

The Emotional Impact of Covid-19 on Pregnancy Using the Cambridge Worry Scale

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Abstract

Aims: The current study was searching to provide a clearer understanding of the highest concerns women have during the Covid-19 pandemic. By measuring the level of worry women felt about different life factors, while experiencing pregnancy during the pandemic. Exploring the subscales of worry, made it possible to analyse which factors caused higher levels of worry and which caused the least amount of worry. **Method:** An online survey was administrated to participants ($n=20$) through the Facebook group Mum Tribe Ireland. The survey consisted of an adapted version of the Cambridge Worry Scale (CWS), which included sixteen aspects of life that effect women. These aspects were adapted to align with the Covid-19 pandemic. **Results:** Results presented the relationship emotional impact of the Covid-19 pandemic has on pregnancy, by showing the numeric orders of the factors that caused the most worry. The major worries that the pregnant women referred to were partners presence, miscarriage, health of someone close and giving birth. **Conclusion:** Findings provided a more in depth understanding of the emotional impact Covid-19 has on pregnancy. These findings can help those that require guidance on how to manage situations better. Further expressing what requires focus for optimal life factors and results.

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The Emotional Impact of Covid-19 on Pregnancy

Covid-19 (SARS-CoV-2 or 2019-nCoV) has been and is still one of the biggest contributors in peoples' life the past year and currently is still playing a part. It was first reported in Wuhan, Hubei Province, China (Lu et al, 2020). This infection rapidly spread globally, which led the World Health Organization (WHO) to declare a global pandemic on March 11, 2020. As it has caused drastic changes and measures to occur for everyone, especially pregnant women, Covid-19 can be extremely severe during the period of pregnancy. As the period of pregnancy is a highly sensitive period characterized by specific changes at a neurohormonal, biological, physical, and psychological level (Olza et al, 2020). It has been confirmed that the pandemic has increased symptoms of anxiety and stress in pregnant women worldwide (Zhang et al, 2020). At hand is a growing urgency to understand the impact of the Covid-19 pandemic on the health of pregnant women (Lebel, 2020). In the early period of the outbreak, 48.9% of pregnant women were quite apprehensive about the risk of infection with Covid-19 and how it could have an interference with their routine daily chores (Maharlouei et al, 2020) When it comes to previous studies that were researching the relationship between Covid-19 and pregnancy. There is a systematic review based on studies published from the first of January 2020 to the twenty sixth of March 2020. It consists of eighteen studies in total that included a hundred and fourteen women in the review. Based on these studies it was found that cough (53.8%) and fever (87.5%) were the most common systems reported, followed by diarrhoea (8.8%) dyspnoea (11.3%) sore throat (7.5%), myalgia (16.3%) and fatigue (22%). Most of the patients' (91%) had caesarean section delivery. In terms of neonatal outcomes, stillbirth (1.2%), neonatal death (1.2%), preterm birth (21.3%), low birth weight (<2500 g, 5.3%), foetal distress (10.7%) and neonatal asphyxia

(1.25%) were reported. This concluded that the clinical characteristics of pregnant women with COVID-19 are like those of non-pregnant adults.

While this is very informative of the physical impact Covid-19 has had on pregnant women infected by the virus, it does not explain the emotional and mental effects of the Covid-19 pandemic for pregnancy from a general perspective. Especially since pregnancy is a life experience that induces various worries for women. The substance of common worries include how pregnancy affects body image, how pregnancy affects spousal/partner relationships, whether to continue employment, whether the baby will be healthy and having uncertainties about financial adequacy (Affonso, 1987; Donaldson, 1991; Fleming & Flett, 1988). These worries all lead to one of the most common risk factors of pregnancy is anxiety, which is even more common than depression (Adewuya et al, 2006; Brunton et al, 2015; Dennis et al, 2017; Gaynes et al, 2005; Grigoriadis et al., 2011; Schofield et al, 2014; Waqas et al, 2015) Anxiety has a major connection with worry and fear. Looking at what brought about worry in pregnant women during the Covid-19 pandemic, will help to enhance the information already gathered while also looking at how to overcome issues that may not be seen but are more felt. Focusing more on concern rather than anxiety scales is due to how pregnant women can be reluctant to admit their symptoms during what they think should be a happy time (Meadows-Fernandez, 2018). This can also act as a preventative measure for the physical negative characteristics that occurred through Covid-19 and pregnancy. It makes studying the hurdles that occur during the pregnancy timeline of women essential to coming up with different coping mechanisms that can help now in the present and in the future, when dealing with Covid-19 and pregnancy.

Covid-19 and Pregnancy

Other physiological adaptations have been looked to when dealing with pregnancy and Covid-19, these include immunological response, respiratory response, coagulation response, endothelial cell function, SARs-CoV-2(Covid-19) and the placenta, vertical transmission of SARs-CoV-2. To date many of the studies have been reassuring that the risk of severe Covid-19 in pregnancy appears to be no greater than of the general population. There are thirty-one studies which report the outcomes of pregnant women with confirmed Covid-19, and their babies which adds to around 12,260 women (Wastnedge et al, 2020). From this current evidence base it will still be difficult to draw absolute conclusions of the impact of Covid-19 on pregnancy. Primarily the focus is on clinical symptoms', which leaves any mental or emotional factors being excluded even though mental and emotional factors play a major role. The current evidence has a lack of granular population data which makes the identification of risk factors and the accurate comparison of pregnant and non-pregnant cohorts impossible. Deficiency in universal Covid-19 testing and reduced or clustered care (Capanna et al., 2020; Fryer et al., 2020; Peña et al., 2020), also makes it likely that most cases go undetected, while specific needs of patients are also going unnoticed.

Furthermore, Covid-19 can be present without showing symptoms which can lead to gaps in data. As pregnancy is already a period of major changes the addition of clinical Covid-19 symptoms makes gaining full knowledge complex, pregnancy and birth are physiological processes, they also put a profound burden and stress on the woman's body (Green et al., 2003; Karaçam & Ançel, 2009). Furthermore, physical symptoms of worry such as insomnia and tension may be fused with symptoms of pregnancy which rather makes distinguishing normal pregnancy concerns from high worry concerns difficult for both clinicians and pregnant women

(Goodman et al., 2014; Misri et al., 2015). This highlights the importance of knowing the factors that can cause worry to pregnant women. The going straight to the source and gaining information of the effects Covid-19 on pregnancy from a mental and emotional perspective can shed light on better approaches which can then be used further when looking at the physical and symptomatic effects of Covid-19 and pregnancy. While also providing information on comprehending the impact of Covid-19 has on pregnancy and how women can adapt and turn negative feelings into positive ones. This may lead to improved measures and approaches' being taken when dealing with the impact of Covid-19 has on pregnancy.

Emotional Impact of Pregnancy in Relation to the Cambridge Worry Scale

An aspect and emotion that can assess the emotional impact of pregnancy is worry. It has been described as emotional distress or arousal (Salmon, et al, 1988), mental distress or agitation (Websters, 1987). Often depicted as primarily a thinking activity (Borkovec, Robinson, Pruzinsky, & DePree, 1983; Borkovec & Inz, 1990). A previous study that was carried out in 2017 looking at the level of life stress and worry in New Zealand Maori and non-Maori women in late pregnancy, used the Brief Measure of Worry Scale is an eight item self-report questionnaire that assesses the severity of worry and its impact on function using a four-point response scale (Gladstone et al, 2005). Though this would expose worry, the measurements being assessed are too broad, as this scale is not specifically tailored for a particular sample size. This suggests the Cambridge Worry Scale as a superior scale in relations to having a better ability in presenting the emotional impact of pregnancy on pregnant women. Hence why there are many previous studies that used the CWS to have a better comprehension of the emotional impact of pregnancy, which is also used for the current study. The difference is that those previous studies are based in different countries such as Sweden, Germany, Spain, UK, Iran, and

Turkey. Hence why it is important to have carried this study within an Irish Context while relating the CWS to the Covid-19 pandemic, as it has a major relevance in how women are experiencing pregnancy. Similarity to the current study the German version is testing women in a European area. The study concluded that the major worries included process of giving birth (CWS mean value 2.26) and the possibility that something might be wrong with the baby (1.99), followed by worries about coping with the new baby (1.57), going to hospital 1.29) and the possibility of going into labor too early (1.28). The item with the lowest mean value concerned problems with the law (0.15). While importantly discovering that CWS scores are not simply attributable to anxiety proneness (Green, 2003). Another study that focused on pregnant women worries within the European area was the metropolitan study in Sweden which focused on rural areas with a long distance from the hospital. This study found that multiparous referred to being far more concerned about being admitted to hospital, the economy, and their own health. Which was also according to Alfonso, Mayberry and Sheptak,1993, stating multiparous tend to be more focused on physical symptoms with pregnancy and “social stressors”. While primiparous worried about problems with the law (juridic problems), coping with the newborn baby, relationship with the partner, the partner’s presence during the birth, and that something would be wrong with the baby (Ohman, Grunewald &Waldenstrom, 2003). Similarly, to the study carried out in Germany, the lowest worries were linked in with regarding problems with the law and relationship problems (Peterson, 2009). This is a similar pattern is continuous through the above-mentioned studies that were carried out in Spain, Turkey, and Sweden (Monge,2012), (Gunay, 2015), (Geogsson, 2003). This leads to an expectancy of having the worry about the laws as one of the highest worry concerns of the pregnant women for the current study, as a change in laws is present due to the Covid-19 pandemic. With this change in laws having a major influence on

pregnant women. The spread of Covid-19 put a strain on women's reproductive lives and became a global concern after many countries imposed national lockdowns that interfered with the production of key components of contraceptive methods, delaying the transportation of such methods, or shutting down clinics providing reproductive health services by deeming them nonessential (Riley, 2020). Some medical staff criticized this huge change in laws and described it as 'misinformed', putting at risk labor, the patients and delivery hospital staff (King & Shah, 2020). These laws also connect to the partners presence as an aspect of the CWS that has an emotional effect on pregnant women. This is due to the Covid-19 pandemic causing the change of pregnant women not being able to have a birthing partner or their significant other present, even at appointments. Not being allowed to have the support of loved ones at such a detrimental time, that is already filled with changes is 'unethical' (King & Shah, 2020). Especially since labor and delivery are currently recognized as having the potential to fulfil 'traumatic stressor criteria' (Horsh & Garthus-Niegel, 2020).

The current study

It is evident from previous research that the focus of the research was physical impacts of Covid-19 rather than the emotional aspect of the Covid-19 pandemic. Due to physical impacts being expressed in a tangible and evidently clear manner. It is much easier to spot and assess physical impacts than it would be for emotional impacts. As emotional impacts do not always carry the same visibility as physical impacts would. This shows the importance of the current study as it will compare the results of previous studies that have used the CWS and inspect to see if the matter of the current study being carried out during the Covid-19 pandemic, has a difference in what pregnant women are worried about in an Irish context. While also highlighting a focus on emotional impact, which more neglected than physical impacts.

Leading the general aim of the current study as being to provide a wider comprehension of the factors that are experienced during the Covid-19 pandemic and the level at which pregnant women worry about the specific circumstances and aspects involved. Even though previous studies focused on the levels of worry of pregnant women, the timeframe was not during the Covid-19 pandemic. This segregates the current study from previous studies that used the same scale for the exact same target population, leading to the aim of providing greater sense of understanding about the worries pregnant women have. This will show which situations cause the most worry, resulting in the production of knowing how to tackle the issues. It also exhibits the situations that need to be focused on. To complete these aims the Cambridge Worry Scale will be used and its subscales of the sixteen aspects will be analyzed. Included are the following

1. Socio-medical: Q10 Going to hospital, Q11 Internal examinations, Q12 Giving birth, Q13 Coping with the new baby.
2. Socio-economic: Q1 Housing, Q2 Money problems and Q8 Employment problems.
3. Health: Q6 Own health, Q7 Health of someone else, Q9 Possibility of something wrong with baby and Q16 Possibility of miscarriage.
4. Relationships: Q4 Relationship with partner/husband and Q5 Relationship with friends/family.

These subscales of the CWS help to form the following hypothesis:

Research target one: Explore the relationship between the Covid-19 pandemic and pregnancy in relation to the emotion of worry. Hypothesis for research question one: the relationship between the Covid-19 pandemic and pregnancy in terms of levels of worry will have a negative relationship. With at least half of the sixteen conditions being assessed at a 50% or more major worry rate.

Research target two: Is there a connection between physical symptomatic evidence of Covid-19 and the feelings of worry that occur due to being pregnant during the Covid-19

pandemic? Hypothesis for research question two: In line with previous research, there will be a modest amount of association between physical symptomatic evidence of Covid-19 and the conditions that women felt high levels of worry about, while pregnant during the Covid-19 pandemic.

Research target three: Which other emotions can also be discovered based of the emotion of worry and the level of worry which pregnant women felt about factors that affected them emotionally while pregnant during the Covid-19 pandemic? Hypothesis for research question three: based of the possibility of participants feeling major worry this would conclude that there was an element of anxiety/fear connected with that level of worry due to worry being denoted to as the cognitive aspect of anxiety (Morris, Davis & Hutchings, 1981). In contrast it is likely possible that participants can also feel no worry about certain conditions that are affected by the Covid-19 pandemic, this would determine that calmness was also evoked depending on the situation. These emotions would represent each side of the spectrum.

Research target four: In what numeric order are the sixteen factors and circumstances in with regards to levels of worry? Hypothesis for research question four: the factors that are assessing physical conditions such as health and anything that effects the body will be at a higher level than the rest of the factors that do not directly have a physical impact, when it comes to the order of the sixteen factors in question. Meaning the health subscale of the CWS will hold more relevance in terms of the worries women have while pregnant than the other three CSW subscales

Method

Participants

The sample that was required for this study was previously pregnant women and presently pregnant women who experienced the Covid-19 pandemic during their pregnancy term. There was no control group being tested. This meant that the proportion size for gender was 100% female and 0% male. The exclusion criteria for this study were the male gender. Participants ranged in age from 19 to 42 years with an average age of 28 (SD=7.46). The women also resided in Ireland and came from places such as Cork, Galway, Kildare, and Dublin. Of the women recruited; 4 (20%) were students, 2(10%) were part time employed, 2(10%) were self-employed, 11 (55%) were employed full time and 1 (5%) was unemployed. The factor of having been pregnant or presently pregnant during the timeline of the Covid-19 pandemic, was also an essential aspect of being able to partake in the study. As the participants were recruited through the Facebook support group Mums Tribe Ireland by employing convenience probability sampling. Fifty participants were needed to carry out the survey. The total number of participants that completed the online survey in its entirety was twenty (n=20). It is highly likely that the reasoning for not reaching the target sample size was due to how lenient the approach was and its reliance on the participants willingness to partake. Ethical approval was granted by the National College of Ireland psychology board. All participants were presented with an online information sheet and could only carry on with the study if the participants provided informed consent. Demographic information was collected from participants, as it was a requirement for the study.

Design

The study was conducted using a cross sectional design and data was obtained at a specific point in time. This was utilized to evaluate the emotional impact of pregnancy during the

COVID-19 Pandemic using the CWS. The study was quantitative in nature by applying survey research to collect data. The independent variable being pregnant women, as the study was based on pregnant women's scales of worry, this leads the dependent variable to being the aspects of worry. The dependent variable was measured through the Cambridge Worry Scale (CWS). The factors of the CWS were divided into four subscales 1. Socio-medical, 2. Socio-economic, 3. Health and 4. Relationships.

Materials

The online study also consisted of the Cambridge Worry Scale (Green & Kafetsios, 1993) (adapted) (see appendix I). The CWS is a validated instrument that measures women's concerns during pregnancy. Principle components analysis revealed that revealed a four-factor structure of the concerns women felt during pregnancy. Included were socio medical, own health, socio economic and relational. It was used as the foundation of gaging the level of worry women who had been pregnant during the pandemic or those who were currently pregnant felt. It was adapted by including the time frame of the COVID-19 Pandemic. For example, instead of asking the level of worry about housing while pregnant. The question was modified to asking the level of worry felt while pregnant during the COVID-19 pandemic. The Cambridge Worry Scale (CWS) is a self-administrated questionnaire made up of sixteen items scored using a five-point worry scale (0-5), *0 = no worry and 5 = major worry*. As the CWS uses the emotion of worry at various scales. It helped to open the route of having broader interpretation for other emotions that the participants may have been felt during the pandemic.

Data Analysis

IBM SPSS Statistics 27 was used for analysis. This helped to in terms of obtaining results from the data that was collected. It presented the data in a more accessible and comprehensive

manner. The IBM SPSS Statistics 27 allowed for tests to be carried out such as descriptive and inferential statistics, to gain knowledge of mean, SD, and range information of the variables.

This was used to obtain a better comprehension on the demographical aspect of the study.

Pearson correlation matrix analysis was utilized through IBM SPSS Statistics 27 to analyze the type of relationships present between the subscales of the CWS.

Procedure

For this study, consent was obtained before the participants carried out the online study. As this was an online administrated study through a Google Forms survey. Once the participants clicked and opened the link that was available through a Facebook support group link, it led participants to an informed consent section. Where information on how the study would be carried out was included. There was a yes and no option given to obtain consent (see appendix II). Following that participant would click next to then find the first section which was the demographic segment of the study. this section was essential to characterize participants based on age, education, marital status, income, and ethnicity. Subsequent to the first section was main section of the study that consisted of the Cambridge Worry Scale (adapted). Participants were provided with sixteen different aspects that are relative to life, such as housing, income in relation to Covid-19 pandemic. Participants were asked to rate the level of worry they felt about the different factors on a scale of (0-5). After completion participants clicked onto the next option which brought up the last section, this included debriefing the participants. It had the contact details of the researcher as well as alternatives for support if required by the participants with a detailed description of how the support could be accessed. The total duration of completing the survey was an estimated 5-10 minutes maximum.

This research study was approved by the National College of Ireland's Ethics Committee and completely aligns with The Psychological Society of Ireland Code of Professional Ethics (2010). Including the National College of Ireland Ethical Guidelines and Procedures for Research involving Human Participants. Even though no intent of harm or exposure to harm was anticipated from this study, guidelines were still included within the debriefing form to help any participants that felt any type of negative psychological impact from the study.

Results

Table 1:

Descriptive statistics for all continuous variables and Cambridge Worry Scale Variables (N=20)

Variable	<i>M</i> [95% CI]	<i>SD</i>	Range
Age	28.15[24.66-31.64]	7.46	23
Housing	2.35[1.51-3.19]	1.79	5
MoneyProblems	3.10[2.37-3.83]	1.56	5
Laws	3.70[2.92-4.48]	1.66	5
RelationshipWithHusband/Partner	2.55[1.61-3.49]	2.01	5
RelationshipWithFamily/Friends	2.80[2.00-3.60]	1.70	5
OwnHealth	3.90[3.31-4.49]	1.25	4
HealthOfSomeoneClose	3.85[3.13-4.57]	1.53	5
EmploymentProblems	2.35[1.41-3.29]	2.00	5
PossibilityOfSomethingWrongWithBaby	4.30[3.69-4.93]	1.34	4
GoingToTheHospital	3.90[3.19-4.61]	1.52	4
InternalExaminations	2.95[1.98-3.92]	2.01	5
GivingBirth	4.00[3.30-4.70]	1.49	5
CopingWithNewBaby	3.89[3.20-4.59]	1.45	5
GivingUpWork	2.42[1.34-3.50]	2.24	5
PartnerPresentForBirth	4.20[3.46-4.94]	1.58	5
PossibilityOfMiscarriage	4.10[3.33-4.87]	1.66	5

Note: Descriptive statistics were performed for all Cambridge Worry Scale variables. Generally, the highest worry rated factors which were Possibility of something wrong with baby, Possibility of miscarriage, Partner present for birth and Giving birth. All ranged between a mean of (4.00-4.20). Having the Range=5 except for the Possibility of something being wrong with the baby which had the Range=4. Descriptive statistics were for the variable age revealing an average mean age of (28.15), SD=7.6 and the Range=5.

This also revealed the least concerns that pregnant women had during the Covid-19 pandemic. Generally, these align with the theory that the highest causes of concern are in relation to mainly the health subscale, while also showing an element of concern based on support. Which shows the huge emotional impact of variables that involve health and the ones that involve an element of support.

Table 2:*Frequencies for Demographical variables of pregnant women during the Covid-19 pandemic*

Variable	N	Valid%
Ethnicity		
Black/African American	5	25.0
White	15	75.0
Location		
Cork	1	5.0
Galway	1	5.0
Kildare	1	5.0
Dublin	17	85.0
Occupancy		
Full Time Job	11	55.0
Part Time Job	2	10.0
Self Employed	2	10.0
Student	4	20.0
Unemployed	1	5.0
Marital Statuus		

Married	7	35.0
Single	13	65.0
Education		
Bachelor's degree	7	35.0
Graduate Degree	1	10.0
High School Diploma	3	20.0
Higher Education	7	35.0

Note: Frequencies for categorical variables revealed the demographic group for the group of participants. This focused on Ethnicity, Location, Marital status, and Education and was utilised to gain a better understanding of the background and characteristics of the participants taking part within the study. The content and process of worry will emerge differently according to other variables such as age, marital and employment status, parity, and coping styles (Maskey, 1991).

Table 3*Descriptive statistics and reliability of subscales of the CWS*

	Mean	SD	Skewness	Kurtosis	Min	Max
Sociomedical	14.67	5.57	-1.231	.830	1.00	20
Socioeconomic	7.80	4.03	-.025	-.434	.00	15
Health	16.15	4.83	-2.025	4.045	2.00	20
Relationships	5.35	3.05	-.494	-.588	.00	10

Note: The distribution of the subscales of the worry scale is as follows, for each subscale the distribution is left skewed. The only leptokurtic distribution is subscale is Health as the kurtosis was found to be 4.26. this suggests that the distribution of Health is heavier tailed and produces more outliers than the normal distribution. While platykurtic distribution is present in relation to the Relationships and Socioeconomic subscales.

Inferential Statistics

Table 4:

Pearson product-matrix correlation between CWS subscale variables

Variable	1.	2.	3.	4.
1. Sociomedical		.168	.805**	.235
2. Socioeconomic	.168		.264	.190
3. Health	.805**	.264		.358
4. Relationships	.235	.190	.358	

**Correlation is significant at the 0.001 level (2 tailed)

Note: A Pearson product matrix correlation coefficient was computed to assess the relationship between the four subscale groups of the Cambridge Worry Scale. There was a significant relationship between Sociomedical and Health ($p=.000$). The relationship between Sociomedical and Health is a strong positive relationship $R= .805, n=21$. Further showing that as the scales of worry went up for sociomedical factors of worry the same was happening for health factors of worry. Overall, this was the only significant relationship apart of the variables tested. The rest of the subscales had no correlation between each other.

Discussion

The current study delves into the association between the emotional impact of the Covid-19 pandemic during pregnancy using the Cambridge Worry Scale, with specific regards to factors and situations that occur and the level of worry those factors induce. This was explored specifically within an Irish environment. The current study aimed to provide a better understanding of the worries that pregnant women, by looking at what situations and factors cause the most amount of worry while being pregnant during the Covid-19 pandemic period. Examining the levels of worry for each factor, results in knowing which factors need more focus going forward. There was a focus placed on analyzing the subscales of the CWS, which are Sociomedical, Socioeconomic, Health and Relationships. By doing so, it helps know which various factors within a subscale that need to be focused on. The CWS is a valid and useful tool when it comes to assessing extent and content of worries in specific situations (Green,2003)

In question of the first hypothesis, the results expressed that the correlation between the emotional impact of the Covid-19 pandemic on pregnancy was not negative. This is due to the worry scale level five which was major worry, as not being the most selected scale. However, negativity is still present just not to a full extent or the predicted extent, as the hypothesis was supporting that at least eight of the sixteen factors would have been selected at the highest scale of worry, to show a significantly negative relationship. However, this was not the case as six out of the sixteen factors were selected by most participants as being major worries. This shows that negativity is still present but only at a partial level. Therefore, rejecting the first hypothesis. In support of the second hypothesis, results exhibited through comparison of previous studies, that focused physical symptomatic evidence based were correlated to feelings of worry that were focused on physicality concerns. This hypothesis was true as 70% of participants selected major

worry for miscarriage, 55% major worry selected for worrying about the health of someone else and 55% worry was also selected for worrying about giving birth and 45% major worry about own health. The mean scores of miscarriages were (4.10), health of someone else was (3.85), giving birth (4.00) and own health was (3.90). These results present the three out of four worries apart of the subscale health. Which also gives substance to the factors being worried about with regards to health. This shows there is a significant connection between previous studies that magnified physical symptomatic effects of Covid-19 and the current study which was showing emotional effects of Covid-19 based on scales of worry. The connection is evident due to how worrying about physical aspects was relevant within participants that contributed to the study. Further showing the strong tie that the Covid-19 pandemic had on a physical level, as this even carried on to an emotional impact when physicality is brought about. This demonstrates the unavailability of the physical aspect of the Covid-19 pandemic even when dealing with the emotional impact. The physicality still plays a perceptible role. The third hypothesis was also supported, as other emotions can be obtained based on how participants rated the level of worry that was felt. As major worry, which was level five, the highest scale expressed peak worry. This also expressed that participant may have felt anxiety, fear, panic, doubt, terrified and nervousness. This aligned with general worry measures had demonstrated a strong relationship with the trait anxiety (Davey et al 1992). Further evidence pointed to specific areas of concerns that pregnancy women had, which correlated with anxiety still managing to have a unique predictive value (Glazer, 1980 using the Taylor Manifest Anxiety Scale). Hence why it was essential to consider factors with the current study that were scaled at five for the highest level of worry, as prone to having women feel anxious or even develop anxiety. Even without an anxiety scale being used, it was reasonable to associate the factors that were scaled at a five-worry rate as

anxiety triggering. While the other end of the scale was 0 which expressed no worry shows that participants also felt calm, comfortable, relaxed and at ease about some aspects that were being assessed. The fourth and last hypothesis was not supported, as the results suggested the biggest concern for participants which had a 70% major worry rate was the ability to have partners present with a mean score of (4.20) followed by 55% major worry rate for concerning about someone else's health with a mean of (3.85) and 52.6% major worry rate for coping with the new baby with a (3.89) mean. These findings express worry about conditions that require emotional support rather than physical health concerns. Which is what the hypothesis was suggesting, therefore the hypothesis is rejected. Though the hypothesis is rejected, these results still manage to express the significance of emotional factors. As the factors above show a need for support with regards to having a partner present and coping with the new babe while being able to care and empathize with others in relation to being concerned for someone else's health. Additionally, the above findings align with the theme of loneliness which was discovered in a recent qualitative study on the impact of Covid-19 on pregnancy worry and revealed that 58% of the participants, expressed how Covid-19 impacted their ability to see friends/family and how social distancing, quarantine and self-isolation resulted in loneliness. These women felt a lack of having the freedom to share their pregnancy or even celebrate the parts of their pregnancy journey with those closest to them or gain the support that is needed. This correlates with the current study findings on how the emotional support is required as the factors that women were worried about involved needing a strong support system.

With consideration to that the CWS is a measure that is used to test the worry levels of various culture with regards to pregnancy, this initially would leave little room for any similarities, as depending on environmental factors can impact how one perceives worry.

However, findings from a previous study that used the CWS on pregnant Turkish women in 2015, were found to be partially consistent with the current study. When looking at the top five worries for pregnant Turkish women, aligned with two of the top five worries for the current study, these consisted of giving birth and miscarriage. Which is a part of the socio-medical and health subscale of the CWS. the Turkish study aligns with the current study as it was able to acknowledge how throughout pregnancy women undergo biological and psychological changes and alongside these changes comes the risk of encountering sources of anxiety and stress (Virt et al., 2008; Karaçam and Ançel, 2009). In addition to these changes, there are also childcare adaptations, changes in marital or family life, body image and an effect on the relationship with one's spouse, financial challenges and added responsibilities may affect anxiety (Homer et al., 2002; Okanlı et al., 2003; Dülgerler et al., 2005; Kitapçıoğlu et al., 2008; Şahin and Kılıçarslan, 2010). This illustrates the link between the CWS and anxiety, as many of the mentioned items above are interpreted within the CWS as factors that are a cause of concern for pregnant women. This highlights how worry can perpetuate other mental health conditions such as anxiety, and the necessity of maternity care providers being able to identify factors that generate worry during pregnancy, so that methods to ameliorate these worries and avoid anxiety can be applied. Corresponding with the subscales of the CWS, as each item can be categorized into the CWS subscales such as childcare adaptations is a part of the subscale socio-medical in which it states coping with the new baby. Marital or family life and body image and an effect on the relationship with one's spouse can be classified into the relationship subscale of the CWS which includes relationship with husband/partner. Lastly financial challenges can be placed within the socio-economic subscale which has an inclusion of money problems, employment issues and housing. These are linked in with a financial aspect. Overall showing an interlink and strong

pattern when it comes to the CWS, the subscales of the CWS, changes during pregnancy from a psychological and physical standpoint as well as anxiety stimuli.

On a more in-depth evaluation, it became clear which factors women were most and least worried about while pregnant during the Covid-19 pandemic. The following present in chronological order the most worried about factors to the least worried about factors and scenarios. 1. Partners presence, 2. Miscarriage. 3. Health of someone close, giving birth and Going to the hospital. 4. Coping with the new baby. 5 laws. 6 Own Health. 7. Internal examinations. 8. Giving up work 9. Relationship with partner. 10. Money, Employment problems 11. Relationship with friends/family and Housing. 12. Something wrong with baby. In relation to above factors, the subscales of the CWS were chronologically categorized in the following order: 1. Health, 2. Socio-medical, 3. Relationships and 4. Socio-economic. As stated previously, this exhibits that factors that involve Health as being a top worry for pregnant women. Unlike the order of the subscales, a Greek version of the CWS which was carried out in 2012 and was looking at the identical items, identified the subscale Socio-medical (8.7) as the subscale with the highest scoring worries followed by health and socio-economic (7.4) and lastly relationships (3.0). This points out how at the time before the pandemic pregnant women did not feel so alone as the least worried about subscale was relationships, further showing that it is an important element that plays a major role in the emotional impact of pregnancy as in the current study it is identified as a subscale that is a cause of concern. This is also supported by the study that looked at partner support and pregnancy wantedness and concluded the concern and support of a partner has a positive impact of women wanting to experience pregnancy (Miller., 2000). Further highlighting the importance of relationships during pregnancy. Socio-economic being the second highest worried about subscale for the Greek study and the least worried about subscale for the

current study. Gives a sense of elevation as currently women are not majorly worried about money, housing, or employment, also shows a perception of development that has occurred in socioeconomics at this time point.

Strengths and limitations

When focusing on the emotional impact of the Covid-19 pandemic on pregnancy. The Cambridge worry scale was a reliable measure to use. As various previous studies utilized this form of measure to test different cultures. Its adaptability to the worldwide population of women, shows the high level of relevance, reliability, and adaptability. The duration of its use starting from 1993 to present, also presents as the CWS being reliable in gaining accurate results. This is demonstrated using the scale on 200 pregnant Swedish women in 2003, 344 pregnant women in the federal state of Baden-Wurttemberg, Germany in 2009 and a sample of 132 pregnant women in Athens, Greece. More recent uses of the CWS include 200 pregnant women in Turkey in 2015, Spanish speaking pregnant women in 2012, Iranian pregnant women in 2016 and once again in Sweden with 280 pregnant women being recruited in 2019. There is also a high potential for the CWS to be used clinically as worries have been found to have a connection with neonatal outcome (Ader et al.,2007). Hence why the assessment of worries during pregnancy using a validated instrument would enable the identification of women at risk and the implementation of interventions to improve the psychological health of pregnant women. The nature of the study being an online study ensures that it low cost, therefore making it more manageable to focus on other aspects of the study such as the participants and data, rather than having to worry about funding and applying for it. As well as low cost being beneficial the fact that the study was online eradicated the possible time-consuming aspect of the study, as it was relatively easy to message Facebook groups and recruit participants in that manner. Furthermore, the matter of

demographic information being collected for the study. Ensures that in depth understanding is developed and gives the opportunity to eliminate certain reasoning that may be due to the elements that characterize the women and their backgrounds. Demographics being collected also give the opportunity to identify if the women's background and characteristics play a factor in the scale of worry that is chosen. One limitation of the study was the inability to get an in-depth response, as surveys are very standard method of obtaining information. Specifically for the current study, the other emotions that were revealed had to be considered from the scale that was chosen, rather than those emotions being a direct response. This opens a window for predictability which is not always accurate. Lack of use of an anxiety scale limits the precise accurateness of the study, however as previously mentioned before, previous studies were able to connect the factors of worries with anxiety, as the intellectual work of worry is triggered by an underlying anxiety (Marmor, 1958). This still establishes present connection between worry and anxiety without using any scale of anxiety and just the CWS alone. Furthermore, not reaching the target sample size can also be a limitation. Though in the case of this study all relevant demographics were accounted for by the women that partook in the study. Generally, the strengths of this current study outweigh the limitations.

Conclusion

In conclusion, using the Cambridge Worry Scale to reveal the emotional impact of Covid-19 on pregnancy, was beneficial as it disclosed in chronological order what pregnant women are most worried about and the subscale of the CWS that is a cause for more concern, with relation to women who are pregnant during the Covid-19 pandemic. This proceeds to highlight the areas that require focus and can lead to future pregnant women being more at ease during the Covid-19 pandemic. further bringing about a sense of control and power within pregnant women when it

comes to the factors that cause concern and impact them emotionally during the Covid-19 pandemic.

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Appendices

Appendix I

Cambridge Worry Scale (adapted)

Figure 1:
worry about.

	Not a worry					Major worry
1 Your housing	0	1	2	3	4	5
2 Money problems	0	1	2	3	4	5
3 Problems with the law	0	1	2	3	4	5
4 Your relationship with your husband/partner	0	1	2	3	4	5
5 Your relationship with your family and friends	0	1	2	3	4	5
6 Your own health	0	1	2	3	4	5
7 The health of someone close to you	0	1	2	3	4	5
8 Employment problems	0	1	2	3	4	5
9 The possibility of something being wrong with the baby	0	1	2	3	4	5
10 Going to hospital	0	1	2	3	4	5
11 Internal examinations	0	1	2	3	4	5
12 Giving birth	0	1	2	3	4	5
13 Coping with the new baby	0	1	2	3	4	5
14 Giving up work (if applicable)	0	1	2	3	4	5
15 Whether your partner will be with you for the birth	0	1	2	3	4	5
16 The possibility of miscarriage	0	1	2	3	4	5

If there is anything else that is worrying you, or if you would like to say anything more about any of the above, please use this space to tell us about it:

The following adaptations were made to align with the variables being assessed.

At the beginning of the study, it will state that the following statements are to be considered in terms of the current COVID-19 pandemic period while pregnant or past COVID-19 pandemic period while pregnant, this will appear as presented below:

1 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about your housing

2 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about money problems

3 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt in terms of the law

4 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about your relationship with your partner/husband

5 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about your relationship with your friends/family

6 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about your relationship with your own health

7 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about the health of someone close to you

8 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about employment problems

9 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about the possibility of something being wrong with the baby

10 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about going to the hospital

11 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about internal examinations

12 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about giving birth

13 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about coping with the new baby

14 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about giving up work (if applicable)

15 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about whether your partner will be there with you for the birth

16 While pregnant or currently pregnant during the COVID-19 pandemic rate the scale of worry you feel or felt about the possibility of miscarriage

Appendix II

Information and consent form:

You are being asked to take part in a research study on the impact the COVID-19 pandemic has had on pregnancy.

This study is being carried out to raise more awareness of the emotions that the COVID-19 has brought about when it comes to being or having been pregnant during the pandemic. This will also help in the comprehension of how women felt during this crucial stage of their lives and by acknowledging these feelings, and it will lead to coming up with better methodology for future pregnant women who face pregnancy during the specific COVID-19.

In this study, you will be asked to firstly thoroughly read through the information form provided through an online link posted on Facebook pregnancy support groups, this will give full disclosure of what is expected of you. Participants will then give informed consent if they wish to do so. After informed consent is given, participants will be able to start the study by coming up with an unidentifiable username that will protect their identity. Once that is done, they will proceed onto the first out of three sections of the online study. The first will be basic information about demographics and pregnancy timeline. The second section will be the Cambridge worry Scale (Adapted) where they will rate the extent at which they worried about certain pregnancy situations. This will show what worried them the most and what needs to be looked at.

You may decide to stop being a part of the research study at any time without explanation. You have the right to ask that any data you have supplied to that point be withdrawn/destroyed.

You have the right to omit or refuse to answer or respond to any question that is asked of you (as appropriate, “and without penalty”).

You have the right to have your questions about the procedures answered (unless answering these questions would interfere with the study’s outcome). If you have any questions prior to reading the information sheet, you should ask the researcher before the study begins. The researcher will be available on a chat line if you have any questions and will happily assist.

For further information

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Contact information: x18304696@student.ncirl.ie

Supervisor: Rocio Galan Megias

Contact information: Rocio.Megias@ncirl.ie

Appendix III

Debriefing:

Research title: The impact the COVID-19 pandemic has on pregnancy

The general topic of the COVID-19 pandemic is already a sensitive topic. With respect to the study being carried out, the impact of the COVID-19 pandemic on pregnancy is being looked at.

There is minimal risk that traumatic memories could be triggered due to a negative association to either COVID-19 and or pregnancy.

Therefore, participants should be aware that there will be ongoing support prior, during and after the online study if needed. Contact with the researcher will be available as well as a chat line and helpline service will also be provided in the case that it is required by participants.

For psychological support, participants can go onto www.hse.ie/mentalhealth/mental-health-in-Pregnancy. This will bring participants to an extensive pdf that deals with all options that pregnancy women have if they feel a strain on their mental health. It also acts as a directive with steps that can help specific mental health problems that have been or are being experienced during pregnancy. It reveals all the services that can be accessed such as maternity services, medication etc. and how to go about availing of these services in the most convenient way.

If participants have any queries, comments, or feedback, they can contact the student researcher at x18304696@student.ncirl.ie.

Signature: Ivarna.K

Appendix IV

SPSS output and Data

SPSS DATA FYP.sav [DataSet] - IBM SPSS Statistics Data Editor

File Edit View Data Transform Analyze Graphs Utilities Extensions Window Help

Visible: 24 of 24 Variables

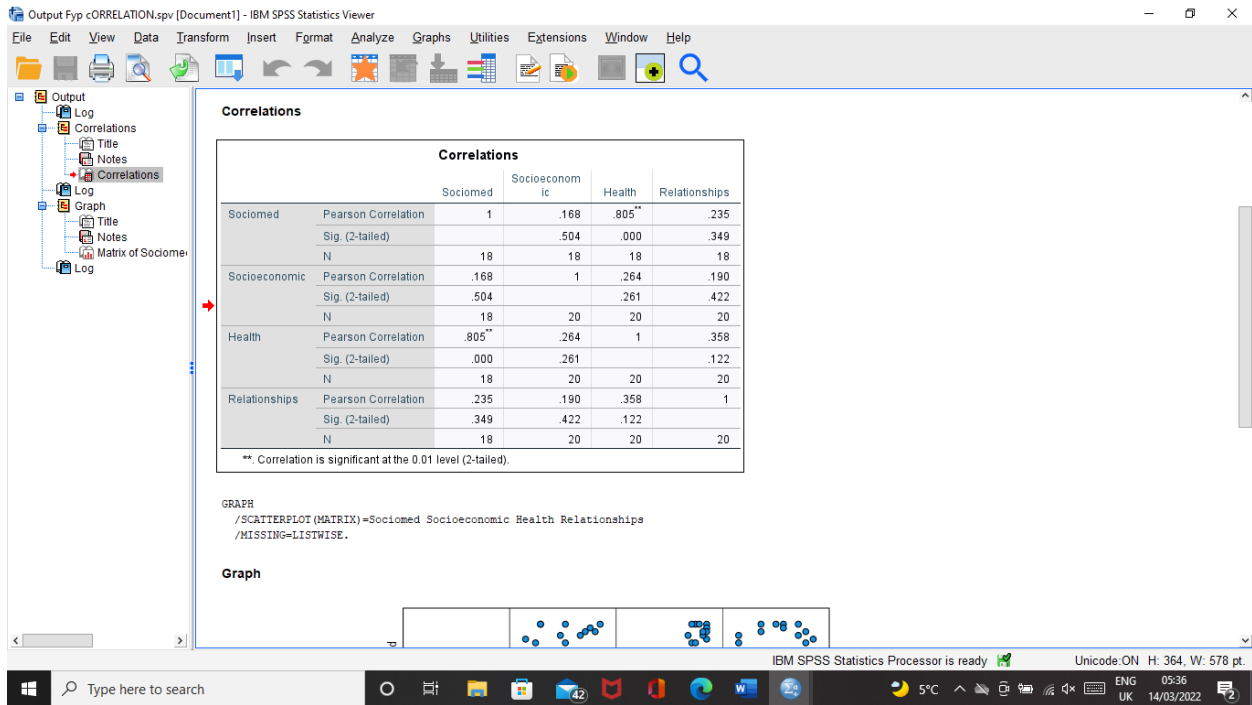
	Gender	Age	Ethnicity	Currentlocation	Education	Typeofemployment	MaritalStatus	WhilepregnantorcurrentlypregnantduringtheCOVID19	WhilepregnantorcurrentlypregnantduringtheCovid19P
1	Female	39	White	Dublin	Graduate degree	Part time employment	Single	4	4
2	Female	31	White	Dublin	Bachlors degree	Full time employment	Married	0 Not a worry	2
3	Female	30	White	Dublin 13	Higher education	Full time employment	Single	2	4
4	Female	31	White	Dublin	Bachlors degree	Full time employment	Single	1	0 No worry
5	Female	30	White	Dublin	Higher education	Part time employment	Married	0 Not a worry	0 No worry
6	Female	42	White	Cork	Graduate degree	Self employed	Married	0 Not a worry	2
7	Female	22	White	Clondalkin	High school diploma	Full time employment	Single	2	3
8	Female	39	White	Co. Laois	Higher education	Full time employment	Married	2	1
9	Female	21	White	Dublin	High school diploma	Full time employment	Single	5 Major worry	3
10	Female	25	White	Kildare	Bachlors degree	Student	Single	5 Major worry	3
11	Female	32	White	Carrigaline	Higher education	Full time employment	Married	3	4
12	Female	37	White	Galway	Higher education	Self employed	Married	0 Not a worry	4
13	Female	20	Black or African American	Dublin	Higher education	Student	Single	3	5 major worry
14	Female	36	Black or African American	Dublin Tallaght	Bachlors degree	Full time employment	Married	0 Not a worry	2
15	Female	21	White	Dublin	High school diploma	Student	Single	5 Major worry	5 major worry
16	Female	23	White	Dublin, Ireland	High school diploma	Unemployed	Single	4	5 major worry
17	Female	21	White	Dublin	Higher education	Full time employment	Single	4	5 major worry
18	Female	19	Black or African American	Dundalk	Bachlors degree	Student	Single	3	4
19	Female	22	Black or African American	Dublin	Bachlors degree	Full time employment	Single	2	3
20	Female	22	Black or African American	Dublin	Bachlors degree	Full time employment	Single	2	3
21									

Data View Variable View

IBM SPSS Statistics Processor is ready Unicode: ON

Type here to search

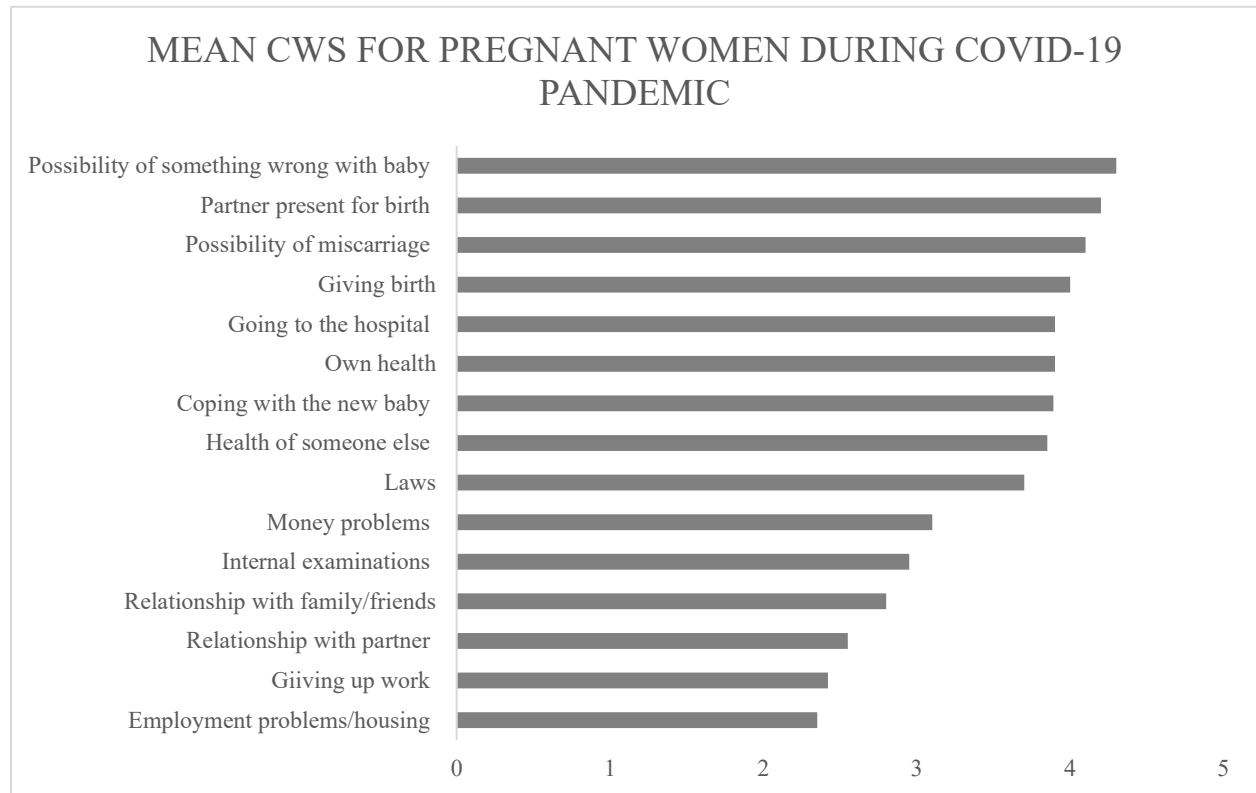
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Appendix V

Figure

Comparative means of all CSW variables, presenting highest to least worries



Note: Represented from top to bottom is the chronological order of the CWS factors that pregnant woman felt most to least worry about while pregnant during the Covid-19 pandemic. The top major worries include Possibility of something wrong, possibility of miscarriage and Giving birth. Which all involve some aspect of worrying about health or the physical aspect of health. This concurs with the fourth hypothesis, as it reveals the health subscales as having factors that cause the most worry, these include Possibility of something being wrong with the baby and Possibility of miscarriage.