Original Article

Depression, Anxiety, and Low Self-Esteem Dynamics in Pregnancy During the SARS-COV2 Pandemic

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Abstract

Pregnancy profoundly affects several aspects of a woman's life in today's society. Mental and physical health have different incidences among pregnant women, and they also have a higher risk for certain psychological conditions. Starting from the group's psychological profiler and clinical psychologist, we chose a set of questioners and analyzed a group of pregnant women enrolled in the pregnancy follow-up program by their family doctor/G.P. Starting from the test-retest method, we analyzed pregnancy from several psychological perspectives (depression, anxiety, and self-esteem) and set out to determine these fluctuations by trimester of pregnancy. We chose the test and retest method to establish the initial level of depression, anxiety, and self-esteem and applied the questionnaires in each trimester, trying to apply them in the midweek (+/- 1 week) for each participant. All tests and questions indicated statistically significant increases of a worrying magnitude. An immediate priority of the scientific community should be collecting high-quality data on the mental health effects of the COVID-19 pandemic across the whole population and especially vulnerable groups such as pregnant women who were presented in this study.

Keywords: Pregnant, Depression, Disorder, Anxiety, Low self-esteem, Test-retest

Introduction

It is already evident that pregnancy has a profound effect on several aspects of a woman's life today and affects, directly and indirectly, the whole world in many aspects like birth rates, economy, medical care, and mental health. Not to mention the changes that are brought about by the pandemic and the backdrop of increased prevalence of mental health issues in the world if we consider various studies regarding depression, low self-esteem, and anxiety to consider a [1-3]. The analyzed target group is a population of pregnant women who were enrolled in the pregnancy follow-up program by their family doctor/GP. As a novelty, this research follows a group of pregnant women and pregnancy during the pandemic (in the last year). It uses the test and retest method to establish the initial depression, anxiety, and self-esteem levels, following their evolution in each trimester of the pregnancy. Relating to the research group's background, we considered that a structured explication from each perspective could offer more insight into the mechanism implicated [4, 5]. The team's background is in interdisciplinary fields such as medicine and psychology (clinical psychology and psychology applied to national security). In the interdisciplinary framework, the pain caused by diseases of the dental-maxillary and osteoarticular system, such as arthritis and gingivitis, potentiates depression and anxiety in pregnant women, requiring maxillofacial surgery therapy, recovery, physical medicine, and balneology.

We chose to address mental problems such as depression, anxiety, and low self-esteem because of their effects [6-13]. As hormonal changes are mostly evident in the first and third trimesters [14-16] and as there are reports relating such

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changes to psychological modulations [17-19], we hypothesized that these psychological alterations will be more evident in these circumstances. (Other authors also found this type of dynamics, in pregnant women, besides the pandemic [19].

Materials and Methods

This is a prospective study.

Instruments – Questionnaires

The questionnaires chosen by the research team were BECK's (depression assessment), Hamilton's (anxiety scale – H.R.S.A.), and the Rosenberg (self-esteem test).

Participants

The research lot was convenient (convenience sampling, opportunity sampling) because the only admission criteria were: informed consent, pregnancy status, and the desire to be monitored and evaluated quarterly by completing a questionnaire. The target for completing the questionnaire was "the week" in the middle of the trimester (+/- one week).

A large number of pregnant women looked forward to this research, and the fact that they had the opportunity to contact a group of mental health specialists made them happy. Thus, the initial number received by the three questionnaires for depression, anxiety, and low self-esteem during the COVID-19 outbreak in Romania was very high, 635.

From the initial group, we excluded people who needed or chose psychological intervention and people who missed the quarterly evaluations. Three hundred seventy-three pregnant women passed these exclusion criteria **(Figure 1)**.

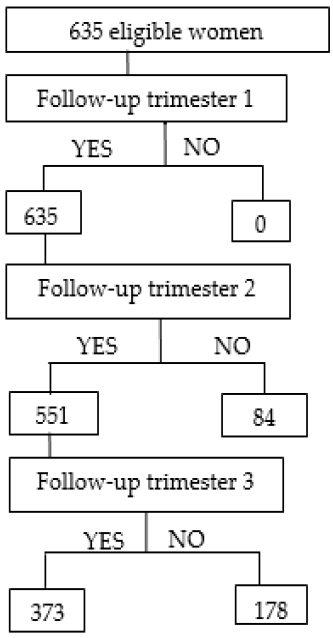

Figure 1. Patients' diagram of the study

Procedure

We chose the test and retest method to establish the initial level of depression, anxiety, and self-esteem (at T1) and applied the questionnaires in each successive trimester, in the midweek (+/- 1 week), for each participant. The implemented procedure was specific for the test and retest method, with three testing moments (T1, T2, T3).

These were as follows: Trimester 1 (1-13 weeks) T1 at 7 weeks +/- one week, Trimester 2 (14-27 weeks) T2 at 21 weeks +/- one week, Trimester 3 (28-42 weeks) T3 at 34 weeks +/- one week. The data collection period was 20 June 2020 - 20 August 2021.

Admission criteria were informed consent, pregnancy status, and the desire to be monitored and evaluated quarterly by completing a questionnaire. The target for completing the questionnaire was "the week" in the middle of the trimester (+/- one week).

Statistical analysis was performed in SPSS 23, with the independent samples t-test, as this test could evaluate the significance of the difference among the three trimesters.

Hypothesis

Main Hypothesis

1. During the SARS-COV-2 pandemic, pregnant women have a higher incidence of depression in the first and third trimester.

Secondary Hypothesis

2. During the SARS-COV-2 pandemic, pregnant women have a higher incidence of anxiety in the first and third trimester.

3. During the SARS-COV2 pandemic, pregnant women have a higher incidence of low self-esteem in the first and third trimester.

4. During the SARS-COV-2 pandemic, pregnant women have a higher incidence of psychological problems in the first and third trimesters.

Results and Discussion

Descriptive Analysis

The general age average of the 373 pregnant women was 29 years. The youngest person was 18 years old, and the oldest was 40 years old.

Of the 373 people, 207 (55.5%) gave birth once, 160 (42.9%) twice, and only 6 (1.6%) gave birth three times.

The majority of people, 252 (32.4%), had their background in urban areas, while the other 121 (67.6%) were in rural areas.

Inferential Analysis of Results

The depression score registered a higher value in the first and third trimesters, with averages of 17.34 and 20.21, respectively **(Table 1)**.

Table 1. Depression averages by trimester

Paired Samples Statistics by trimester		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	1st trimester	17.34	373	7.580	0.392
	2nd trimester	12.86	373	6.037	0.313
Pair 2	1st trimester	17.34	373	7.580	0.392
	3rd trimester	20.21	373	7.648	0.396
Pair 3	2nd trimester	12.86	373	6.037	0.313
	3rd trimester	20.21	373	7.648	0.396

SD = standard deviation, SEM = standard error mean

As seen in **Table 2**, the average score of depression was statistically significantly higher at T3 compared to T2 and T1; the same average score was higher at T1 compared to T2 (0.001 sig in all three cases).

Table 2. T-test for independent pairs of depression by trimester

Paired Samples Test		Paired Differences					t	df	Sig. (2-tailed)
		Mean difference	SD	SEM	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	1st trimester 2nd trimester	4.480	6.214	.322	3.847	5.113	13.923	372	0.000
Pair 2	1st trimester 3rd trimester	-2.866	7.643	.396	-3.644	-2.088	-7.242	372	0.000
Pair 3	2nd trimester 3rd trimester	-7.346	8.242	.427	-8.185	-6.507	-17.213	372	0.000

SD = standard deviation, SEM = standard error mean

The first hypothesis is, therefore, confirmed. The anxiety score registered a higher value in the first and third trimesters, with averages of 16,72 and 16,21, respectively **(Table 3)**.

Table 3. Anxiety averages by trimester

Paired Samples Statistics		Mean	N	SD	SEM
Pair 1	Anxiety 1st trimester	16.72	373	5.560	0.288
	Anxiety 2nd trimester	10.64	373	4.377	0.227
Pair 2	Anxiety 1st trimester	16.72	373	5.560	0.288
	Anxiety 3rd trimester	16.21	373	3.560	0.184
Pair 3	Anxiety 2nd trimester	10.64	373	4.377	0.227
	Anxiety 3rd trimester	16.21	373	3.560	0.184

SD = standard deviation, SEM = standard error mean

As seen in **Table 4**, the average score of anxiety was statistically significantly higher at T3 compared to T2; the same average score was higher at T1 compared to T2 (0.001 sig in both cases).

Table 4. T-test for independent pairs of anxiety by trimester

Paired Samples Test	Paired Differences					t	df	Sig. (2-tailed)
	Mean difference	SD	SEM	95% Confidence Interval of the Difference				
				Lower	Upper			

Pair 1	1st trimester 2nd trimester	6.083	3.705	0.192	5.706	6.460	31.710	372	0.000
Pair 2	1st trimester 3rd trimester	0.509	6.172	0.320	-0.119	1.138	1.594	372	0.112
Pair 3	2nd trimester 3rd trimester	-5.574	4.953	0.256	-6.078	-5.069	-21.732	372	0.000

SD = standard deviation, SEM = standard error mean

The second hypothesis is, therefore, confirmed.

The self-esteem score registered a lower value in the first and third trimesters, with averages of 24,51 and 1 7,76, respectively **(Table 5)**.

Table 5. Self-esteem averages by trimester

Paired Samples Statistics		Mean	N	SD	SEM
Pair 1	1st trimester	24.51	373	5.345	0.277
	2nd trimester	32.91	373	4.924	0.255
Pair 2	1st trimester	24.51	373	5.345	0.277
	3rd trimester	17.76	373	5.949	0.308
Pair 3	2nd trimester	32.91	373	4.924	0.255
	3rd trimester	17.76	373	5.949	0.308

SD = standard deviation, SEM = standard error mean

As seen in **Table 6**, the average score of self-esteem was statistically significantly lower at T3 compared to T2 and T1; the same average score was lower at T1 compared to T2 (0.001 sig in all three cases).

Table 6. T-test for independent pairs of self-esteem by trimester

Paired Samples Test		Paired Differences					t	df	Sig. (2-tailed)
		Mean difference	SD	SEM	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	1st trimester 2nd trimester	-8.399	4.841	0.251	-8.892	-7.907	-33.511	372	0.000
Pair 2	1st trimester 3rd trimester	6.743	6.801	0.352	6.050	7.435	19.147	372	0.000
Pair 3	2nd trimester 3rd trimester	15.142	7.490	0.388	14.379	15.905	39.044	372	0.000

SD = standard deviation, SEM = standard error mean

"Mood swings" are reported, during pregnancy, mostly in the first and third trimesters [20, 21]. This might be explained as most hormonal and anatomical changes occur in the first and third trimesters [14-16]. The psychological effect of a real "hormonal flood" during pregnancy was previously addressed [17-19].

This data could be related to our results, reporting higher depression and anxiety as well as lower self-esteem during these first and third trimesters.

We present a particular analysis of assessing depression, anxiety, and low self-esteem during the COVID-19 pandemic – a stressor in itself. We think that the combination of the previously mentioned concomitant assessment offered an in-depth evaluation of depression and its principal clinical/psychological forms.

We were unable to find studies reporting the concomitant use of the three tests included in our study design (BECK's depression assessment, Hamilton anxiety scale – H.R.S.A., and the Rosenberg self-esteem test. We chose these tools because they are scientifically validated and have solid articles and literature supporting their validity and fidelity [22-34]. We found neither articles on testing low self-esteem in all three trimesters, in pregnant women during a pandemic, nor ones reporting the concomitant assessment of depression, anxiety, and low self-esteem, in the same conditions. Our data, therefore, might offer a more comprehensive picture of depression and its dynamics in pregnancy during the pandemic – and particularly, of SARS-COV2 [12, 35].

We used particular testing times – the middle of each trimester, as we wanted to identify the particular effect of each of these. More, an earlier test, in the first trimester, and a later one, in the third trimester could have been associate with a small number of participants and with a higher psychological change [15, 36-38].

An enticing further analysis would be whether these three disorders decrease globally or individually after the stabilization of the current pandemic situation.

Limitations

The implemented procedure was the test and retest method. Thus, the possibility of bias was present as we relied on the honesty (truth bias) of the respondents.

CONCLUSION

During the SARS-COV2 pandemic, pregnant women expressed higher levels of depression during the first and third trimesters. Additionally, they manifest increased levels of anxiety and low self-esteem during these periods. Thus, we can conclude that, during the SARS-COV2 pandemic, pregnant women experienced a higher incidence of psychological problems in the first and third trimesters, encompassing depression, anxiety, and self-esteem issues.

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