The Relationship between Post-natal Depression and: Body Image, Social Support and Self-Esteem.

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Abstract

The present study examined the relationship between post-natal depression and body image, social support, and self-esteem. Research has shown that low levels of social support and self-esteem are predictors in post-natal depression, and that body dissatisfaction has a relationship with post-natal depression. The present study set out to expand on these findings and investigate the nature of these relationships in a different population. A total of 68 participants completed questionnaires measuring post-natal depression scores, body-esteem, perceived social support and self-esteem. A correlation matrix analysis found there was a relationship between both body-esteem and social support and post-natal depression scores, but no correlation among self-esteem and post-natal depression. Follow up standard multiple regression analysis disclosed that the body-esteem subscale of physical condition and low perceived social support to be predictive of high post-natal depression scores. Implications for this study and future research recommendations are discussed.

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Introduction

Across the average lifespan of a woman, one in five will experience a common mental health disorder, such as anxiety or depression, that's roughly 800 million women (Gavin et al., 2005). Postnatal depression is among these mental health disorders affecting one in ten women across the globe (Gavin et al., 2005). Consider depression as a spectrum, similar to the Autism Spectrum, in the same way that Asperger's syndrome is on the autism spectrum, postnatal depression is on the spectrum for depression (Angst & Merikangas, 1997). Postnatal depression affects many aspects of a new mother's life, as well as their newborn infants and their partner's and families (Yim et al., 2015). For a new mother, there is a lot of pressure to be happy and joyful following the birth of a child, but often women feel a sort of low mood and feelings of depression and anxiety, which can produce a level of cognitive dissonance (Yim et al, 2015). Postnatal depression is defined as a major depressive disorder and is not to be confused with postnatal blues or "baby blues" (Yim et al., 2015). Symptoms typically begin within four weeks following childbirth but can continue for up to one year after (WHO, 2004). There are a multitude of risk factors associated with the development of postnatal depression, among these include low self-esteem and low social support (O'Hara & McCabe, 2013). The following is a brief literature review which will discuss post-natal depression, body image, social support, and self-esteem, in their respective areas, and also in relation to their roles in post-natal depression.

Post-natal Depression

Post-natal depression, also known as perinatal or postpartum depression, and can lead to depressed mood, tearfulness, lack of enjoyment and drive, feelings of uselessness and helplessness (Lee & Chung, 2007). Symptoms of post-natal depression can occur up to 1 year after childbirth, but there is no exact timeline for the exact length of time for the post-natal

period (Lee & Chung, 2007). Diagnostic criteria can be difficult, as there are many physiological changes after childbirth that are associated with depressive symptoms, such as postpartum weight loss (Lee & Chung, 2007). Post-natal depression is caused by a range of bio-psycho-socio-cultural factors, but fortunately there are many treatment options available, with psychotherapeutic approaches showing to be just as efficient as medical treatments (Lee & Chung, 2007). Diagnostic questionnaires can be used to diagnose and measure post-natal depression such as the Edinburgh post-natal depression scale developed by Cox et al., (1987). It is a 10-item Likert scale questionnaire with suitable validity and split-half reliability contains sensitivity to changes in depression levels over time (Cox et al., 1987).

Post-natal depression is an important factor to consider with regards to the development of the mother and infant relationship (Leigh & Milgrom, 2008). There have been significant associations discovered between post-natal depression and attachment styles, with more intense maternal depression having a higher prediction rate of insecure attachments (Lyons-Ruth et al., 2000; Martins & Gaffan, 2000). Another study found that mothers with chronic depression were more likely to have an insecure state of mind regarding attachment, when compared with mothers who had never experienced depression, with only 26% of children of chronically depressed women having a secure attachment (McMahon et al., 2006). This emphasizes the importance of early intervention for post-natal depression. With early interventions and therapeutic treatment, post-natal depression can be controlled and therefore not lead to chronic depression at a later stage.

Body Image

Body image is the internal perspective that a person holds about their body, it represents their feelings, perceptions, thoughts, and beliefs about their body, which then influences how

they treat their body and behaviors and associations that they make toward it (Cash, 2004). Although many people assume that body image just refers to physical appearance, it also includes attitudes towards embodiment and body functions (Tylka, 2019). There are several ways in which disturbances in body image can manifest, such as perceived fatness, personal dissatisfaction with own appearance, or checking on own appearance at a compulsive level (Jarry & Ip, 2005). Women have been found to gain excessive weight in pregnancy and gain over 50% more weight than expected (Mehta et al., 2011).

During pregnancy, women undergo a circumstantial number of physical changes within a significantly short period of time (Silveira et al., 2015), their hormones fluctuate and their body changes at the expense of growing a child. Their stomachs enlarge, their breasts grow, their ankles and wrists swell, their body retains fluid, their pelvis widens, and the skin gains stretch marks and so on. There is also immense pressure put on women by the media to "bounce back" from pregnancy, just as their favorite celebrity has (Roomruangwong et al., 2017). Poor body image in pregnancy, has been highly correlated with adolescent pregnancy, although these women understand that weight gain is necessary for the healthy growth of their fetus, they still perceive themselves as overweight (Zaltzmanet al., 2015). This could possibly be correlated with the effects of social media on the younger generation, this is a potential area for future study.

Previous research has identified a positive correlation between body dissatisfaction and symptoms of post-natal depression (Riquin et al, 2019; Roomruangwong et al., 2017; Sweeney & Fingerhut, 2013). Riquin et al., (2019) conducted a longitudinal study and found that women were four times more likely to experience perinatal depression if they were experiencing body image dissatisfaction, but their sample was not an ideal representation of the wider population, consisting of slightly older women than the general population, as well as a higher level of

education among participants (Riquin et al., 2019). Sweeney & Fingerhut (2013) found that body image dissatisfaction predicted postnatal depression but did so using a relatively small sample size, making it difficult to determine whether the findings are true when compared to the general population. Contrary to these studies already discussed, in the risk factors for postnatal depression identified by many studies, very few have yet to identify body image dissatisfaction as a risk factor (O'Hara & McCabe, 2013; Hutchens & Kearney, 2020; Redshaw & Henderson, 2013). A recent study by Riesco-González et al., (2022) found that higher levels of post-natal depression were correlated with greater levels of body dissatisfaction. The scale used for this study was the body shape questionnaire, which measures how the participants feel about their body shape (Cooper et al., 1987). The scale used in the following study refers to both the body image and physical attributes and functions of the body, therefore delving deeper into the body image (dis)satisfaction of the post-natal woman (Franzoi & Shields, 1984). The next section will discuss social support and its role in post-natal depression.

Social Support

Social support can be defined as the perception and actuality of being cared for and having someone to turn to in a time of need, like family, friends, partner etc. (APA,2020). Social support is multidimensional, emotional; provision of emotional support such as comfort when one is upset or being there when times are hard, tangible, such as gifts, material things, or direct aid/services like cleaning, and informational; giving advice and information and giving criticism where appropriate (Heh, 2003). The relationship between post-natal depression and social support was first identified by Brown et al., (1986). It is important that women are getting adequate social supports during both post-natal and antenatal period (Tambag et al., 2018). Some studies have found that adequate social support positively affects a mother's attitude toward

motherhood and their new role, it can also be seen to strengthen the bond between mother and infant and can have huge benefit to the relationships the mother is surrounding herself with (Tambag et al., 2018).

Social support is likely to be subject to a person's perceptual judgement (Haber et al., 2007) This study will measure perceived support, as it is the only way possible to measure social supports in a self-report manner, but also because perceived social support has been consistently linked to mental health issues, it is important that mothers feel they are sufficiently supported (Haber et al., 2007). Various psychosocial studies have identified low perceived social support as a risk factor for post-natal depression (Hutchens & Kearney, 2020; O'Hara & McCabe, 2013; Redshaw & Henderson, 2013). A study conducted by Xie et al. (2009), found that low social support in the post-natal was a more powerful risk factor for post-natal depression than inadequate social supports in the prenatal period. Another study by Zhang & Jin (2014) found a significant negative correlation between social support and post-natal depression. The following section will discuss self-esteem and its role in post-natal depression.

Self-Esteem

Self-esteem is referred to as one's confidence in his or her own worth abilities and the evaluations of liking oneself in positive or negative terms (Rosenberg, 1986). Self-esteem has a causal relationship on levels of emotion and cognitive abilities of a person (Nasiri et al., 2015). Higher self-esteem effectuates to higher self-worth and higher self-respect and is associated with higher levels of psychological wellbeing, whereas lower self-esteem leads to the complete opposite effect of this (Nasiri et al., 2015). There has been extensive research that concludes low self-esteem and depression are highly correlated (Breechan & Kvalem, 2015; Hilbert et al., 2018; Kuster et al., 2012; Sowislo & Oslo, 2013). As previously discussed, postnatal depression falls

on the spectrum of depression, which is why it is important to consider self-esteem measures when investigating the possible correlations of post-natal depression. Becoming a mother and creating a family is a significant moment in a woman's life, this can lead to the influence of certain components to a woman's self-esteem (Denis et al., 2013). Previous research has found a correlation between low self-esteem and levels of depression in the postpartum period (Denis et al., 2013; Denis et al., 2012)

In a study conducted by Denis & Luminet (2017) a link between maternal low self-esteem and postnatal depression was found, which is consistent with previous studies. Multiple studies have discovered this link and low maternal self-esteem has been determined as a risk factor for postnatal depression (Denis & Luminet, 2017; Denis et al., 2012; Franck et al., 2016; Reck et al., 2012). Another study by Franck et al., (2016) found that levels of self-esteem instability in both the second and third trimester of pregnancy to be significant predictors of post-natal depression symptomology. This study conflictingly suggested that the temporary fluctuations in self-esteem were significantly more important than the levels of self-esteem themselves, where the study by Denis & Luminet (2017) found the levels of self-esteem to be important predictors.

There are many psychological assumptions for the predictors of low self-esteem, social support and body image being two of which (Ikiz & Cakar, 2010; Pop, 2016). Lower levels of both body image and social support have shown to negatively correlate with levels of self-esteem (Ikiz & Cakar, 2010; Pop, 2016). This study aims to consider this in the post-natal period.

Rationale and Research Aims

The aim of the current study is to therefore examine the relationship that body image, social support and self-esteem collectively have on symptoms of post-natal depression, while

considering each scale individually as well as all scales together, while controlling for age and relationship status. This study is important as it will help to identify the impact that body image has on symptoms of post-natal depression while looking at three separate subscales within the body esteem measure, all of which carry different parts and functions of the body in which may be affected by their pregnancy. Body image has also been linked to several negative health outcomes such as eating disorders, body dysmorphia and depression, which should be carefully considered in the realm of post-natal depression (Grabe et al., 2008; Pauls et al., 2008). This study also aims to investigate the relationships that self-esteem and social support hold in relation to post-natal depression in association with body image. Based on previous research in literature, the aim of the current study is to develop on prior literature using the following research questions.

Research question 1: is there a relationship between symptoms of post-natal depression and body image? Hypothesis for research question 1: there will be a significant relationship between symptoms of post-natal depression and body image. Essentially, lower levels of body esteem will lead to higher levels of post-natal depression.

Research question 2: is there a relationship between symptoms of post-natal depression and social support? Hypothesis for research question 2: in line with previous research, lower levels of social support will coincide with higher levels of post-natal depression.

Research question 3: is there a relationship between symptoms of post-natal depression and self-esteem? Hypothesis for research question 3: in concordance with earlier studies, symptoms of post-natal depression will negatively correlate with self-esteem.

Research question 4: do body image, social support and self-esteem predict symptoms of post-natal depression? Hypothesis for research question 4: poor body image, low social support and low self-esteem are all predictors of post-natal depression symptomology.

Methodology

Participants

The sample for the current study consisted of females only (n= 68) who had given birth in the last 12 months. The sample size was calculated using Tabachnick and Fidell (2013) formula for calculating sample size for multiple regression analysis ($N > 50 + 8m$) n = number of participants and m = number of predictor variables. Using this formula, the minimum sample size had to be n = 74. Participants were from various countries, majority from Ireland with minorities in the United Kingdom and Lithuania and their ages ranges from 19 to 43 years, with an average age of 27 (SD = 6.29). Of the participants recruited, 22% were married, 50% in a relationship, 19% were single and 8% were co-habiting. The study implemented a non-probability, convenience sampling strategy to recruit participants, as participants were recruited online and relied heavily on their willingness to take part in the survey.

Measures/materials

The study questionnaire was comprised of demographic questions and distinct scales combined using Google Forms, an online survey builder. The demographic questions were used to gain a well-rounded profile on the participants of this study. Questions regarding their age and country of child's birth were included in this section.

Edinburgh Post-Natal Depression Scale (EPNDS): (α = .77 to .86) developed by Cox et al., (1987) is a 10-item scale deigned to screen for levels of post-natal depression in postpartum women, each item is measured using 4 response items with a rating of 0 -3, each question has a different set of possible answers. Each score is computed by following the instructions given with reverse scoring on questions 3 and 5-10, once reverse scoring is completed, the totals should be added together to get the final score. Higher scores indicate

higher levels of post-natal depression. The maximum score is 30, and the lowest being 0. Indication of possible depression comes from a score of 9 or greater. The Cronbach's alpha was used to measure levels of internal consistency in this specific sample. Results indicated high levels of internal consistency ($\alpha = .84$). (See Appendix I).

The Body-Esteem Scale (BES): is an instrument used to assess levels of body-esteem in both men and women, with regards to both body parts and body function (Franzoi & Shields, 1984). The body-esteem scale is a Likert scale, comprising of 35-items with 3 subscales. There are some items which are used for women and not men and conversely with men and not women. There are three subscales for both men and women, for this study we focused only on women's scales as there were no male participants. The three subscales were sexual attractiveness, weight concern and physical condition. Participants were asked to rate each item on a scale of 1 "have strong negative feelings" to 5 "have strong positive feelings". To compute the total for each subscale, rating for each item should be added up, lower totals indicate lower body-esteem. previous studies have found the scale to have acceptable ($\alpha = .82$) (Franzoi & Sheilds, 1984). For this study, the Cronbach's alpha was measured for each individual subscale, to ensure validity and reliability. The Cronbach's alpha for each subscale were in an acceptable range. Sexual attractiveness; $\alpha = .88$, weight concern; $\alpha = .923$, and, and physical condition; $\alpha = .856$. (See Appendix II).

Social Support Scale (OSSS-3): is a brief tool used to assess levels of social support (Kocalevent et al., 2018). The OSSS-3 is a 3-item Likert scale, and items are answered on a four or five-point scale, each question has a different range of answers. A sample item from the scale "how many people are so close to you that you can count on them if you have great personal problems?' with the Likert scale answers ranging from 1 "none" to 4 "5+". The total is found by

adding all answers together and can range from 3-14. Results indicate their level of social support based on the following scale, “3-8 poor social support”, “9-11 moderate social support” and “12-14 strong social support”. Previous studies have found the scale to have acceptable reliability with Cronbach’s alpha ranging from .640 to .752 (Kocalevent et al., 2018; Monteleone et al., 2022). The OSSS-3 shows acceptable reliability in the present study (α = .72). (See Appendix III).

Rosenberg Self-Esteem Scale (RSES): was developed by Rosenberg (1965) to assess levels of self-esteem. The RSES is a 10-item Likert scale, and items are answered on a four-point scale ranging from 3 “strongly agree” to 0 “strongly disagree”. Sample items from the scale include “I take positive attitude toward myself” or “I wish I had more respect for myself”. Items 3, 5, 8, 9 and 10 are reverse scored. Scores range from 0 to 30, between 15 and 25 indicate normal range of self-esteem, with scores below 15 indicate low self-esteem. The Cronbach’s alpha was used to measure levels of internal consistency in this specific sample. Results indicated low levels of internal consistency (α = .48). Previous studies have indicated that the scale has good reliability, with Cronbach’s alpha ranging from .77 to .88 (Blascovich & Tomaka, 1991). (See Appendix IV).

Design

The study implemented an experimental cross-sectional research design and adopted a quantitative approach. There were 3 predictor variables (PVs) which were as follows: body-esteem, social support, and self-esteem. The criterion variable (CV) was levels of post-natal depression.

Procedure

Majority of study participants were recruited through social media platforms. The questionnaire was uploaded to Instagram, Facebook, Twitter, and Snapchat and sent into WhatsApp group chats. Some participants were recruited by mutual friends whereby the questionnaire link was forwarded through the various platforms previously mentioned. Consent was obtained through a consent form/information sheet that was provided directly before the questionnaire (see Appendix V and VI), where the participant was given a brief description of the study and its aims, along with an estimated time frame that the study will take to complete, which was roughly 10-15 minutes. Participants were also made aware that they could withdraw their participation at any time throughout the questionnaire without penalty. Participants were then asked to give their age and asked to mark their marital status, alongside the country in which their child was born. Once this had all been established, they were able to then proceed to the questionnaire. Participants were required to fill out 4 different questionnaires. Firstly, the Edinburgh post-natal depression scale to assess levels of post-natal depression. This was followed by the Body-esteem scale, used to assess levels of body-esteem. Then the Rosenberg self-esteem scale, to assess levels of self-esteem. Lastly, the Oslo social support scale was used to detect levels of perceived social support. When this was completed, participants were brought to a debriefing form, where both my supervisors and my own contact details were provided. There were also numerous helpline numbers, accompanied by a statement encouraging participants to contact their public health nurse or GP if they thought that they may be having symptoms of post-natal depression or any other forms of distress that may have experienced from the questionnaire (see Appendix VII).

Ethical Considerations

All data was collected in accordance with NCI's ethical guidelines and was reviewed by the ethics board before proceeding with the study. The risks and benefits of taking part in the study were clearly outlined and there was no incentive to take part, and all participants provided informed consent before taking part in the study. Participants were made aware that the study may be published in the NCI library for all students, lecturers and visitors who have obtained access to the library to view it. This was communicated to the participants in the information sheet before taking part in the study. Helplines such as Bodywise and the Samaritans contact details were provided in the debriefing form, alongside encouragement to contact their public health nurse or GP, for anyone who experienced distress as a result of taking part in the study (see Appendix VII).

Results

Descriptive Statistics

A total of 68 participants took part in this study. The sample consisted of females only and they were required to have given birth in the last year. A large portion of the sample, 50% were in a relationship (n =34). Other relationship statuses included: married 22.1% (n = 15), co-habiting 8.8% (n = 6) and single 19.1% (n = 13).

Descriptive statistics for age, body esteem (subscales of sexual attractiveness, weight concern, and physical condition), self-esteem, social support, and post-natal depression are displayed in table 1 below.

Table 1

Descriptive statistics and reliability of all continuous variables.

	Mean	Median	SD	Skewness	Kurtosis	Minimum	Maximum
Sexual Attractiveness	36.99	37	9.35	.38	.009	16	59
Weight Concern	24.32	24	9.72	.59	-.028	10	49
Physical Condition	25.21	24	7.22	.132	-.306	9	43
Post-Natal depression	15.71	15	5.03	-.104	-.503	5	26
Self-Esteem	19.94	19	5.17	.914	1.373	11	38
Social Support	5.22	5	2.64	.234	-.626	1	11

Age	27.15	26	6.29	.972	.155	19	43

Inferential Statistics

Correlation analysis

Preliminary analyses were performed to ensure no violation of the assumptions of normality. Weight concern, self-esteem and social support were found not to be normally distributed. Therefore, a non-parametric Spearman correlation coefficient was used rather than a Pearson product moment correlation coefficient test to investigate whether there is a relationship between post-natal depression, body esteem, self-esteem, and social support.

Table 2

Correlation analysis to investigate relationships between variables.

Variables	1.	2.	3.	4.	5.	6.	7.
1. Age	1						
2. BS SA	.136	1					
3. BS WC	.026	.636**	1				
4. BS PC	.067	.760**	.685**	1			
5. RSES	.173	.189	.210	.151	1		
6. EPNDS	-.143	-.587**	-.476**	.625**	-.220	1	
7. OSSS	.239*	.399**	.299*	.324**	.116	-.485**	1

N = 68; Statistical Significance: *p < .05, **p < .01; BS SA = Body Esteem Scale, sexual attractiveness; BS WC = Body Esteem Scale, weight concern; BS PC = Body Esteem Scale, physical condition; RSES = Rosenberg Self-Esteem Scale; EPNDS = Edinburgh Post-Natal Depression Scale; OSSS = Oslo Social Support Scale.

Standard Multiple Regression

Preliminary analyses were performed to ensure no violation of the assumption of normality, linearity, and homoscedasticity. The correlations between predictor variables were assessed and *r* values ranged from -.62 to .66. Tests for multicollinearity indicated that Tolerance and VIF values were in an acceptable range, therefore indicated no violation of the assumption of multicollinearity and that data were suitable for examination through multiple regression analysis. A standard multiple regression analysis was conducted to investigate whether levels of body-esteem, self-esteem, and social support were predictors of levels of post-natal depression. No *priori* hypotheses had been made to determine the order of entry of the predictor variables, therefore a direct method was used for data analysis. The percentage of variance explained by the predictors was 48.8% in post-natal depression scores ($F(5) = 11,81$, $p < .001$). Both social support and physical condition were found to uniquely predict post-natal depression to a statistically significant degree. Physical condition was found to be the strongest predictor ($\beta = -.424$, $p = .006$).

Table 3

Standard Multiple Regression Table predicting levels of post-natal depression.

Variable	R^2	*B*	*SE*	β	*t*	*p*
Model	.488**					
Total Sexual Attractiveness		-.06	.08	-.12	-.79	.434
Total Weight Concern		.01	.07	.01	.11	.915
Total Physical Condition		-.30	.10	-.42	-2.84	.006
Total Self-Esteem		-.06	.09	-.06	-.62	.54
Total Social Support		-.61	.19	-.32	-3.22	.002

Note: **p<.05

Hierarchical Regression

Preliminary analyses were performed to ensure no violations of the assumptions of normality, linearity, and homoscedasticity. The correlations between predictor variables were assess and *r* values ranged from -.62 to .66. Tests for multicollinearity indicated that all Tolerance and VIF values were in an acceptable range. These results indicate that there was no violation of the assumption of multicollinearity and were suitable for examination through multiple regression analysis. Hierarchical multiple regression analysis was performed to investigate whether levels of physical condition and social support predict levels of post-natal depression after controlling for relationship status and age, following the standard multiple regression analysis, to further investigate the statistically significant values of the regression.

In the first step of the hierarchical multiple regression, two predictor variables were entered: age and relationship status. This model was statistically significant ($F(2) = 5.03$, $p = .009$) and explained 13.4% of the variance in post-natal depression scores (see Table 4 for details). After the entry of physical condition and social support at Step 2, the total variance explained was an additional 39.7% ($F(4) = 17.83$, $p < .001$). The final model, physical condition and social support were found to uniquely predict levels of post-natal depression to a statistically significant degree. Physical condition was found to be the strongest predictor in the model ($\beta = -.489$, $p < .001$). (See Table 4 for full details).

Table 4

Hierarchical regression table

Variable	R^2	R^2 *Change*	*B*	*SE*	*β*	*t*	*p*

Step 1	.134**						
Age			.11	.12	.14	.97	.337
Relationship Status			2.13	.72	.44	2.98	.004
Step 2	.531**	.397***					
	*						
Age			.10	.09	.13	1.16	.251
Relationship Status			1.42	.55	.29	2.61	.011
Physical Condition			-.34	.09	-.49	-5.30	<.001
Total Social Support			-.55	.18	-.29	-3.01	.004

Note: ** = p < .01, *** = p < .001

Discussion

In the current study, the association between body image, self-esteem, and social support in relation to post-natal depression symptomology was explored within a mostly Irish context, with some participants from the United Kingdom and various other European countries. The study sought to provide a greater understanding of predictors for post-natal depression by examining how body image (weight concerns, sexual attractiveness, and physical condition), self-esteem and social support impact levels of post-natal depression. Through this research, four hypotheses were drawn up to address the aims for this study.

Please note that to investigate hypotheses one through three, a correlation matrix analysis was run, to collectively compare the relationships of the three predictor variables (body image, social support, self-esteem) to the criterion variable (post-natal depression).

From previous literature, it was hypothesized that there would be a relationship between post-natal depression and body image. This relationship was investigated by looking at the correlation matrix analysis. The findings suggest that high rates of post-natal depression symptomology are associated with negative views on the women's body image perception. All subscales were found to be statistically significant with weight concern showing a moderate negative relationship and sexual attractiveness and physical condition showing a strong negative correlation with post-natal depression, physical condition being the strongest in the entire model. This is quite interesting, when looking at the subscale of physical condition, the items are based on mainly functions of the body such as, energy levels, reflexes, physical coordination etc. with room for further research. These findings are consistent with previous research where physical condition of postpartum women were investigated in relation to post-natal depression (Cheng et al., 2013). The findings of the other two subscales are also consistent with previous research in

the investigation of body satisfaction and post-natal depression (Denis & Luminet, 2017; Sweeney & Fingerhunt, 2013; Riquin et al., 2019). It is a cause for concern that our findings revealed post-natal women to are likely to hold their body's abilities post-pregnancy in such a negative light. Body dissatisfaction is likely to be a contributing factor in the decreased levels of self-esteem and feelings of inadequacy, that are linked to feelings experienced through stages of depression (Gjerdingen et al., 2009). Body dissatisfaction can also lead to some concerning health problems among these new mothers, eating disorders, extreme dieting, body dysmorphia etc., have all been linked to poor body image (Hartley et al., 2017). Body image dissatisfaction has also been shown to reduce the likelihood of breastfeeding (Brown et al., 2015; Gjerdingen et al., 2009), and is linked with emotional distress and smoking relapse (Levine et al., 2010). Although this study examined body image dissatisfaction in a unidirectional matter, there is suggestion in prior research that the relationship between the two variables may be bidirectional (Hartley et al., 2017), future research should examine this in finer detail. It should also be noted that social media may be playing a role in the increased levels of body image dissatisfaction in pregnant and post-natal women (Becker et al., 2022; Hicks & Brown, 2016). In a study conducted by Becker et al., (2022) they conducted a study examining the effects of quick exposure to images considered body positive and images considered idealized. The results found that even after exposure to the idealized images for a brief period, the impact it had on body image satisfaction levels when compared with controls was significant (Becker et al., 2022). This gives reason to believe that prolonged exposure to these idealized images can have detrimental effects, and this may partially explain why these levels of body image dissatisfaction may be occurring in post-natal women (Becker et al., 2022).

For the second hypothesis, which assumed that there would be a relationship between social support and symptoms of post-natal depression, the correlation analysis matrix was looked at further. It was found that there was a statistically significant, moderate negative correlation between social support and post-natal depression symptomology. These findings suggest that high rates of post-natal depression are associated with low levels of social support. This is consistent with numerous studies which have also found a relationship between social support and post-natal depression (e.g., Brown et al., 1996; Hutchens & Kearney, 2020; O'Hara & McCabe, 2013; Redshaw & Henderson, 2013). Lack of social support is known to be one of the most influential factors in post-natal depression (Tambag et al., 2018). Findings in this study develops further on previous literature that finds low social support to be a risk factor for the development of post-natal depression (Health et al., 2014; Heh, 2003; Li et al., 2017; Tambag et al., 2018; Vaezi et al., 2019; Xie et al., 2009). Social support is essential in enhancing postpartum outcomes and improving overall mental wellbeing (Inekwe & Lee, 2022). To promote mental health, it will be crucial to develop efficient interventions, such as the supply of informational and structural resources and the encouragement of psychological support. Further studies would benefit from exploring how new mothers perceive social support and what influencing factors contribute to this.

The third hypothesis was also investigated using the correlational analysis matrix. It was hypothesized, based on prior research, that low levels of self-esteem would be a predictor of post-natal depression. This was explored and a weak, non-significant, negative correlation was found. This conflicts with prior research (e.g., Denis et al., 2013; Denis & Luminet, 2017; Franck et al., 2016; Reck et al., 2012) which found self-esteem to be a strong predictor in post-natal depression. This might be the result of methodological variations when research used different

scales to measure levels of self-esteem among post-natal women. Unlike previous studies that have stated low self-esteem could be a result of low social and emotional support (Zaidi, 2017), this study has found differentiating results, which could be due to low reliability within the scale used.

For the fourth and final hypothesis, a multiple regression analysis was performed to investigate whether body image, social support and self-esteem predicted symptoms of post-natal depression. The overall model was statistically significant, which constituted the predictors to explain 48.8% of the variance found in post-natal depression scores. Social support and physical condition were shown to uniquely predict high post-natal depression scores to a statistically significant level. To investigate this further a hierarchical multiple regression was run, to investigate if levels of physical condition and social support still are predictors in predicting post-natal depression after controlling for age and marital status. This further explained 53.1% of the variance in post-natal depression scores, with physical condition being the strongest predictor. The regression analyses were consistent with previous findings that imply that social support is a predictor in post-natal depression (e.g., Brown et al., 1996; Hutchens & Kearney, 2020; O'Hara & McCabe, 2013; Redshaw & Henderson, 2013). These findings were also consistent with prior studies that suggest body dissatisfaction has a contribution to play in post-natal depression (Denis & Luminet, 2017; Sweeney & Fingerhunt, 2013; Riquin et al., 2019).

Based on the above findings, hypothesis 1 and 2 can be accepted, hypothesis 3 is rejected and hypothesis 4 is partly accepted.

The findings obtained in this study have important theoretical and practical implications. The current study demonstrates further the importance of examining different variables as predictors of post-natal depression, and the strengths of said variables relationships. More

research is required to understand the nature of the variables in this study's effect on post-natal depression, a mixed methods approach may be favourable in future studies.

Strengths and Limitations

The study identifies several limitations. First, the entirety of the scales relied on self-report measures. Although the research remained anonymous, some individuals may have experienced social desirability bias, the tendency to answer self-report in ways that, consciously or unconsciously, represent themselves in a more positive light (Ravazi, 2001). Self-report measures also bare victim to self-selecting bias, meaning that rather than their overall feelings about the factors being measured, answers may have been influenced by how the person felt at certain moment in time. Future studies should consider using a longitudinal approach and experimental research design in controlled laboratory settings. For example, a longitudinal mixed methods research design, which is taken place in both the ante-natal period, involving interviews with participants in order to fully grasp how they are feeling may be a favourable approach. Although the data provides a rich insight into predictor variables of post-natal depression, it should be noted that the sample size was small. The sample did not meet the recommendation of 74 from Tabachnick and Fidell's (2013) formula for computing sample size. This makes the generalization to the larger population of Ireland/Europe limited.

Another drawback of the study is that the scales used may not have measured the variables as precisely as they could have. Specifically, although was Cronbach's alpha indicated good reliability, the social support scale only consisted of 3 items. This could suggest that the scale was not specific or sensitive enough to accurately capture a genuine perception of social support. In order to obtain more reliable results, future research could make use of a more comprehensive scale that measures more components of the construct of social support.

Furthermore, because the current study's findings were based on cross-sectional methodology, no causal correlations can be concluded. However, the factors associated with perception on social support, body image dissatisfaction and self-esteem are intricate and varied, therefore it is not required to establish causality in order to implement societal reforms that could enhance an individual's social support perception, body image and self-esteem.

Lastly, the Rosenberg self-esteem scale was found to have low internal consistency within this study, despite having high reliability in previous literature. This could be due to low sample size, limited items within the scale, poor inter-relatedness between items or heterogeneous constructs. The scale also has not been validated for use in postpartum women. Future research should employ a scale with more items to ensure internal consistency.

Conclusion

This study expands on current understanding of post-natal depression symptomology within a mainly Irish context by examining firstly the relationships body image, social support and self-esteem hold with regards post-natal depression symptomology and secondly, whether or not these variables are predictors of high post-natal depression scores. In relation to body image, the current study provides support to previous research which has found that body image dissatisfaction is correlated with post-natal depression symptomology. Findings are consistent with emerging literature which has investigated body image dissatisfaction in post-natal depression and the implications it has in relation to post-natal depression. The current study has also supported previous literature that has found perceived social support to be a predictor in post-natal depression. Findings emphasize the importance of studying possible predictors of post-natal depression, and the importance of positive body image and increased perceived social support in the wellbeing of postpartum women. Findings also challenge the assumption that low

self-esteem is a predictor in post-natal depression. Further research is required to explore further the implications poor body image and perceived social support have on post-natal depression, experimental and longitudinal, mixed methods research would be a preferred method to examine these outcomes.

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Appendices

Appendix I

Body-Esteem Scale:

Franzoi & Shields, (2010)

1 = have strong negative feelings
2 = have moderate negative feelings
3 = have no feeling one way or the other
4 = have moderate positive feelings
5 = have strong positive feelings

Body Part/Function	Rating 1 – 5	Factor Loading
1. Body scent		SA
2. Appetite		WC
3. Nose		SA
4. Physical stamina		PC
5. Reflexes		PC
6. Lips		SA
7. Muscular strength		PC
8. Waist		WC
9. Energy level		PC
10. Thighs		WC
11. Ears		SA
12. Biceps		PC
13. Chin		SA
14. Body build		WC
15. Physical coordination		PC WC
16. Buttocks		PC
17. Agility		
18. Width of shoulders		
19. Arms		SA
20. Chest or breasts		SA
21. Appearance of eyes		SA
22. Cheeks/cheekbones		WC
23. Hips		WC
24. Legs		WC
25. Figure or physique		SA
26. Sex drive		
27. Feet		SA
28. Sex organs		WC
29. Appearance of stomach		PC
30. Health		SA
31. Sex activities		SA

32. Body hair 33. Physical condition 34. Face 35. weight		PC SA WC

Appendix II

Edinburgh Post-natal Depression Scale:

Eberhard-Gran et al., (2001).

The questionnaire below is called the Edinburgh post-natal depression scale (EPNDS). The EPNDS was developed to identify women who may have postpartum depression. Each answer is given a score of 0 to 3. The maximum score is 30.

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1. **I have been able to laugh and see the funny side of things**
    - As much as I always could
    - Not quite so much now
    - Definitely not so much now
    - Not at all
2. **I have looked forward with enjoyment to things**
    - as much as I ever did
    - rather less than I used to
    - definitely less than I used to
    - hardly at all
3. **I have blamed myself unnecessarily when things went wrong**
    - Yes, most of the time
    - Yes, some of the time
    - Not very often
    - No, never
4. **I have been anxious or worried for no good reason**
    - No, not at all
    - Hardly ever
    - Yes, sometimes
    - Yes, very often
5. **I have felt scared or panicky for no very good reason**
    - Yes, quite a lot
    - Yes, sometimes

- No, not much
- No, not at all

6. **Things have been getting on top of me**
    - Yes, most of the time I haven't been able to cope at all
    - Yes, sometimes I haven't been coping as well as usual
    - No, most of the time I have coped quite well
    - No, I have been coping as well as ever
7. **I have been so unhappy that I have had difficulty sleeping**
    - Yes most of the time
    - Yes, sometimes
    - Not very often
    - No, not at all
8. **I have felt sad or miserable**
    - Yes, most of the time
    - Yes, quite often
    - Not very often
    - No, not at all
9. **I have been so unhappy that I have been crying**
    - Yes, most of the time
    - Yes, quite often
    - Only occasionally
    - No, never
10. **The thought of harming myself has occurred to me**
    - Yes, quite often
    - Sometimes
    - Hardly ever
    - Never

If you have had ANY thoughts of harming yourself or your baby, or you are having hallucinations please tell your doctor or your midwife immediately
OR GO TO YOUR NEAREST HOSPITAL EMERGENCY ROOM.

Appendix III

Oslo Social Support Scale (OSSS-3):

Kocalevent et al., (2018).

The following questionnaire contains three items, with the sum score ranging from 3 to 14, with high values associated with high levels of social support and lower values associated with poor levels of social support.

1. How many people are so close to you that you can count on them if you have great personal problems?
    a. '*none'* *(1)*
    b. *'1-2'* *(2)*
    c. *'3-5'* *(3)*
    d. *'5+'* *(4)*
2. How much interest and concern do people show you in what you do?
    a. *'none'* *(1)*
    b. *'little'* *(2)*
    c. *'uncertain'* *(3)*
    d. *'some'* *(4)*
    e. *'a lot'* *(5)*
3. How easy is it to get practical help from neighbours if you should need it?
    a. *'very difficult'* *(1)*
    b. *'difficult'* *(2)*
    c. *'possible'* *(3)*
    d. *'easy'* *(4)*
    e. *'very easy'* *(5)*

The scoring is as follows:

- 3 – 8: poor social support
- 9 – 12: moderate social support
- 12 – 14: strong social support

Appendix IV

Rosenberg Self-Esteem Scale (RSE):

Rosenberg, (1979).

1 = Strongly agree

2 = Agree

3 = Disagree

4 = Strongly disagree

____ 1. On the whole I am satisfied with myself.

____ 2. At times I think I am no good at all.

____ 3. I feel that I have a number of good qualities.

____ 4. I am able to do things as well as most people.

____ 5. I feel I do not have much to be proud of.

____ 6. I certainly feel useless at times.

____ 7. I feel that I am a person of worth.

____ 8. I wish I could have more respect for myself.

____ 9. All in all, I am inclined to think that I am a failure.

____ 10. I take a positive attitude toward myself.

Items 2, 5, 6, 8, 9 are reverse scored. Give "Strongly Disagree" 1 point, "Disagree" 2 points, "Agree" 3 points, and "Strongly Agree" 4 points. Sum scores for all ten items. Keep scores on a continuous scale. Higher scores indicate higher self-esteem.

Appendix V

Information Sheet:

Participant Information Leaflet

The relationship between symptoms of post-natal depression and: body image, self-esteem and social support.

You are being invited to take part in a research study. Before deciding whether to take part, please take the time to read the following, which provides an explanation as to why the research is being conducted and what your involvement in the study will be. If you have any questions about any information provided, please do not hesitate to contact me using the details at the end of this sheet.

What is the study about?

I am a final year student, in the BA in Psychology programme at the National College of Ireland (NCI). As part of my degree I am required to carry out an independent research project. For my project, I am aiming to investigate whether levels of self-esteem, social support and body image are associated with symptoms of post-natal depression. The project will be supervised by Dr. Michelle Kelly, one of my teachers/lecturers in NCI.

What will taking part in the study involve?

If you decide to take part in the research, you will be asked to complete a series of online questionnaires on the topics of social support, self-esteem, body image and symptoms of post-natal depression.

Who can take part?

You can take part in this study if you have given birth to a child in the last year. This is to measure specifically the symptoms of post-natal depression. You must also be over the age of 18 due to ethical reasoning.

It is recommended that you do not take part in the study if you are currently undergoing treatment for a clinical diagnosis of an eating disorder as the questions asked may be triggering.

Do I have to take part?

Participation is completely voluntary; you do not have to take part if you feel uncomfortable with doing so and there will be no consequence to you. If you do decide to take part, you can withdraw from the study at any point during the questionnaire portion by exiting the browser. Please note that once you have completed the questionnaires, as they are through an anonymous survey, your data cannot be retrieved and withdrawn from the study. The questionnaire includes items asking about body image, self-esteem, social support and possible levels of post-natal depression. This comes with a small risk that some individuals may feel upset or distressed throughout. If you think that these questions may cause you any emotional discomfort or an undue level of distress, you should not take part in this study.

What are the possible risks and benefits of taking part?

There are no direct benefits to you for taking part in this research. However, the information gathered will contribute to research to help us understand more about post-natal depression and establish possible predictors of it as well.

There is a small risk that some of the questions contained within this survey may cause minor distress for some participants. If you experience this you are free to discontinue participation and exit the questionnaire through the browser. Contact information for relevant support services are also provided at the end of the questionnaire.

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. All data collected for the study will be treated in the strictest

confidence. All data retrieved will be stored securely in a password protected file on the researcher's computer. Data will be retained and managed in accordance with NCI data retention policy. Note that anonymised data may be archived on an online repository, and may be used for secondary data analysis.

What will happen to the results of the study?

The results of the study will be presented in my final dissertation, which will be submitted to National College of Ireland. The results may also be presented at conferences and/or submitted to an academic journal for publication.

Who should you contact for more information?

Researcher: Kate Wilson, x20324696@student.ncirl.ie

Supervisor: Dr. Michelle Kelly, michelle.kelly@ncirl.ie

Appendix VI

Consent Form:

EXPERIMENT CONSENT FORM

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 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 the data from the study will be treated confidentially. The data from all participants will be complied, analysed, and submitted in report to the Psychology Department in the School of Business at NCI.

- 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 full addressed.

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

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

Appendix VII

Debriefing Form:

EXPERIMENT DEBRIEF INFORMATION

The relationship between symptoms of post-natal depression and: body image, self-esteem and social support.

This study was designed to examine the effects of body image, self-esteem and social support on symptoms of post-natal depression. Previous work has shown that those with a history of eating disorders are more likely to develop post-natal depression than those whom do not have any history of eating disorders. Other work has shown that there is a high correlation between those experiencing low self-esteem and symptoms of post-natal depression also. There has also been evidence to show that low levels of social support in new mothers is more likely to lead to higher levels of post-natal depression. Here, our interest was to examine poor body image rather than eating disorders alone, and to further examine low levels of social support and self-esteem. The hope is that this study can provide more knowledge to us, and hopefully lead to early interventions for new mothers following the new change that they experience socially and physically following pregnancy. It is thought that low levels of social support, self-esteem and poor body image following in the post-natal period are more likely to emit symptoms of post-natal depression than those with moderate to high levels of these factors.

The purpose of the statistical analyses is to determine whether there is a correlation between symptoms of post-natal depression and the three variables we have chosen: social support, body image and self-esteem. We use a series of questionnaires to examine body esteem, levels of social support and self-esteem, and a questionnaire to measure symptoms of post-natal depression.

If you are experiencing symptoms of post-natal depression, poor body image, low self-esteem or low levels of social support, or a combination of any of the four listed, please contact your public

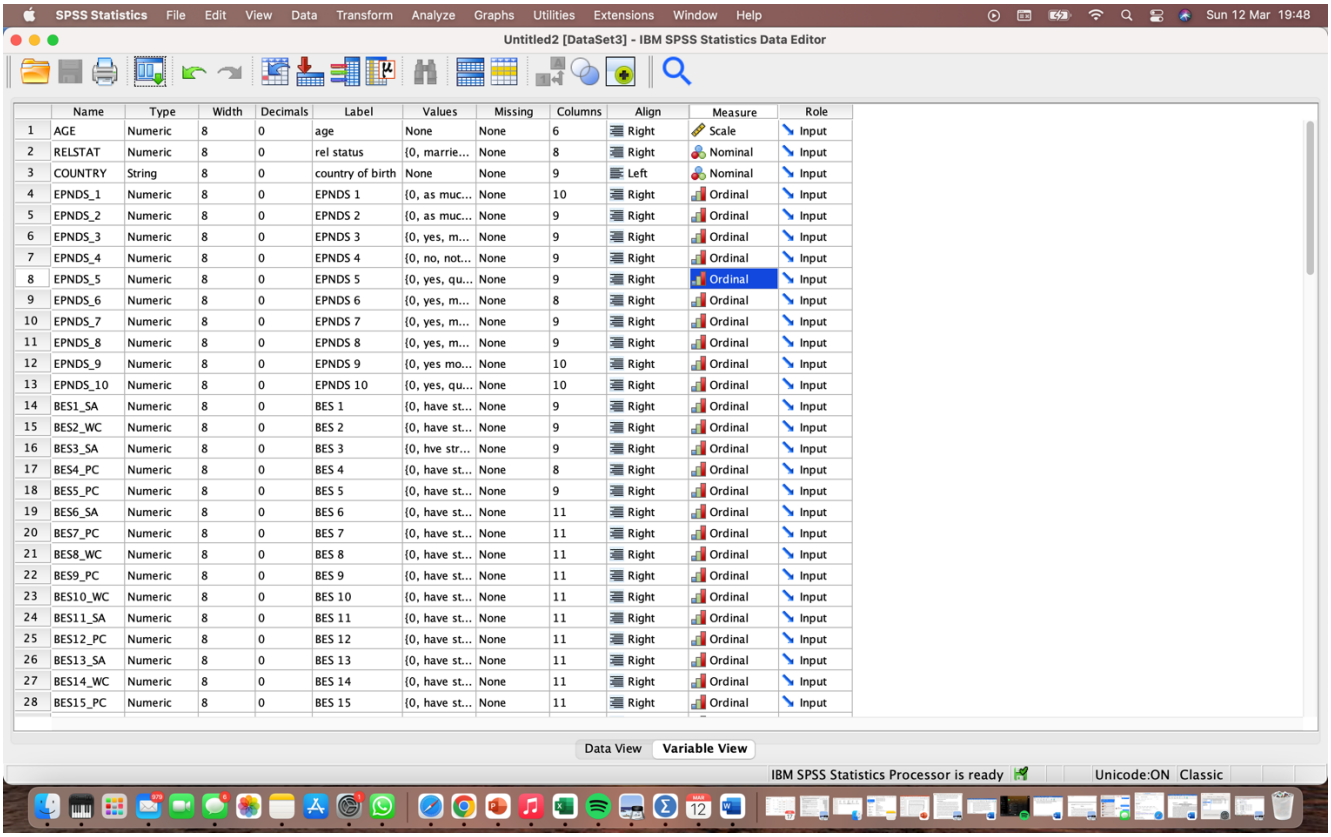
health nurse or phone your GP at any time to discuss how you're feeling. There are also an array of organizations and parent support groups that may be available for support in your area. The following helplines and websites are available to you for support. If you feel that you are in need of help, please do not hesitate to reach out, you are not alone in this.

- Postnatal depression Ireland – 021-4922083 or 086-7872107
- Cuidiu - https://www.cuidiu.ie/supports_parenthood_supporters
- Parentline – 1890927277 or 018733500
- Samaritans – 116 123
- Bodywhys – 012107906

Finally, I would like to thank you for taking the time to participate in my study,
Kate Wilson, National College of Ireland.

Appendix VIII

Evidence of data and SPSS output (full data available on request).



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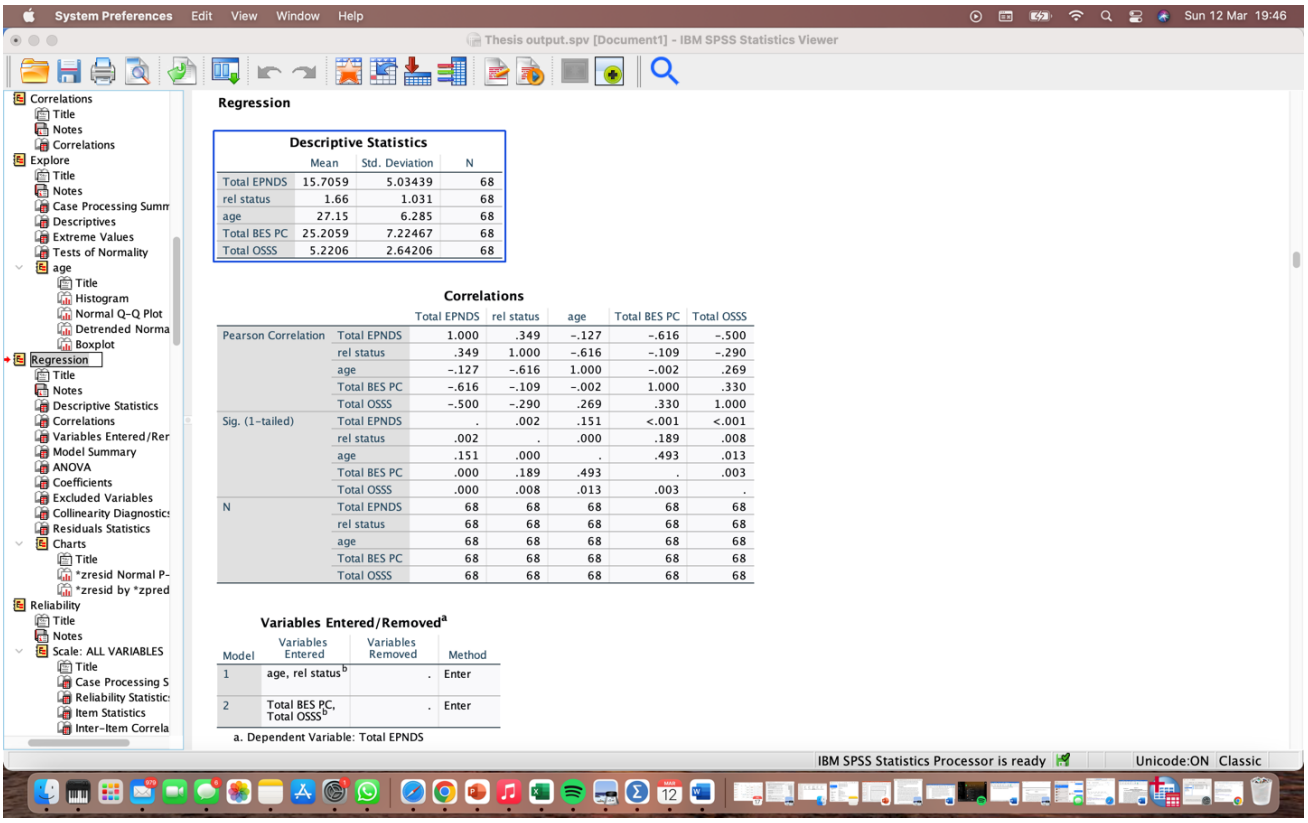
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Total OSSS -.500 -.290 .269 .330 1.000
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