Social Media Addiction, Body Image, Social Comparison, and Mental Health in Perimenopause

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Abstract

Aims: The purpose of this research was to investigate if there is a relationship between social media addiction, body image, social comparison and self-reported levels of depression and anxiety in perimenopausal women. **Methods**: Participants were recruited through perimenopausal social media groups (Facebook, Instagram and Reddit) they were provided an online Google survey. 179 participants completed the survey with 177 of those results valid. Demographic information was collected and the following scales, Center for Epidemiologic Studies Depression Scale Revised (CES-D-S), Generalized Anxiety Disorder 7 (GAD-7), Body Image Satisfaction Scale (BISS), Bergen Social Media Addiction Scale (BSMAS), Iowa-Netherlands Comparison Orientation Measure (INCOM). The following Data analysis test was performed with SPSS v27, Frequencies, Pearson product-moment correlation coefficient and two multiple regressions. **Results**: There was a strong relationship between depression and anxiety showing a 39.4% of variance in common. The strongest two predictors of depressive symptoms were Body Image Satisfaction Scale (BISS) and Bergen Social Media Addiction Scale (BSMAS), with the model showing 25% variance in depression levels. The strongest predictor of anxiety was Iowa-Netherlands Comparison Orientation Measure (INCOM)/social comparison with the model showing 14% variance in self-reported anxiety levels. **Conclusion**: In perimenopausal women there is a higher risk of reporting depressive symptoms in relation to body image and social media addiction and higher reported levels of anxiety in relation to social comparison.

Keywords: Perimenopause, social media addiction, social comparison, body image, depression, anxiety

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Perimenopause

Females go through several distinct phases in their reproductive lives, perimenopause, also known as the menopause transition or transitional phase, is just one of these phases. Perimenopause begins with the onset of irregularities in the menstruation cycle, eventually leading to the cessation of menstruation altogether or menopause (World Health Organization (WHO), 2022a). The average age to begin perimenopause is 40-44 for the onset of the first symptoms (Gold, 2011). According to Gold (2011), the beginning of perimenopause varies and is currently a simple mean score of perimenopausal women's ages and may not represent all perimenopausal women.

According to Muslić and Jokić-Begić (2016) perimenopause is like puberty, where hormonal changes can have significate biological, psychological, and sociological effects (bio-psycho-social). Hoyt and Falconi (2015) came to a similar conclusion about the bodily changes during perimenopause. Women are at higher risk of specific conditions and health outcomes due to hormonal changes within these phases. According to .Wilbur et al (2006), the range of physical and psychological symptoms associated with perimenopause can range between 12 to 36 and can vary depending on the demographic being surveyed. Wilbur et al. (2006) list physical symptoms in the form of hot flashes, night sweats, irregular menstrual cycles, weight gain, vaginal dryness, low sex drive, psychological symptoms in the form of forgetfulness, insomnia, brain fog, anxiety, depression, panic disorders, irritability, fatigue. The above is not an exhaustive list of all symptoms, and it is limited to the most common signs and omits more unusual ones. Perz (1997) suggests this could be because there is no standard symptom classification regarding perimenopause. The (WHO, 2022a) concluded that societal and cultural differences must be examined with perimenopause, as this could impact the views surrounding symptoms and their awareness. There may be a reason to

include social comparison and social media use and how it could also impact the mental health of perimenopausal women.

Social comparison and media

Festinger (1954) concept and rationale about social comparison and several hypotheses surrounding it, look at how people judge themselves. The central concept of social comparison being that people innately compare and evaluate themselves and their actions against others in peer groups. How does social comparison affect our view of ourselves when we compare ourselves to others, according to Festinger (1954), social comparison happens in an upward or downward manner. Depending on the type of social comparison, either upward or downwards, they can have different outcomes concerning our mental well-being (Schmuck et al., 2019). If the social comparison is downward it is thought to elevate mood, making a comparison to someone worse off is thought to be motivational and better for mental health, particularly in later life (Stewart et al., 2013) Upward social comparison, however, has been shown to have a negative effect and can lead to depressive mood and anxiety about our circumstances compared to others (de Vries et al., 2018; McCarthy & Morina, 2020; Schmuck et al., 2019; Yang, 2022).

Richins (1991) wrote that advertising portrayed "unrealistic or idealised pictures of people and their lives", which could cause undue psychological harm when viewed regularly. This could be due to upward comparison, but one that is not intentionally sought out by individuals. Richins (1991) noted that several authors delineated social comparison not only by upward and downward comparison but also by what we seek out versus what is inflicted upon us. Advertising has become omnipresent in our daily lives since commerce started (Tellis & Ambler, 2007), but it is only within the last fifteen years since the creation of the iPhone and Android phones that we began to carry a mini marketing machine everywhere we

go (Savov & Meeker, 2016). Concerning advertising, smartphones, and social media, which are ubiquitous in our daily lives, there is limited research focusing on the long-term effects of upward social comparison, social media, and well-being into adulthood (Schmuck et al., 2019). This is not surprising, as social networking research is conducted on college students predominantly (Schmuck et al., 2019). Social comparison may have once been limited to local social groups, with influences from movies, advertising, and television; however, since the development of the internet and then the corresponding social networking sites (SNS), social comparison has expanded (Brown & Tiggemann, 2016).

Advertisers, social media, and social influencers all put forward an image of an ideal or lifestyle that is out of reach for many people (Siegel & Wang, 2019). A particular ideal or lifestyles being put forward could be out of reach for a multitude of reasons, genetics, photo editing and wealth, to name a few (Brown & Tiggemann, 2016; Mingoia et al., 2017; Tiggemann & Polivy, 2010). However, due to the normalising of unobtainable images/ideals or lifestyles by different marketing groups, it may be hard to differentiate between reality and fiction while being bombarded daily but increasingly sophisticated advertising campaigns and marketing techniques (Knobloch-Westerwick & Crane, 2012). Social comparison is no longer a local phenomenon it is global, and people do not solely compare themselves to their regional peers anymore, they are now comparing themselves to global peers (Schmuck et al., 2019; Siegel & Wang, 2019). This international social comparison is more about keeping up with your Facebook "friends" and your Instagram feed, and although there are benefits to social media there is a negative side to it also (Appel et al., 2015, 2016; Fox & Moreland, 2015).

Social media, Aging and Body Image

Western society has an obsession towards youthfulness, this is widely shown in advertising and media and there are pervasive stereotypes surrounding age and body image (Dionigi, 2015; Samuels et al., 2019). These stereotypes which often develop in youth can be detrimental as we age particularly if the stereotyping has been internalise (Kornadt et al., 2017; Kornadt & Rothermund, 2012). Samuels et al. (2019) mirrors Muslić and Jokić-Begić (2016) opinion when discussing the similarities between puberty and perimenopause and how in both transition there is a heightened risk of body image dissatisfaction. Both transitional phases can be described as sensitive, however (Samuels et al., 2019), notes that although the mental health symptoms are similar, there is a difference in the how they present in the older cohort. This is not a new concept, in 1984 the term" normative discontent" was proposed to describe the widespread dissatisfaction with one's physical appearance specifically in female cohorts (Tantleff-Dunn et al., 2011). How women view their body image has been linked to depression, this may be due to stress associated media stigmatisation and stereotypes associated with excess weight portrayed in the media (Ciciurkaite & Perry, 2018; Keirns et al., 2022).

How women view their bodies, and any dissatisfaction about their bodies is described as stable regardless of age and across lifespan, this may be due to women shifting their expectations as they age (Tiggemann, 2004). Could social media use and possible addiction contribute to this dissatisfaction; (D'Arienzo et al., 2019) looked at social media addiction in relation to attachment style and found that individuals who were consider insecurely attached used social media to compensate for what they lacked from friends and family. Lack of parental bonds particularly ones with fathers can cause anxious attachment and has been linked to media internalisation and body image issues in women (Cheng & Mallinckrodt,

2009). High levels of neuroticism have been linked to social media addiction (Marciano et al., 2020), social comparison (Verduyn et al., 2020) as well as negative body image (Allen & Walter, 2016).

Mental Health (Depression and Anxiety)

Women are at higher risk of developing depression and anxiety in their lives twice as likely when compared to men (Albert, 2015; Arcand et al., 2020; Infurna et al., 2020). High levels of neuroticism have also been linked to high levels of depression and anxiety in females (Both & Best, 2017). A relationship with hormones and depression in females is also present, key times for onset of depression correlated with hormone fluctuations, but this does not mean hormones can cause depression or anxiety (Steiner et al., 2003). Developing depression is perimenopause could be due to hormonal fluctuations as well as external influences such as caregiving obligations, career commitments, possible empty nest syndrome, social isolation and friendships that could be adding more stresses, and strains that all accumulate around the same time (Infurna et al., 2020; Ophir & Polos, 2022; Steiner et al., 2003). There is evidence that body dissatisfaction stays high for women well into later life (Kilpela et al., 2015). Rates of depression are highest in women and more so of women who have a family history of depression (Colvin et al., 2017). A family history of depression is not the only cause for it, if we include hormones fluctuation due to perimenopause these can also raise the possibility of depression (de Wit et al., 2021; Joffe et al., 2020). It is not only depression that increases during perimenopause, but there is also a possible seven times increase of suicidal ideation during perimenopause (Usall et al., 2009). When you include a hereditary factor, hormonal changes and life events going on in a woman's world; we then include media influences that could also be impactful on mental health like newspapers, magazines, radio, internet, and television all showing similar advertisements filled with

young, youthful, and thin (Bessenoff, 2006; Bessenoff & Del Priore, 2007). Seeing the same constant yet ever-changing images of health, wealth, age, and beauty causes an increase in body image, depression, and anxiety (Brown & Tiggemann, 2020; de Valle et al., 2021). It could also lead to overcompensation in other aspects of life, food control (Thompson & Bardone-Cone, 2019), weight gain during perimenopause influencing an already vulnerable woman leading her to either over or under eat. As with standard media, ideals are now being put forward by content creators on social media, influenced and paid for by advertisers, these ideals are usually "unattainable for the average person" (Mingoia et al., 2017). Other studies have found links between social media use and body dissatisfaction after viewing images (de Valle et al., 2021), many do not look at depression within these studies and look at only how social media images my impact body image (Brown & Tiggemann, 2016, 2020). However, 2020 study did find that body image predicted higher levels of depression and anxiety in perimenopause and menopausal women (Simbar et al., 2020). Social media could cause already vulnerable people to undervalue themselves, overvalue others while comparing themselves to impossible standards. Some of these impossible standards created by filters used on some already genetically gifted individuals (Lup et al., 2015). Estrogen levels start to decline in perimenopause, this deficiency has been linked to depressive symptoms in perimenopausal women (Keyes et al., 2015).

Within Ireland the rates of suicide for women are highest during perimenopause "the highest rate was in those aged 45-54, at 5.0 per 100,000 (Ireland, 2019). According to the (WHO, 2021b) on average there are 5% of the worlds adult population suffer from some form of depression; it has a higher prevalence or reporting in woman then in men. Within Ireland in 2019 the highest rate of suicide for females was between the ages 45-54 at 7.01 per 100,000 population (WHO, 2021c).

Rational & Hypotheses

Social media addiction and body image is currently understudied in relation to perimenopause and the aging process, research in these areas is conducted predominately on younger age groups particulate college students. A meta-analysis in 2021 was conducted looking at social media and body image the average age of the studies reviewed was 21 (de Valle et al., 2021). Depression and anxiety are the leading causes of disability worldwide (Vos et al., 2020; WHO, 2021b), diagnoses can happen at any time however a quarter of people are first diagnosed after the age of 46 (Dattani, 2022). 2019 two of the highest causes of death and disability (DALYs) in Ireland were depression rated third and anxiety rated fifth, worldwide among females they are in the top ten causes of DALYs (*Ireland | Institute for Health Metrics and Evaluation*, 2019; Vos et al., 2020).

The current research will be looking at perimenopausal women perceived social media addiction, social comparison levels and body image and their self-reported levels of depression and anxiety. How does continuous self-evaluation in the form of social comparison, social media addiction and body image affect self-reported depressive symptoms and anxiety levels in perimenopause women. Could one of more of these predictors indicated a relationship with one or both dependent variables?

Hypothesis 1 (H1): Does social media addiction, social comparison, and body image have an effect on self-report depressive mood in perimenopausal women.

Hypothesis 2 (H2): Does social media addiction, social comparison, and body image have an effect on self-report anxiety levels in perimenopausal women

Method

Participates

A sample of 179 female participants were collected through an online survey between 14th December 2022 and 23rd January 2023 using a convenience sampling method, ages ranged from 32 to 57 (M = 47.56, SD = 4.75). Inclusion criteria for this study was biological females who self-reported as being in perimenopause based of the NHS current guidelines (NHS, 2022). There were no regional restrictions to the survey however the survey was only available in English. A G*power analysis (Mayr et al., 2007) was conducted to determine sample size of medium effect $f2 = 0.15$ for three predictor variables with a predicted sample size of 119. The initial information provided in the survey provided the participate with the relevant information regarding who could participate in the survey, that the survey was for anyone who was female and currently in perimenopause an attestation to understanding this was a required field before they could go any further. Informed consent was obtained as a required field also.

Measures

Demographics

The surveys demographic question were age (18-65) and self-reported perimenopause duration ranging from less than 6 month to over 6 years. (see appendix C) Which was followed by five separate scales listed below

Body Image Satisfaction Scale

Body Image Satisfaction Scale (BISS) (Holsen, I., Jones, D. C., & Birkeland, 2012) consists of four questions score rated from one to six, “I would like to change a good deal about my body (reverse coded),” “By and large, I am satisfied with my looks,” “I would like to change a good deal about my looks (reverse coded),” “By and large, I am satisfied with my

body." Each where rated from "does not apply at all" (one) to "applies exactly" (six) with higher score indicating better body positivity. The lowest score that could be obtained being four and the highest being twenty-four, items one and three were reverse coded, prior to analysis. BISS (Holsen et al., 2012) had a range of Cronbach's alphas scores according to age, lowest being .84 for thirteen-year-olds and highest being .91 for ages twenty-three to thirty. For this current study Cronbach's alphas for respond were $\alpha = .86$, age groups ranging from thirty-two to fifty-seven. (See appendix D)

The Bergen Social Media Addiction Scale

The Bergen Social Media Addiction Scale (BSMAS) (Andreassen et al., 2016), is used to determine self-reported social media addiction and consists of six questions scored from one to five on a Likert scale. Possible scores ranging from six to thirty for the following questions, "Spent a lot of time thinking about social media or planned use or social media," "Felt an urge to use social media more and more," "Used social media to forget about personal problems," "Tried to cut down on social media without success," "Become restless or troubled if you have been prohibited from using social media," "Used social media so much that it has had a negative impact on your job/studies.." Andreassen et al (2016) determined that BSMAS had good internal consistency with a Cronbach alpha $\alpha = .88$, for this current study Cronbach's alpha was $\alpha = .84$. (See appendix E)

Center for Epidemiologic Studies Depression Scale Revised

Center for Epidemiologic Studies Depression Scale Revised (CESD-R-10) (Björgvinsson et al., 2013; Cole et al., 2004) is a self-reported scale of depressive mood, consisting of ten questions rated from zero to three on a Likert scale. Scores can range from zero to thirty a higher score indicating higher probability of depressive mood. Questions are as follows "I was/am bothered by things that usually don't bother me," "I had trouble

keeping my mind on what I was doing," "I felt depressed," "I felt that everything I did was an effort," "I felt hopeful about the future," "I felt fearful," "My sleep was restless," "I was happy," "I felt lonely," "I could not get "going",." Scoring ranged from zero to three on a Likert scale, "rarely or none of the time" (score of zero) to "all of the time" (score of three), questions five and eight scores are reversed prior to analysis. If two items or more are missing from any responses all responses from that individual should be removed. Cole et al (2004) determined that the Cronbach's alpha for the short version of CESD-R-10 was $\alpha = .82$, for this current study Cronbach's alpha was $\alpha = .87$. (See appendix F)

Generalized Anxiety Disorder 7

Generalized Anxiety Disorder 7 (GAD-7) (Spitzer et al., 2006b, 2006a) is a self-reported scale of anxiety, consisting of seven questions rated from zero to three on a Likert scale. Scores can range from zero to twenty-one with a higher score indicating a higher level of perceived anxiety. Questions are as follows "Feeling nervous, anxious or on edge," "Not being able to stop or control worrying," "Worrying too much about different things," "Trouble relaxing," "Being so restless that it is hard to sit still," "Becoming easily annoyed or irritable," "Feeling afraid as if something awful might happen." Scored from zero to three, responses are the following, (0) "not at all," (1) "several days," (2) "more than half the days," and (4) "nearly every day," scores of eight or over are considered significate and require further investigation. Spitzer et al (2006a) determined Cronbach alpha for GAD-7 to be $\alpha = .92$, for this current study Cronbach's alpha was $\alpha = .91$. (See appendix G)

Iowa-Netherlands Comparison Orientation Measure

Iowa-Netherlands Comparison Orientation Measure (INCOM) (Buunk & Gibbons, 2007; Gibbons & Buunk, 1999b, 1999a) is a self-reported scale of comparison, consisting of eleven questions scored from one to five on a Likert scale. Scores can range from eleven to

fifty-five a higher score indicating a higher level of social comparison. Questions are as follows “I often compare how my loved ones (boy or girlfriend, family members, etc.) are doing with how others are doing,” “I always pay a lot of attention to how I do things compared with how others do things,” “If I want to find out how well I have done something, I compare what I have done with how others have done,” “I often compare how I am doing socially (e.g., social skills, popularity) with other people,” “I am not the type of person who compares often with others,” “I often compare myself with others with respect to what I have accomplished in life,” “I often like to talk with others about mutual opinions and experiences,” “I often try to find out what others think who face similar problems as I face,” “I always like to know what others in a similar situation would do,” “If I want to learn more about something, I try to find out what others think about it,” “I never consider my situation in life relative to that of other people.” Scoring from one = ‘I strongly disagree’’ to five = “I strongly agree,” with questions five and eleven reversed scored prior to data analysis. Gibbons and Buunk (1999a) determined Cronbach alpha for INCOM to range from $\alpha = .78$ to .85, for this current study Cronbach’s alpha was $\alpha = .83$. (See appendix H)

Design

Current study is a quantitative cross-sectional research design, investigating a correlation relationship in both hypotheses. Predictor variables where social media addiction (BSMAS), social comparison (INCOM), body image (BISS) and criterion variables, self-report depressive mood, self-reported levels of anxiety.

Procedure

Google forms was chosen for data collection, Google forms is a free online survey tool provided by google. The survey was estimated to take 5 to 10 minutes to complete, this information was provided in the information sheet at the beginning of the survey. The

information sheet at the beginning of the survey provided the participate with relevant information regarding what and who the survey was about and for. To continue participants, needed to agree that they had read and understood the above information, including that the survey was for biological females currently experiencing perimenopause in accordance with current NHS guidelines. Informed consent was provided next and provided relevant information about who would have access to the data after completing the survey. Both information sheet and informed consent where mandatory fields and acceptance was requested to gaining access to the survey. Age and self-reported current duration of perimenopause was collected prior to each of the following five scales were provided.

Data Collection

A Google survey (appendix) was distributed to perimenopausal communities on Facebook, Instagram, and Reddit, with the highest proportion of results coming from the perimenopausal reddit subgroup r/menopause. Prior to distribution to these communities, approval was obtained from each community administrators which allowed for the circulation of the survey in each group. Informed consent was collected for all participants prior to them being allowed to enter and take the survey. Participants were able to skip any questions that made them uncomfortable or leave the survey at any point without submitting. At the end of the survey in the debriefing section

Approval for the study was obtained through the ethics committee in National College of Ireland before any data collection began, approval was provided on the 30, November 2022

Data Analysis

Initially data was extracted from Google forms as a .cvs file, compatible with google sheets and Microsoft Excel, these was then imported into IBM SPSS (version 28) for

analysis. The data analysis conducted in this study are as follows, reliability was used for each independent variable scales total. Descriptive statistics: frequencies demographics variables, descriptive statistics for all continuous variables. Inferential Statistics: Pearson product-moment correlation coefficient was conducted on the predictor variables, and two multiple regression dependent variables social media addiction, social comparison and body image on predictor variables depression and anxiety.

Results

Descriptive statistics

The sample collected consisted of 179 female participants (*n* = 179), of this sample 178 participants (*n* = 178) where usable. Frequencies for demographics variables for age and duration of perimenopause are available in table 1 below, table 2 provides descriptive statistics for all continuous variables.

Table 1

Frequencies for the current sample of age and duration of perimenopause (n = 177)

Variable	*Frequency*	*Valid* %
Age	47.56 (32-57)	98.9%
Duration of Perimenopause	2.78 (1-6)	98.9%
Less than 6 months	12	6.8%
1 year	34	19%
1.5 years	21	11.7%
2 years	22	12.3%
2.5 years	10	5.6%
3 years	21	11.9%
3.5 years	10	5.6%
4 years	11	6.2%
5 years	8	4.5%
6 years	28	15.6%

Table 1

Descriptive statistics for all continuous variables are available in table 2, Means (*M*) with confidence intervals, standard error of mean, Median, standard deviations (*SD*) and range of all continuous variables.

Table 2

Descriptive statistics for all continuous variables (n = 178)

	Mean [95% Confidence Intervals]	*Std. Error Mean*	*Median*	*SD*	Range
BISS	12.91 (12.27 - 13.55)	.33	13	4.32	20
BSMAS	12.96 (12.26 – 13.65)	.35	13	4.69	23
CESD-R-10	14.20 (13.21 – 15.18)	.49	14	6.55	29
GAD 7	8.73 (7.89 – 9.58)	.43	8	5.68	21
INCOM	33.97 (32.81 – 35.13)	.59	34	7.66	37

Note: BISS = Body Image Satisfaction Scale, BSMAS = Bergen Social Media Addiction Scale, CESD = Center for Epidemiologic Studies Depression Scale Revised (CESD-R-10), GAD 7 = Generalized Anxiety Disorder 7, INCOM = Iowa-Netherlands Comparison Orientation Measure

Pearson product-moment correlation coefficient

The relationship between depression and anxiety was investigated using Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. There was a large, positive correlation between the two variables (r = .62, [95% CI = .52 - .71], n = 172, p < .001). This indicates that the two variables share approximately 39.4% of variance in

common. Results indicate that higher levels of depression are associated with higher levels of anxiety.

Inferential Statistics

Regression analysis one

Multiple regression analysis was performed to determine how well self-reported depression levels could be explained by three variables including body image (BISS), social media addiction (BSMAS) and social comparison (INCOM).

Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. The correlations between the predictor variables and the criterion variable included in the study were examined (see Table 3 for full details). Two of the three predictor variables were significantly correlated with the criterion variable, and these significant effects ranged from r = -.44 (BISS) to r = .37 (INCOM). The correlations between the predictor variables were also assessed with r values ranging from -.264 to -.437. These results indicates that there was no violation of the assumption of multicollinearity and that the data was suitable for examination through multiple linear regression analysis. (see Table 3 for full details).

Since no a priori hypotheses had been made to determine the order of entry of the predictor variables, a direct method was used for the analysis. The three predictor variables explained 25% of variance in depression levels ($F(3, 161) = 17.81$, $p < .001$). Two of the three variables were found to uniquely predict depression levels to a statistically significantly level: BISS (β = -.37, p = .001), and BSMAS (β = .17, p = .03) (see Table 3 for full details). (See appendix J for more details)

Table 3

Multiple regression table for depression

Variable	R^2	β	B	SE	CI 95%
Model	.25***				
BISS		-.37***	-.56	.11	-.77 / -.34
BSMAS		.17*	.23	.10	.02 / .44
INCOM		.14	.12	.06	-.006 / .24

Note: BISS = Body Image Satisfaction Scale, BSMAS = Bergen Social Media Addiction Scale, INCOM = Iowa-Netherlands Comparison Orientation Measure; Statistical significance: *$p < .05$; ***$p < .001$

Regression analysis two

Multiple regression analysis was performed to predict self-reported levels of anxiety and could it be predicted by three variables including social media addiction (BSMAS), social comparison (INCOM), and body image (BISS).

Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. The correlations between the predictor variables and the criterion variable included in the study were examined (see Table 3 for full details). One of the three predictor variables were significantly correlated with the criterion variable, and the significant effect range was $r = .27$ (INCOM). The correlations between the predictor variables were also assessed with r values ranging from -.22 to .36. These results indicates that there was no violation of the assumption of multicollinearity and that the data was suitable for examination through multiple linear regression analysis.

Since no *a priori* hypotheses had been made to determine the order of entry of the predictor variables, a direct method was used for the analysis. The three predictor variables explained 14% of variance in self-reported anxiety levels ($F(3, 163) = 8.83$, $p < .001$). One of the three variables were found to uniquely predict anxiety levels to a statistically

significantly level: INCOM ($\beta = .27$, $p < .001$) (see Table 3 for full details). (See appendix K for more details)

Table 4

Multiple regression table for Anxiety

Variable	R^2	β	B	SE	CI 95%
Model	.14***				
BISS		-.14	-.19	.10	-.38 / .01
BSMAS		.10	.12	.10	.08 / .31
INCOM		.27***	.20	.06	-.38 / .01

Note: BISS = Body Image Satisfaction Scale, BSMAS = Bergen Social Media Addiction Scale, INCOM = Iowa-Netherlands Comparison Orientation Measure; Statistical significance: Statistical significance: ***$p < .001$

Discussion

In Ireland two of the leading causes of death and disability (DALYs) are depression and anxiety (Vos et al., 2020). These DALYs are predominantly associated with women, who report higher levels in depression and anxiety (Vos et al., 2020). The two aims of this study were hypothesis 1 (H1) to see if there is a relationship between social media addiction, body image, social comparison, and self-reported depressive mood in perimenopausal women, and hypothesis 2 (H2) is there a relationship between social media addiction, body image, social comparison, and self-reported anxiety levels in perimenopausal women. We first looked at depression and anxiety and if they had a relationship, we found that they shared 39.4% variance in common. This indicated that those who reported higher levels of depression, have a 39.4% likelihood of having higher levels of anxiety.

Both hypothesis one and two were partly supported by the data and analysis. H1 looked at social media addiction, social comparison, and body image and self-reported levels of depression in perimenopausal women and found that body image and social media addiction both uniquely predicted higher levels of depression in perimenopausal women with a 25% variance. In previous studies links have been found between social media use and body image issues which is consistent with the above research some of these previous studies were discussed in the literature review (Brown & Tiggemann, 2016, 2020). This seems to indicate a relationship between how women perceive their body and their apparent level of depression, as in previous studies poor body image is linked to depressive mood. This relationship is not only in self-reported measures but in clinical settings, if someone is currently feeling like they are depressed or have a depressive mood this may influence their view of their body. However, if the depressed mood and poor body image is hormonally induced, this could inflate the perceived depressive and anxiety symptoms reported.

H2 looked at social media addiction, social comparison, and body image and self-reported levels of anxiety in perimenopausal women and found that social comparison uniquely predicted higher levels of anxiety in perimenopausal women with a 14% variance. In previous studies links have been found between social comparison and higher levels of anxiety which is partly consistent with previous research discussed in the literature review (McCarthy & Morina, 2020).

Limitations

The current limitations of this study could be the information collected and how the information was collected. If this study was conducted again, it would be advisable to include regional information to determine if there are differences in perimenopausal symptoms and experiences across regions.

The research was also conducted exclusively on social media which may have its own limitations. Only people who use and are comfortable navigating social media, and who are familiar in taking online questionnaires could participate in this research. Meaning a certain level of computer or phone literacy was needed to participate. Possibly broadening the scope of the research to include “in person” questionnaires could allow for more inclusive information to be collected. Someone who may use social media in the form of Instagram, Facebook etc, on a phone on computer, may only know these programs, so allowing for a broader option for perimenopausal women to participate in the research could be beneficial.

Adding the big five personality test, as mentioned in the literature review several studies have found a relationship between neuroticism when looking at social media use and body image. Higher rates of neuroticism have been found in female groups, if the big five had been collected and used in the multiple regression analysis for anxiety would the results have been different.

Lastly adding in whether the participants are currently using hormone replacement therapy (HRT), antidepressants, partaking in alternative therapies (AT) or going the natural route each of these option may elicit different response surrounding perimenopausal symptoms. Could HRT, antidepressants, AT or "natural" affect the level of perceived depression and anxiety regarding their social media addiction, social comparison, and body image. As depressive symptoms have been linked to the onset of perimenopause, delineating between treatment option may be of use when revisiting this study.

In reviewing the results and limitations to this study, we have received some promising insights into perimenopausal women and the relationship between self-reported depression and anxiety symptoms and how they might be influenced by external factors, social media addiction, social comparison and body image. It has also raised questions as to possible routes for further exploratory research. With depression and anxiety being so closely linked in Pearson product-moment correlation coefficient, why are the results of each multiple regression analysis not similar. Body image and social media addiction showed a relationship with levels of self-reported depression and no relationship/limited to anxiety. Where in social comparison showed more of a relationship with levels of self-reported anxiety, and no relationship/limited to body image and social media addiction.

This study indicates that social media addiction, body image problems and social comparison can stay high in females well into middle age. With social media research still being in its infancy regarding longitudinal research we cannot truly know how this will impact life in the future. As mentioned in the literature review mobile phones are still a relatively new in terms of marketing range. More research should be considered in relation to middle age and social media addiction, and smart phones. There is a lot of research looking at how smartphones and social media addiction have affected and continue to affect adolescents

and emerging adult. But with smartphone being a relatively new invention (only within the last 15 years), and the technology continuing to evolve. It is conceivable that we do not know what a lifetime of smartphone use, and social media addiction/use will have on mental health.

Due to women reporting and being diagnosed at higher rates for mental health disorders throughout their lifetime, currently being diagnosed with depression at twice the rate of men and also being at higher risk of developing anxiety disorders. Seeing how social media addiction, social comparison and body image could be related to and affected by emerging technologies, and how this could be associated to self-reported depressive mood and anxiety levels. Overall, this may help raise awareness within the female middle aged group of how their social media use, social comparison is effecting their relationship to their bodies, and their mental health.

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Appendices

Appendix A

Survey Information

Header & study information

"Perimenopause, social media, increased social comparison and the impact on Mental Health"

You are being invited to take part in a research study dealing with perimenopause and the impact of social media on mental health. Before deciding whether to take part, please take the time to read this page, which explains why the research is being done and what it would involve for you. If you have any questions about the information provided, please do not hesitate to contact me using the details at the end of this sheet.

What is this study about?

This study will look at the relationship between social media addiction, body image and mental health among perimenopausal women, the research has been approved by the NCI Psychology Filter Ethics Committee.

What will taking part in the study involve?

If you decide to take part in this research, you will be asked to complete this online questionnaire which contains a series of questions in relation to your age, age perimenopause started, body image satisfaction, social media addiction, depression, anxiety, and social comparison.

Who can take part?

Anyone who identifies as being currently in perimenopause based on changes to their period schedule.

NHS definition of perimenopause: NHS guidelines...(NHS, 2022)

1. Changes to your periods

The first sign of the perimenopause is usually, but not always, a change in the normal pattern of your periods, for example they become irregular.

Eventually you will stop having periods altogether.

2. Mental health symptoms

Common mental health symptoms of menopause and perimenopause include:

- Changes to your mood, like low mood, anxiety, mood swings and low self-esteem
- Problems with memory or concentration (brain fog)

3. Physical symptoms

Common physical symptoms of menopause and perimenopause include:

- Hot flushes, when you have sudden feelings of hot or cold in your face, neck and chest which can make you dizzy
- Difficulty sleeping , which may be a result of night sweats and make you feel tired and irritable during the day
- Palpitations, when your heartbeats suddenly become more noticeable
- Headaches and migraines that are worse than usual
- Muscle aches and joint pains
- Changed body shape and weight gain

- Skin changes including dry and itchy skin
- Reduced sex drive
- vaginal dryness and pain, itching or discomfort during sex
- recurrent urinary tract infections (UTIs)

Do I have to take part?

You do not have to take part, there is no obligation to take part in this questionnaire, if you do take part, you will be able to cancel anywhere up until you press the submit button.

The questionnaire is anonymous, therefore once information is submitted it will not be possible to withdraw your data from the study.

What are the possible risks and benefits of taking part?

There is a small risk that some of the questions could cause minor levels of distress for some participants, if you have any concerns contact details are provided at the end of this section as well as at the end of the questionnaire, we are provided helplines numbers also .

Will taking part be confidential and what will happen to my data?

The questionnaire is anonymous, it is not possible to identify a participant based on their responses to the questionnaire. Even so all data collected for the study will be treated in the strictest confidence and will be secured accordingly.

The anonymised data will be archived for secondary analysis, which means that other researchers could analyse these data. However, no information related to the identity of any participant will be available.

What will happen to the results of the study?

The data collected will be analysed, the dissertation will be written and submitted to National College of Ireland.

If you would like to obtain a copy of the results, you can contact me to request this, using the email address below.

Who should you contact for further information?

You can contact undergraduate Paula Collins - x19110243@student.ncirl.ie or supervisor Dr. Caoimhe Hannigan - caoimhe.hannigan@ncirl.ie

The survey should take no longer then 5-10 minutes to complete

Please tick this box if you have read and agree with all of the above information.

(Mandatory field)

Yes

Appendices B

Survey consent section

Informed consent to participate in this study

In agreeing to participate in this research I understand the following:

- The method proposed for this research project has been approved in principle by the Departmental Ethics Committee, which means that the Committee does not have concerns about the procedure itself as detailed by the student. It is, however, the above-named student's responsibility to adhere to ethical guidelines in their dealings with participants and the collection and handling of data.

- If I have any concerns about participation, I understand that I may refuse to participate or withdraw at any stage by exiting my browser.
- I understand that once my participation has ended, that I cannot withdraw my data as it will be fully anonymised.
- I have been informed as to the general nature of the study and agree voluntarily to participate.
- All data from the study will be treated confidentially. The data from all participants will be compiled, analysed, and submitted in a report to the Psychology Department in the School of Business.
- I understand that my data will be retained and managed in accordance with the NCI data retention policy, and that my anonymised data may be archived on an online data repository and may be used for secondary data analysis. No participants data will be identifiable at any point.
- At the conclusion of my participation, any questions or concerns I have will be fully addresses

Please tick this box to indicate that you are providing informed consent to participate in this study.

Yes

Appendices C

Demographic

General information

Age

Dropdown was provided with a range of ages 18 to 65

Age not listed

(Open short answer text box provided)

Current duration of perimenopause (i.e., 6 months, two years etc.)

Answer where in incremates of 6 months starting with “less than 6 months” and ending with > 6 years

Appendices D

Body Image Satisfaction scale (BISS)

1. I would like to change a good deal about my body. (Reverse coded)
2. By and large, I am satisfied with my looks.
3. I would like to change a good deal about my looks. (Reverse coded)
4. By and large, I am satisfied with my body.

Note. Response categories for the body image items were (1) does not apply at all; (2) does not apply well; (3) applies somewhat; (4) applies fairly well; (5) applies well; and (6) applies exactly. Responses were summed with higher scores indicating a more positive body image (Holsen, I., Jones, D. C., & Birkeland, 2012).

Reliability Statistics

Cronbach's Alpha	N of Items
.857	4

Appendices E

Bergen Social Media Addiction Scale (BSMAS)

1. Spent a lot of time thinking about social media or planned use or social media
2. Felt an urge to use social media more and more
3. Used social media to forget about personal problems
4. Tried to cut down on social media without success
5. Become restless or troubled if you have been prohibited from using social media
6. Used social media so much that it has had a negative impact on your job/studies

Each item is answered on a 5-point Likert scale ranging from very rarely (1) to very often (5); thus, yielding a composite score from 6 to 30, concerning experiences during the past year (e.g., “How often have you tried to cut down on the use of social media without success?”).

Reliability Statistics

Cronbach's Alpha	N of Items
.844	6

Appendices F

Center for Epidemiologic Studies Short Depression Scale (CES-D-R10)

Below is a list of some of the ways you may have felt or behaved.

1. I was bothered by things that usually don't bother me.
2. I had trouble keeping my mind on what I was doing.
3. I felt depressed.

4. I felt that everything I did was an effort.
5. I felt hopeful about the future. (Reverse coded)
6. I felt fearful.
7. My sleep was restless.
8. I was happy. (Reverse coded)
9. I felt lonely.
10. I could not “get going."

Each item is answered on a 4-point Likert scale ranging from - Rarely or none of the time (less than 1 day), Some or a little of the time (1-2 days), Occasionally or a moderate amount of time (3-4 days), All of the time (5-7 days)

The total score is calculated by finding the sum of 10 items. Do not score the form if more than 2 items are missing. Any score equal to or above 10 is considered depressed. (Björgvinsson et al., 2013; Cole et al., 2004)

Reliability Statistics

Cronbach's Alpha	N of Items
.873	10

Appendices G

Generalized Anxiety Disorder scale (GAD-7)

How often have you been bothered by the following problems?

1. Feeling nervous, anxious or on edge.
2. Not being able to stop or control worrying.
3. Worrying too much about different things.

4. Trouble relaxing.
5. Being so restless that it is hard to sit still.
6. Becoming easily annoyed or irritable.
7. Feeling afraid as if something awful might happen.

Participants are asked how often; they were bothered by each symptom.

Response options were “not at all,” “several days,” “more than half the days,” and “nearly every day,” scored as 0, 1, 2, and 3,respectively (Spitzer et al., 2006b)

Reliability Statistics

Cronbach's Alpha	N of Items
.907	7

Appendices H

Social Comparison survey (Iowa-Netherlands Comparison Orientation Measure (INCOM))

For each of the statements below, please indicate if you "Strongly disagree", "Disagree", "Neither disagree nor agree", "Agree, "Strongly Agree"

1. I often compare myself with others with respect to what I have accomplished in life.
2. If I want to learn more about something I try to find out what others think about it.
3. I always pay a lot of attention to how I do things compared with how others do things.
4. I often compare how my loved ones (boy or girlfriend, family members, etc.) are doing with how others are doing.
5. I always like to know what others in a similar situation would do.
6. I am not the type of person who compares often with others.

7. If I want to find out how well I've done something, I compare what I have done with how others have done.
8. I often try to find out what others think who face similar problems as I face.
9. I often like to talk with others about mutual opinions and experiences.
10. I never consider my situation in life relative to that of other people.
11. I often compare how I am doing socially (e.g. , social skills, popularity) with other people.

[NOTE: ITEMS 6 AND 10 SHOULD BE REVERSE CODED WHEN INDEX CREATED; EACH ITEM SCORED 1 – 5; TOTAL = 11 - 55.](Gibbons & Buunk, 1999b; Schneider, 2011)

Reliability Statistics

Cronbach's Alpha	N of Items
.827	11

Appendices I

Debriefing

If you have any questions please contact me -

Paula Collins - X19110243@student.ncirl.ie or

my supervisor Dr Caoimhe Hannigan - caoimhe.hannigan@ncirl.ie

Full list of helplines in each location HelpGuide

Ireland

Mental health

- Mental Health Ireland: 01 2841166 Link

- Aware Depression & Bipolar Disorder Support: Freephone 1800 80 48 48
- Grow mental health support: 1890 474 474
- Shine supporting people affected by mental ill health: 01 541 3715

UK

Mental health

- Mind Infoline: 0300 123 3393
- Rethink Mental Illness advice line: 0808 801 0525
- SANEline national out-of-hours mental health helpline: 0300 304 7000
- NHS: 111
- Find a local NHS urgent mental health helpline (England only)
- Anxiety UK: 03444 775 774
- Breathing Space (Scotland): 0800 83 85 87
- SupportLine for emotional support on any issue: 01708 765200

United States

Mental health

- National Alliance on Mental Illness NAMI HelpLine: 1-800-950-6264 or text NAMI to 741-741
- Crisis Support Services national helpline: 800-273-8255
- SAMHSA's National Helpline (substance abuse and mental health): 800-662-HELP (800-662-4357)

- Teen Line for youth in need of support: 800-852-8336

Canada

Mental health

- Wellness Together Canada mental health and substance use support: 1-866-585-0445 or text WELLNESS to 741741
- Mood Disorders Society of Canada: 613-921-5565
- Hope for Wellness 24/7 Help Line mental health counselling and crisis intervention for all Indigenous peoples across Canada: 1-855-242-3310
- National Canada Mental Health Association (CMHA): 416-646-5557 or find your local CMHA branch
- Naseesha Mental Health Hotline for young Muslims: 1-866-627-3342
- Good2Talk support services for post-secondary students in Ontario: 1-866-925-5454 and Nova Scotia: 1-833-292-3698

Australia

Mental health

- healthdirect 24-hour health advice: 1800 022 222
- Sane Australia counselling support for mental health issues: 1800 187 263
- MensLine Australia for male mental health issues: 1300 78 99 78
- Kids Helpline for young people aged 5-25: 1800 55 1800
- Beyond Blue for young people: 1300 22 4636

- Mind mental health support: 1300 286 463

New Zealand

Mental health

- Healthline for general health advice and information: 0800 611 116
- Depression Helpline: 0800 111 757
- Anxiety NZ: 0800 269 4389 (0800 ANXIETY)
- Need to Talk? 1737 to speak with a trained counsellor or peer support worker: Call or text 1737

India

Mental health

- KIRAN Ministry of Social Justice mental health helpline: 1800-599-0019
- Vandrevala Foundation support for mental health: +1 256 666 2142 or +91 9999 666 555
- Mann Talks to speak with a trained mental health professional: +91-8686139139
- AASRA 24/7 helpline and directory: 91-9820466726
- Samaritans Mumbai helpline for those who are stressed, distressed, depressed, or suicidal: +91 84229 84528, +91 84229 84529, or +91 84229 84530
- The MINDS Foundation for those experiencing mental health problems: 18005-477-200
- Jeevan Aastha Helpline for mental health counselling: 1800 233 3330

- Childline India for children, teens, and adults concerned about them: 1098
- iCALL Helpline for professional and free mental health counseling: 9152987821
- Voice that Cares Psychosocial First Aid (PSFA) Helpline: 8448-8448-45

Philippines

Mental health

- Philippine Mental Health Association (PMHA): +63 2 921 4958
- National Center for Mental Health (NCMH) crisis hotlines: from landline call 1553, from cellphone call: 0917-899-8727, 0966-351-4518, or 0908-639-2672
- In Touch Philippines free and anonymous 24/7 crisis line: +63 2 8893 7603, +63 917 800 1123, or +63 922 893 8944
- Natasha Goulbourn Foundation HOPELINE PH 24/7 Suicide Prevention and Emotional Crisis Line: 2919 for Globe/TM, 0917.558.4673, 0918.873.4673, or (02) 8804-4673
- Tawag Paglaum – Centro Bisaya 24/7 crisis intervention and suicide prevention hotline: Smart/Sun: 0939-9375433, 0939-9365433, Globe/TM: 0927-6541629

South Africa

Mental health

- Lifeline counselling: National: 0861 322 322, Johannesburg: 011 728-1331, Alexandra: 011 443 3555, Soweto: 067 019 0845 or 074 129 6960
- The South African Depression and Anxiety Group offers help and counselling for all mental health problems: 0800 567 567

- South African Federation for Mental Health (SAFMH) offers a helpdesk and information on mental health services: +27 (0) 11 781 1852
- South African Schizophrenia & Bipolar Disorders Alliance: 011 326 0661
- Akeso help and counselling for different disorders: 0861 435 787

Full list below obtained from checkpoint link

Japan 日本

- うつ病 Information about depression in Japanese.
- Befrienders International, Tokyo +81 (0) 3 5286 9090
- BI Suicide Prevention Centre, Osaka +81 (0) 6 4395 4343
- Tokyo English Lifeline 107-0062
- TellJP
- Counselling: 03 5774 0992
- Face to Face: 03 3498 0231

France (English Speaking)

- 0033 145 39 4000
- Suicide Ecoute
- 01 46 21 46 46
- SOS Help

Germany

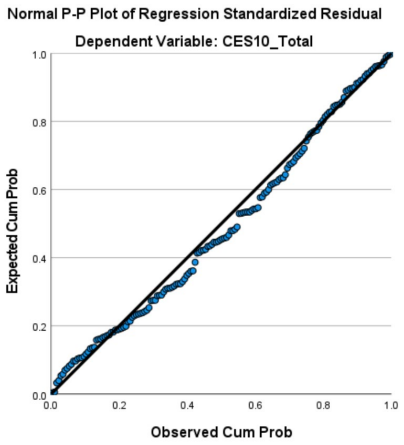
- Telefonseelsorge Deutschland (National)
- German speaking: 0800 -111 0 222
- English speaking: 030-44 01 06 07
- Crisis support line 6pm to 12am daily

Italy

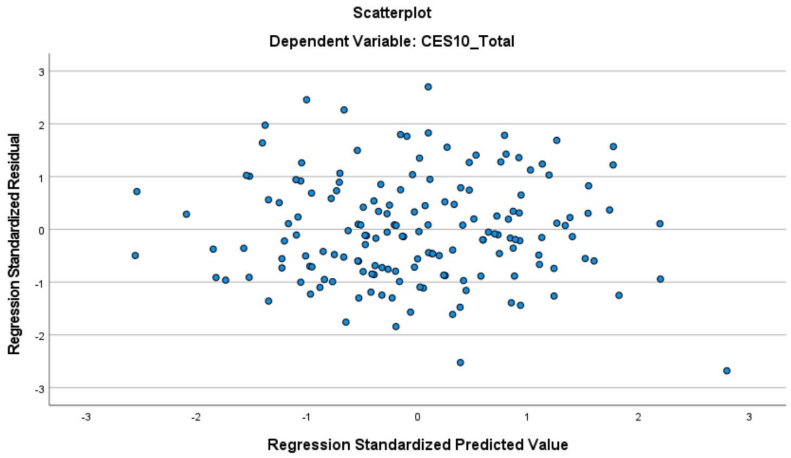
- 800 86 00 22
- Samaritans

Appendices J

1. Normal Probability Plot (P-P) of the Regression Standardised Residual: Dependent Variable: CESD (Depression)

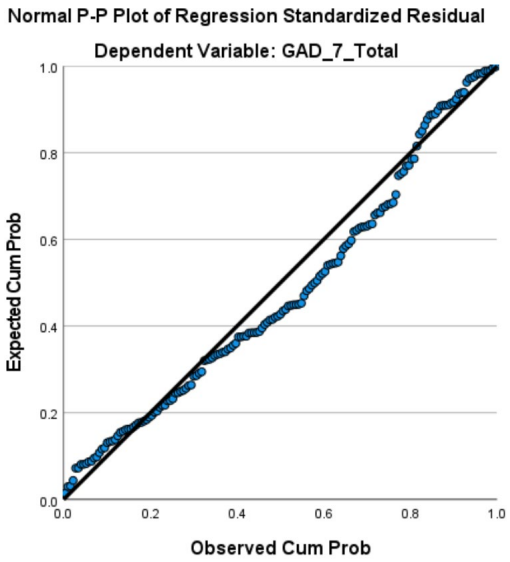


2. Scatterplot: Dependant Variable: CESD (Depression)

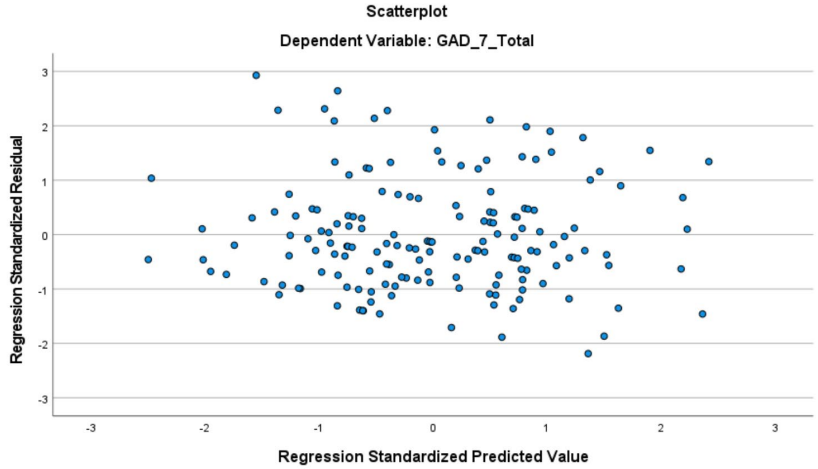


Appendices K

1. Normal Probability Plot (P-P) of the Regression Standardised Residual: Dependent Variable: GAD (Anxiety)



2. Scatterplot: Dependant Variable: GAD (Anxiety)


Scatterplot
Dependent Variable: GAD_7_Total
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
0
-1
-2
-3