistics of all continuous variables.

	Mean (95% Confidence Intervals)	Std. Error Mean	Median	SD	Range
Age	25.39 (23.17-27.61)	1.12	21	11.21	18-65
PSMU	17.61 (16.28-18.64)	.67	18	6.68	6-30
SSPS	35.02 (32.78-37.26)	1.13	35	11.28	12-55
Stress	31.93 (29.82-34.04)	1.1	34	10.65	14-50
Depression	30.82 (28.58-33.06)	1.13	30	11.28	14-56
Anxiety	31.12 (28.99-33.25)	1.07	31	10.74	14-56

Inferential statistics

Hypothesis 1 & 2

Before conducting the main research question of the study, it was important to investigate the correlations between variables. As you can see there is high associations between the variables. To further analyse the effect PSMU and SS have on Depression and Anxiety, two Spearmen r correlations were utilized. There was a strong, positive correlation between PSMU, Depression. $r = 61$, $n = 100$, $p < .000$ and Anxiety $r = 65$, $n = 100$, $p < .000$. This indicates that high levels of PSMU are associated with high levels of Depression and Anxiety. Also, the variance scores are 41%. indicating that PSMU helps explain 41% scores of Depression and Anxiety. The relationship between Social Safeness and Depression/Anxiety were investigated using a Spearmen r product moment correlation coefficient. There was a strong negative correlation between Social Safeness and Depression.

r = -.68, n = 100, p < .001 and Anxiety. r = -.61, n = 100, p < .001. In addition, the variance

scores are 45%. indicating that PSMU helps explain 41% scores of Depression and Anxiety

This indicates that low levels of Social Safeness are associated with significantly higher

scores of Depression and Anxiety.

Table 3.

Correlations between all continuous variables.

Variables	1	2	3	4	5
1. SS	1				
2. PSMU	-.49**	1			
3. Stress	-.64**	.59**	1		
4. Anxiety	-.61**	.65**	.88**	1	
5. Depression	-.68**	.61*	.89**	.89**	1

Note. Statistical significance: *p < .05; **p < .01; ***p < .001

Hypothesis 3 & 4

To test the hypothesis that SS can increase or decrease the relationship between

PSMU and DA, a hierarchical multiple regression was performed. Tests for multicollinearity,

outliers, homoscedasticity and independence of residuals were done. The largest Tolerance

score was .924 and the VIF score was well below 10 (1.49). This indicates that

multicollinearity was not violated. The Residuals indicates that the Mahalanobis distances has

no outliers. The highest scores were 28.923. which is problematic according to Tabernack &

Fidell, (2014, p. 75). However, Cook's Distance was considerably low and not above 1

(.500). This indicates that it is not affecting the sample (see appendix for more details) .

Initially, Depression was assessed. PSMU, age, education and gender was entered at Step 1.

It explained 39% of the variance. After the Social Safeness scores were entered at Stage 2,

the total variance explained 57% $F_{(4, 95)}$ =17.06, $p < .000$. The control Measure explained

an additional 18%, on the relationship too DAS, F change $(5, 94) = 27.46$ $p < .000$. In the

final Model only three of the variables entered were significant; SS (beta = -.51. $p < .000$),

PSMU (beta = .32 $p <.000$) and Age (beta =.-.19 $p <.02$). Anxiety was assessed. PSMU, age,

education and gender was entered at Step 1. It explained 41% of the variance. After the

Social Safeness scores were entered at Stage 2, the total variance explained 54% $F_{(4, 95)}$

=18.08, $p < .000$. The control Measure explained an additional 13%, on the relationship too

DAS, F change $(5, 94) = 24.07$ $p < .000$. Once again, the final model indicated that the same

three variables were significant. SS (beta = -.44. $p < .00$), PSMU (beta = .43 $p <.000$) and

Age (beta =.-.17 $p <.04$)

Due to the increase after SS was added to Depression, an interaction effect was

utilized. This was done to further investigate if different scores of Social Safety had a

different degree of influence of the relationship of PSMU and Depression. Preliminary

analysis was conducted too ensure no violation of multicollinearity. To do this the PSMU and

SS variables were centred, and then multiplied, which resulted in the interaction variable. To

centre a variable, the mean is subtracted from the individuals score (Aitken & West, 1991).

The interaction term was added to stage 3 of the hierarchical multiple regression. The

interaction term explained an extra .007% $F_{(6, 93)} = .23.26$, $p < .000$. The interaction term

when added to the model was not statistically significant (beta = .08, $p >. 22$).

Table 4.

Summary of hierarchal regression analysis for variables predicting Depression

Variable	Model 1			Model 2			Model 3		
	B	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Education	-3.13	2.02	-.14	.64	1.79	.03	2.92	1.81	.01
Gender	-1.26	1.87	-.06	.88	1.60	.04	.61	1.61	.03
Age	-.13	.90	-.13*	-.19	.80	-.19*	-.18	..08	-.18*
PSMU	.88	.14	.52**	.55	.13	.32*	.57	.13	-.34*
SS				-.51	.08	-.51**	-.49	.08	-.49*
PSMU x SS							.10	.01	.08
R^2		.39			.57			.574	
F for change in R^2		17.06			40.59			1.52	

Note: PSMU & SS were centered at their means.

5. Discussion

A lot of work needed to understand SS & PSMU in relation to DA (Banyai et al., 2017; Kelly et al., 2012; Gilbert et al., 2008). This study intended to get a greater understanding of how a person's Social Safeness levels can change a person's relationship of PSMU & DA. This study examined the literature in this area and took a slightly different angle. Akin & Akin, (2015) conducted a mediation analysis, with quite a few methodological concerns. While Uysal, (2014) conducted a hierarchical regression, they found SS the best predictors of PFU, even when controlling for numerous other variables. This study applied Uysal, (2014) findings and investigated if SS could moderate PSMU on DA. It took the view that a person's DA from PSMU will not be as strongly related if a person's SS levels were high. In understanding this relationship, there can be interventions specific treatments to tackle Depression and Anxiety in this prevalent technological age.

This study formed four hypotheses based of the direction of the research. (1 & 2), PSMU and SS will be associated with DA. However, PSMU will have a positive relationship while SS will have a negative relationship. In other words, higher PSMU will be related to higher DA. While, low SS scores will be related to higher DA. (3 & 4) The third hypothesis examined how much SS affects DA after controlling for a few variables. Lastly, SS scores were then used as an interaction, in other words the higher SS, the less of an association PSMU and Depression will have.

The first two hypotheses were accepted. From the two Spearman correlations both PSMU & SS had a strong relationship to DA; The more someone problematically uses social media the chances are DA increases. While a person who has low SS is associated with high levels of DA. The third hypothesis was accepted, although the increase for Anxiety was not

large, thus Depression was only examined in the interaction. The final hypothesis was not accepted. Results will be discussed in light of relevant literature.

Hypothesis 1

There was quite a high association between PSMU and Depression. The results are interesting in relation to other literature. Banyai et al., (2017) grouped people into four groups depending on their scores of the scale used this study. The 4th group were most at risk for getting Depression. This study acquired a sample that would not be a risk group according to Banyai et al., (2017) study, but there was a large association. As discussed, In Seabrook et al., (2016) review one of the findings is potentially related to this study due to the inclusion of SS. The potential application is a person's ability to feel socially connected. Nevertheless, Lin et al., (2016) found that the more time spent, visits and frequency was directly associated with Depression. This study further backed lin et al., (2016) findings up. In addition, this study took it a step further, as it looked at PSMU as a behavioural addiction. However, the mean score for PSMU and correlation strength suggest that it is not completely down to problematic usage.

Anxiety and PSMU had the strongest correlation. In relation to other studies the results are quite similar. For example, Vanucci et al., (2017) found that there was a significantly large association between time spent and symptoms of Anxiety. Their association was larger than what was found in this study. This could potentially be explained by the age group (18-22) (Oberst et al., 2017) . While this study mean age was 25, which gives more conclusive results as it applies to a broader population. Nevertheless, this study and Vanucci et al., (2017) study measured symptoms of Anxiety, and both results had large effects. Indicating future studies need to look at this relationship even further.

Hypothesis 2

This result was interesting because SS had a higher association to Depression than PSMU did, but Anxiety was higher related to PSMU. Take note, there were very small differences. In relation to other literature that has compared the same scales, this study had stronger associations. For example, Kelly et al., (2012) found the correlation between SS and Depression was significant. However, this study association between SS and Depression was a lot stronger. Also, Gilbert et al., (2014) found the DAS and SS scale to be significantly associated, once again though the associations were much smaller than what was found in this study. What could potentially explain this is that both studies discussed did not use SS as a priority, other factors such as attachment styles, compassion and fear of happiness were analysed. but, Gilbert et al., (2014) did use a depressed sample, making it even more difficult to explain the results found in this study. Nevertheless, this study indicates that SS is potentially that unique experience that is distinct from positive or negative feelings someone gets daily, as theorized by Gilbert, (2010).

Hypothesis 3

When PSMU and DA was assessed in the regression there was still a very high score, when SS was added into the second block the scores increased quite a bit, more so with Depression. As seen from this study and other studies, there is no denying that PSMU is potentially related to higher DA, but what is interesting is that the sample would not be considered an at-risk sample according to Banyai et al., (2017), but the association was very high. This makes some of Seabrook et al., (2016) findings applicable to this study. Feelings of social connectedness and belonging which encompass higher SS and Social Mentality (Gilbert, 2014). It is important not to overestimate these results too, but the following section will relate this study finding to other results.

Grieve, Indian, Witteveen, Tolan & Marrington, (2013) aimed to explore the relationship between a person's social connectedness and Facebook connectedness in a sample of 344 participants. Their result showed that online and offline social connectedness can be separated indefinitely, a Similar conclusion to that of Ahn & Shin, (2013). In their second study of a sample of 274 participants, they found that an online connectedness mediates the link between Facebook use and Depression, a similar result to that of Spies et al., (2013). Grieve et al., (2013) does reiterate that if a person does not feel socially connected, they may struggle with PFU and Depression, which essentially was the conclusion from a few studies (Casale & Fiorventi, 2015; Lee-Won, 2015). This is essentially is what this study has found, but from a broader perspective. With the inclusion of SS and measuring problematic social media use rather than just Facebook, the results are more conclusive., It is evident that feelings of social connectedness is a major factor in the relationship between PSMU and DA, more so with Depression, Kelly & Dupasquier, (2016) would argue that such findings relate to a person's ability to receive, take in and give compassion from social cues. Then again in Gilbert et al., (2014) study, they found SS had the highest correlation with fear of compassion, Self-compassion and perceiving of compassion. This indicates if SS is high, then ability to take in and receive compassion is much better than those who have low SS.

Although it hard to draw conclusions from these results in comparison to this study, the increase when SS was added indicates that the characteristic of SS could be influencing how DA increases via their social world online. Due to the larger increase with regards to Depression, a clarification of the effect SS was having on its relationship to Depression, the final hypothesis applied SS as an interaction term.

Hypothesis 4

The results were not as expected. It indicates that PSMU and DA did not change depending on a person's SS. In other words, a person who has high SS but uses SMU problematically, might not differ in a person who has low SS, and uses SMU problematically. This result shows that PSMU is a detrimental and complex addiction. This study is the first of its kind to attempt to investigate PSMU, DA and SS. The results are not conclusive, however, it indicates a promising new angle research could potentially apply.

Strengths and Weaknesses

Although the findings are interesting and applicable to further research, there are quite a few limitations. The design of this study is correlational, which is problematic. The questionnaires were online for over a month, thus it is hard to draw conclusions as the answers are all from different time points. Another methodological concern is the sampling method use. It makes it less conclusive and harder to generalize the results. However, the actual sample size was large enough considering the number of variables used. According to Taberneck and Fidell, (2014) to calculate the necessary size it is this formula: $N > 50 + 8(6)$ (N = being the number of variables) For this study there were six variables used overall, the necessary sample size is 98.

There are also quite a few methodological concerns that could have been taken advantage of to get more conclusive results. There are quite a few measurements which could have been used to measure more components of PSMU. For example, the addiction tendencies scale (Wilson, Fornasier & White, 2010) could have been utilized. As discussed, SS is theorized to be an acquired feeling from an early age (Gilbert, 2010). Gilbert, (2009) formed an early memory of warmth and safeness scale which had good reliability and validity in Kelly & Dupasquier, (2016) study. It potentially could have been used for analysis, more specifically, the final hypothesis to show more efficient results. Secondly there are a few

more females than males in this study, thus the results are more generalizable to females. However, the literature discussed does not indicate this was a major factor (Seabrook et al., 2016). Then again future studies could have benefited from these tests and results. In reviewing the results, the same weakness could potentially apply for age. Age was significant in the regression analysis. In other words, the younger the age, the higher the scores of DA. These findings could have been further analysed, then again, this was not the study's concern. Clearly, there are quite a few limitations and methodological concerns. Although, the limitations could be potential future research questions.

Future Implications

There is no real agreed framework for social media addiction. However, this study's results, and other studies discussed highlight the importance for one to be formed. Research has found that Cognitive Behavioural Therapy (CBT) has been effective in tackling internet addiction (Andreeasen, 2015). This approach explores a person's mental processes, more specifically a person with SNS addiction would express their own dysfunctional thoughts with regards to their social networking. These thoughts would be challenged and restructured (Andreeasen, 2015). Due to this study high association and variance explained by a person's PSMU. Based on these results, CBT would be an asset going forward to contextualize a plausible framework for social media addiction.

CBT could tackle a person's addiction while SS could facilitate for a person to experience their online world as a safe environment. As discussed, the literature and these results point toward the possibility of SMU/PSMU and DA as dependant on a person's ability to feel socially connected (Grieve et al., 2013). From a broader point of view, SS is the most important implication. Based of Gilbert, (2014) theory of social mentality and SS, he formed compassion focused therapy (CFT). CFT tackles a person's ability to develop compassionate

attributes and skills. The difference between CFT and CBT is the manner in what it affects. For example, perhaps a person who is in the process of CBT, they understand their dysfunctional thoughts, but it still does not make them feel any better. The key difference with CFT is that it tackles this notion that these people struggle with self-criticism and have a high sense of shame. By tackling these attributes, a person will feel safe, warm and content in their relationships (Gilbert, 2014). Perhaps a person who uses their SNS to account for their lack of self-esteem and comfortability in normal social situations, CFT and CBT can tackle this mind-set by reducing their usage and making that person feel safe virtually and in an offline situation. Kirby, Tellegen & Stendl, (2017) conducted a meta-analysis of twenty-one randomized control trials, they found that CFT had significantly large pre-post differences on people with Anxiety and Depression. Also, Randomized control trials are considered the quite reliable studies (Carpenter et al., 2018).

What this study has done is show potential that PSMU and SS does interact with each other to give a higher score of DA, this gives reason to believe that by applying these two therapies in a clinical setting, the results will be more effective. Studies such as this are fundamental due to society becoming more reliant on technological means for communication and social interactions (Oberst et al., 2017).

Future Directions

In terms of future studies, it is important to further investigate SS, PSMU and DA together, by applying this future research, a plausible framework that consists of CBT and CFT together could be utilized. Based on these results, a longitudinal design should be assessed. Other authors have shared the same opinion (Banyai et al., 2017; Lin et al., 2016; Hunt et al., 2018). By investigating over time, the effect PSMU might have on Depression and Anxiety, along with the other possible applications discussed, much more conclusive

results could be drawn. As discussed in the strengths and weaknesses, the use of more specific questionnaires, a nationally representative sample and a sample size that is specific too PSMU. This is the first study of its kind to examine these constructs together there are quite a few potential applications for future studies.

Conclusion

This current study contributes by adding a potential new angle research could apply to the relationship between PSMU and DA, more so in favour of researching Depression. Overall PSMU does potentially have a major impact on DA. Still, SS seems to be playing a role in this relationship. Overall, however the main research question was not supported, While the literature does suggest that PSMU can predict DA (Lin et al., 2017; Vanucci et al., 2017) "there is an urgent need to understand the dynamics of these problems and prevent them from assuming epidemic proportions. It is easier to prevent computer-related injuries than to cure them" (Gupta, Arora, & Gupta, 2013). Which essentially what this study has done, based on these results, by applying SS to further reduce DA perhaps CFT could be utilized to prevent an epidemic in this ever-growing technological age. These results apply to the general population and practitioners alike.

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7. Appendix

A) Information sheet

This study is looking at the relationship between using social media too much and feelings of depression, anxiety and stress. Social safeness is being investigated in relationship to depression, anxiety and stress. This measures how much a person feels safe, content in their social environment.

The reason why this research is being conducted is because social media is one of the most popular forms of communication in today's world. However, research indicates when it is used problematically there is the possibility of the onset of depression, stress and anxiety. However, research does not understand why this is the case. This research looks to show how a promising new angle could influence this relationship. Thus, allowing people to understand more about their own relationship with their social networks.

Your job as a participant is to complete a serious of questionnaires. There is a total number of three questionnaires which needs to be completed. Overall it should take no more than 15 minutes to complete the three questionnaires.

The only information that is needed is your date of birth, gender and if you attend college. You can leave the study at any stage but your work up to that point will not be accounted for.

The people who have access to your data is the researcher and it will be on NCI's database. No audio or video equipment is being used in this experiment. The only way in which you could be identified is with your signature, but this will only be seen by the researcher and NCI.

Consent form

1. I understand, and I have been told about the nature of the study. * *Check all that apply.*

    ☐ Tick this box of you agree with the above statement

2. All my questions have been answered efficiently. *Check all that apply.*

    ☐ Tick this box if you agree with the above statement

3. I understand I have the right to withdraw from the experiment knowing whatever work completed up until that point won't be published.

    ◯ Tick this box if you agree with this above statement.

4. I consent to participate in the explained study in the information sheet. *Check all that apply.*

    ◯ Tick this box if you agree with the above statement

Demographics

5. Age

6   Attending third level education *all that apply.*

☐   Yes

☐   No

☐
    prefer not to say

7

8   Gender

◯   Female

◯   Male

◯   Prefer not to say

◯

B)   DASS Scale (depression, anxiety and stress)

This scale measures a feelings of depression anxiety and stress. Please indicate how much the below statements applied to you over the past week. There are no right or wrong answers. The rating scale is as follows:

1: Did not apply to me at all

2: Applied to me to some degree, or some of the time.

3: Applied to me to a considerable degree or a good part of time.

4: Applied to me very much or most of the time.

1.   I found it difficult to work up the initiative to do things

`1	2	3	4
◯	◯	◯	◯

2.   I tended to over-react to situations.

`
1	2	3	4
◯	◯	◯	◯

3.   I experienced trembling (e.g. in the hands).

1   2   3   4

○   ○   ○   ○

1   2   3   4

○   ○   ○   ○

4.   I felt that I was using a lot of nervous energy.

1   2   3   4

5.   I was worried about situations in which I might panic and make a
fool of myself.

6.   1   2   3   4

○   ○   ○   ○

7.   I felt that I had nothing to look forward to .

1   2   3   4

○   ○   ○   ○

8.   I found myself getting agitated

.

9.   1   2   3   4

○   ○   ○   ○

10.   I found it difficult to relax .

11.   1   2   3   4

○   ○   ○   ○

12.   I felt down-hearted and blue .

1   2   3   4

○   ○   ○   ○

13.   I was intolerant of anything
that kept me from getting on with
what I was doing .

1   2   3   4

○ ○ ○ ○

14. I felt I was close to panic .

1 2 3 4
○ ○ ○ ○

15. I was unable to become enthusiastic about anything

.

1 2 3 4
○ ○ ○ ○

16. I felt I wasn't worth much as a person .

1 2 3 4
○ ○ ○ ○

17. I felt that I was rather touchy .

1 2 3 4
○ ○ ○ ○

18. I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat) .

1 2 3 4
○ ○ ○ ○

19. I felt scared without any good reason .

1 2 3 4
○ ○ ○ ○

20. I felt that life was meaningless .

1 2 3 4
○ ○ ○ ○

21. I was aware of dryness of my mouth .

1   2   3   4

22.   I experience breathing difficulties .

1   2   3   4

23.   I could not seem to experience any posotive feeling
at all .

1   2   3   4

21. I found it hard to wind down .

1   2   3   4

Social Safeness and Pleasure Scale

Social Safeness and Pleasure Scale (SSPS) is an 11- item scale developed by Paul
Gilbert. The scale measures the extent to which people usually experience their social
world as safe, warmth and soothing. Please rate each of the following questions over
the past week.

1   Being almost never

2   Being rarely

3   Being sometimes

4   being a lot of the time

5   being almost all the time

1. I feel content within my relationships .

1   2   3   4   5

2. I feel easily soothed by those around me .

           1   2   3   4   5

◯ ◯ ◯ ◯ ◯

3. I feel connected to others. .

           1   2   3   4   5

◯ ◯ ◯ ◯ ◯

4. I feel part of something greater than myself. .

           1   2   3   4   5

◯ ◯ ◯ ◯ ◯

5. I have a sense of being cared about in the world. .

           1   2   3   4   5

◯ ◯ ◯ ◯ ◯

6. I feel secure and wanted. .

           1   2   3   4   5

◯ ◯ ◯ ◯ ◯

7. I feel a sense of belonging. .

           1   2   3   4   5

◯ ◯ ◯ ◯ ◯

8. I feel accepted by people. .

           1   2   3   4   5

◯ ◯ ◯ ◯ ◯

9. I feel understood by people .

           1   2   3   4   5

◯ ◯ ◯ ◯ ◯

10. I feel a sense of warmth in my relationships with people. .

           1   2   3   4   5

○   ○   ○   ○   ○

11. I find it easy to feel calmed by people close to me. .

1   2   3   4   5

○   ○   ○   ○   ○

Bergen Social Media Addiction Scale

This scale is being used to assess a persons experiences in the use of social media in the past week. The scale contains six items reflecting core addiction elements. Each item deals with experiences within a time frame of the past week. The questions are answered on a 5 point likert scale. Ranging from 1-5.

1 being very rarely

2 being rarely

3 being sometimes

4 being often

5 being very often

1. You've spent a lot of time thinking about social media or planning how to use it in the past week

.

1   2   3   4   5

○   ○   ○   ○   ○

2. you have feel an urge to use social media more and more in the past week .

1   2   3   4   5

○   ○   ○   ○   ○

3. You have used social media in order to forget about personal problems in the past week .

a.   2   3   4   5

○   ○   ○   ○   ○

4.   In the past week you have tried to cut down on the use of social media without success in the last week .

1.   2   3   4   5

○   ○   ○   ○   ○

**5.** You became restless in the past week when you were not using social media .

a.	2	3	4	5
◯	◯	◯	◯	◯

6. In the past week, you used social media so much that it has had a negative impact on your job/studies. .

a.	2	3	4	5
◯	◯	◯	◯	◯

C) Assumptions for Regression Analysis.

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Depanxscale

Scatterplot

Dependent Variable: Depanxscale
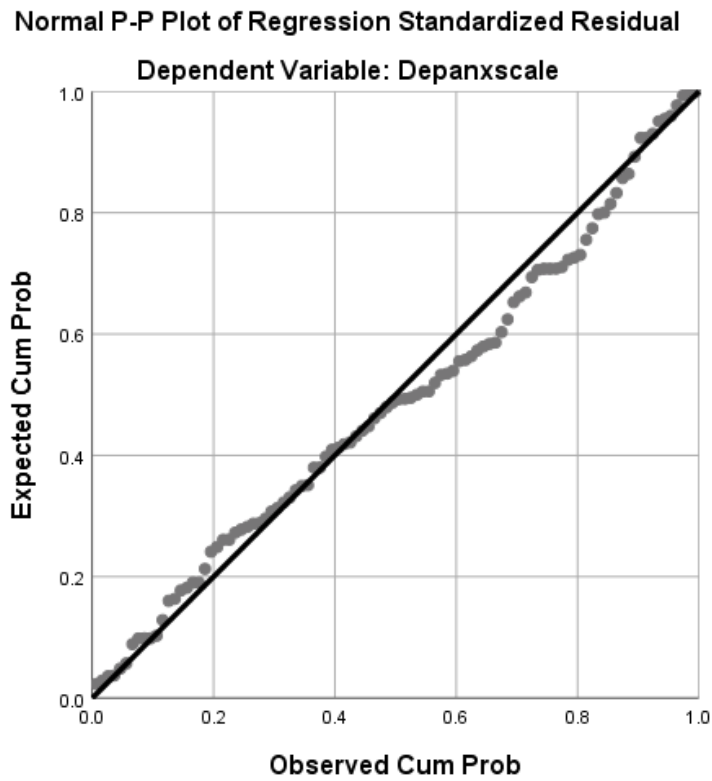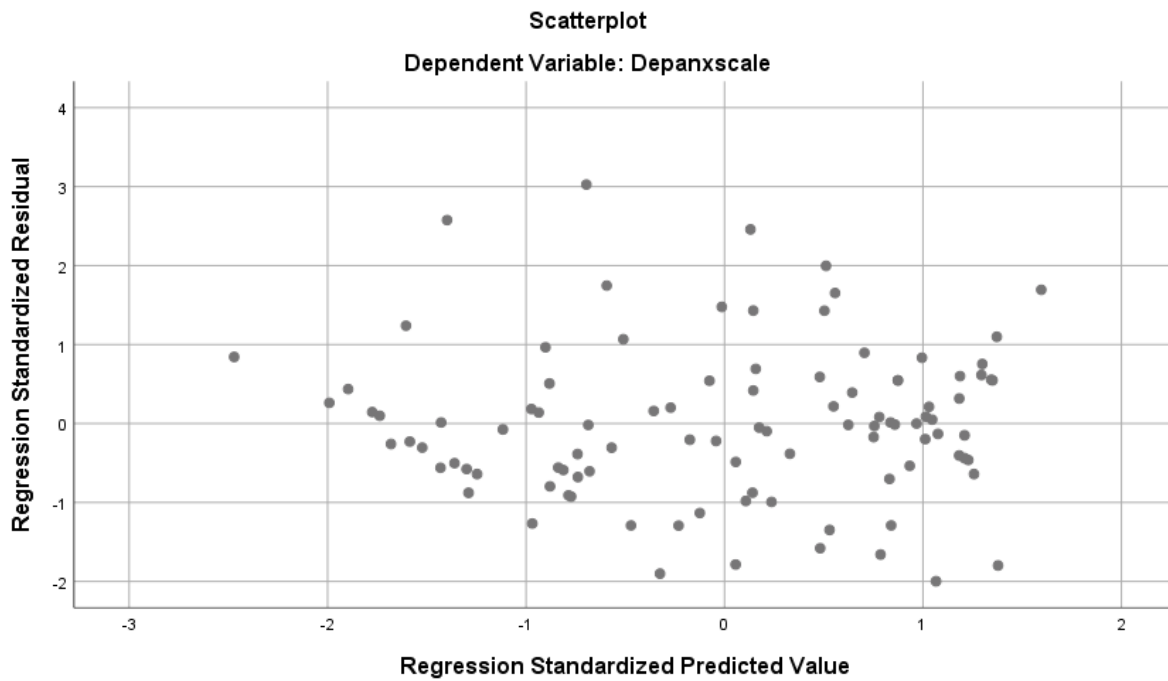
Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
social safeness and pleasure scale scores	.111	100	.004	.951	100	.001
Stress subscale total scores	.126	100	.001	.932	100	.000
Problematic social media us total scores	.135	100	.000	.944	100	.000
Depression subscale total scores	.118	100	.002	.942	100	.000
Anxiety subscale social scores	.145	100	.000	.952	100	.001
Age	.399	100	.000	.592	100	.000

a. Lilliefors Significance Correction