
▪ *Basic Research*

Mental Well-Being and its Associated Factors Among Pregnant Women in El-Beheira Governorate

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Abstract

Background: Pregnancy has been identified as a very precise and complex period in a woman's life that is accompanied by significant biological, physiological, psychological, and social changes that can negatively affect a woman's mental well-being. The harm caused by poor mental health during pregnancy is tremendous and can lead women to commit suicide. Despite being a crucial aspect of reproductive health, mental health is frequently overlooked and factors that lead to greater levels of mental well-being during pregnancy have not been the focus of many researchers. Therefore, maternal mental health requires a clear definition for each of the related factors associated with mental well-being to assist healthcare providers in developing effective preventive care programs. **Aim:** this study was conducted to assess mental well-being and its associated factors among pregnant women in El-Beheira governorate. **Research design:** A descriptive cross-sectional design was used. **Settings:** This study was conducted at 16 Maternal and Child Healthcare (MCH) centers and family health centers/ units affiliated to the ministry of health and population. **Subjects:** the subjects were 800 pregnant women attending to receive care in the selected centers/ units. **tools: tool I:** pregnant women's personal and health profile structured interview sheet and **tool II:** Warwick-Edinburgh Mental Well-being Scale (WEMWBS). **Results:** slightly more than half (51.0 %) of the pregnant women obtained an average level of mental well-being. While, nearly one third (32.1%) of them were having either low or below average mental well-being with a mean score of 44.35 ± 14.22 . **Conclusion:** residence, type of family, number of family members, previous abortion, presence of minor discomfort, husband and family support, and exposure to domestic violence, are the strongest factors associated with mental well-being during pregnancy period. **Recommendations:** Expand the focus of adequate prenatal care beyond obstetric considerations to include numerous mental and psychosocial aspects. Implement a standardized maternal mental health screening strategy to ensure continuity and consistency in mental health screening practices during pregnancy.

Keywords: mental well-being, maternal mental health, pregnant women, maternal mental well-being, maternal mental health, antenatal mental health.

Introduction

Pregnancy has been identified as a very precise and complex period in a woman's life that is accompanied by significant biological, physiological, psychological, and social changes (). During pregnancy, visible changes occur in the body's appearance, as well as in femininity, affections, and sexuality, whereas the woman's position and role are gaining new qualities (**Bjelica et al., 2018**). In addition, pregnancy causes a number of specific apprehensions concerning the course and outcome, which makes the woman particularly vulnerable and requires adequate treatment, depending on the adaptive capacities of personality. Furthermore, from a psychosocial aspect, pregnancy could be considered a specific highly emotional state, which may be a potent stressor. Accordingly, pregnancy can affect women mental well-being (**Rafferty et al., 2019**).

Well-being is a widely-used concept in different disciplines, particularly in health-related disciplines. The World Health Organization (WHO) considers well-being as a keyword in the definition of health, with physical, spiritual, and social dimensions. It also uses well-being to define mental health as: "a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community". WHO considers mental health as a basic human right and essential element of health and well-being that supports individuals and collective abilities to make decisions, build relationships and shape the world and crucial to personal, community and socio-economic development (**WHO, 2022**).

Mental health problems during pregnancy is one of the major public health problem. According to the World Health Organization (**WHO, 2019**), 10% of pregnant women in the world and 15.6% of pregnant women in the developing countries are suffering from mental disorders. Moreover, several studies have reported that the pregnancy is a time characterized by increased risk for mental health disorders and emotional problems such as depression, anxiety, and trauma-related disorders (**Dennis et al, 2017; Jha et al., 2021**).

The harm caused by poor mental health during pregnancy is tremendous. Pregnant women with mental health problems are less likely to seek antenatal care, may have lower weight gain during pregnancy, and more likely to suffer from gestational hypertension which increases the chance of complicated delivery. In severe cases mothers cannot function properly and can commit suicide (**Pei et al., 2023**). Moreover, researches proved that, when a pregnant woman is exposed to mental disorders, the development of the fetus can be affected, they could suffer from impaired neurobiological development, low birth weight, prematurity, infantile autism, and neonatal mortality. When untreated, mental disorders during pregnancy may continue in the postnatal period, resulting in decreased emotional involvement and hostility towards the newborn and affecting the child's behavioral, emotional, and cognitive development, which in turn can lead to adverse long-term life chances. (**Pei et al., 2023; Jha et al., 2021; WHO, 2019**). Accordingly, maternal mental health requires a clear definition for each of the related factors associated with mental well-

being to assist healthcare providers to develop effective preventive care programs (**Alipour et al., 2018**).

A community health nurse is a part of the prenatal care team, whose role is to promote the health of pregnant women. This role in mental health during pregnancy is summarised in the psychosocial assessment of all pregnant women. Offer pregnant women information about normal emotional adjustment in pregnancy and where to receive additional supports; provide contact information for crisis response services; support self-assessment and self-identification of emotional adjustment; and communicate or collaborate with primary health care providers and community resources to assist the woman in accessing support to achieve a healthy emotional adjustment to pregnancy. (**Bedaso et al., 2021**).

Aim of the study:

This study was conducted to assess mental well-being and its associated factors among pregnant women in El-Beheira governorate.

Research Questions:

- What are the levels of mental well-being among pregnant women in El-Beheira governorate?
- What are the factors associated with mental well-being among pregnant women in El-Beheira governorate?

Materials and methods:

Research design:

- A descriptive cross-sectional design was adopted to conduct this study.

Setting:

- The study was conducted at 16 MCH centers and family health centers/ units affiliated to ministry of health and population in El-Beheira governorate at eight health directorates namely Damanhour, Abu Homos, Kafr-Eldawar, Itay El-Baroud, El-Mahmoudia, Kom-Hamada, El-Rahmaniya, and Rashid.

Subjects:

- The subjects were pregnant women attending to receive care in the selected MCH centers and family health centers/ units in El-Beheira governorate.

Sample size

- The sample size was estimated using Epi info 7 statistical program using the following parameters, total population of 91072 pregnant women attending to receive care in the primary healthcare settings in El-Beheira governorate at 2021, 50% expected frequency, 95% confidence interval with 5% maximum error, and
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design effect equal 2. This data resulted in a minimum required sample size of 766 pregnant women. The sample size was raised to include 800 pregnant women.

Sampling technique

- A multistage sampling technique was used to select the required sample. Eight directorates out of the sixteen health directorates (which constitute 50%) in El-Beheira governorate were randomly selected by lottery. From each health directorate, one urban family health center/ MCH, and one rural family health center/ unit were selected randomly by lottery. Finally, by using an equal allocation method, 50 pregnant women were selected conveniently from each unit or center.

Tools for data collection

Tool I: Pregnant women's personal and health profile structured interview sheet:

this tool was developed by the researcher and included two parts:

- **Part I:** Pregnant women personal data: age, education, working status, income, age of marriage, length of marriage, residence, type of family, number of family members, perceived level of husband and family support, exposure to domestic violence.
- **Part II:** Pregnant women health related data: medical history (presence of chronic diseases, history of mental health problems), obstetrical history (gravidity, previous abortion, number of children, gender of children, last pregnancy experiences, last delivery experiences, previous post-partum problems), and current pregnancy related data (duration of pregnancy, conception occurrence method, planning for current pregnancy, and presence of minor discomfort).

Tool II: Warwick-Edinburgh Mental Well-being Scale (WEMWBS): this tool was developed by **Tennant R et al. (2007)**. It consisted of 14 items covering positive affect (feelings of optimism, cheerfulness, relaxation), satisfying interpersonal relationships and positive functioning (energy, clear thinking, self-acceptance, personal development, competence and autonomy) over the past two weeks. Items scored using a Likert scale ranging from 1-5 (1=none of the time, 2=rarely, 3=some of the time, 4=Often, 5= all of the time). The overall score ranged between 14 and 70, where higher scores corresponded to higher levels of well-being. The total scores were categorized into four levels according to the scoring system adopted from a study conducted by **Agarwal (2020)**.

- Low Well-being state = 14-32
- Below average Well-being state = 32 - 40
- Average Well-being state = 40-59
- Above average Well-being state = 59 -70

Methods

- An official letter from the faculty of nursing, Damanhour university was directed to the representative of the Ministry of Health and Population in the El-Beheira

governorate to inform him about the study objectives and obtain his permission to conduct this study in the selected settings.

- Official letters from the representative of the Ministry of Health and Population were directed to the directors of the selected settings to facilitate conducting the research.
- Meetings were held with the directors of the selected settings to explain the aim of the study and set the date and time of data collection to gain their approval and cooperation during data collection.
- Tool I was developed by the researcher after reviewing of the recent literature and tool II was adopted and translated into Arabic by the researcher.
- Content validity of the study tool was tested by a Jury committee consisting of a group of three experts in the fields of community health nursing and psychiatric nursing and their opinions and suggestions were taken into consideration.
- Reliability of the study tool II after translation was done by using Cronbach's Alpha test ($\alpha = 0.969$).
- Pilot study was done on a random sample of 80 pregnant women (10% of total sample), who were not included in the study sample.
- Data was collected individually from each pregnant woman by interviewing in waiting area at the selected settings at suitable time after a brief explanation of the purpose and the nature of the research. The pregnant women were asked for an oral or written consent for participation in the study. The structured interview took time approximately from 25-45 minutes for each pregnant woman.
- Data was collected over a period of 6 months (from June 2022 to November 2022).

Statistical analysis:

- Data was entered and analyzed using the Statistical Package of Social Science (SPSS) version 20.
- Variables were analyzed using the descriptive statistics which included: percentages, frequencies, range (minimum and maximum), arithmetic mean, and Standard Deviation (SD).
- Chi square test was used for testing the relationship between categorical variables. The level of significance selected for this study was $p \leq 0.05$.
- Multiple Linear Regression Model and ANOVA model were used to indicate the association between different factors and mental well-being, the model was statistically significant ($p \leq 0.05$).

Ethical considerations

- Permission was obtained from ethical committee in the faculty of nursing Damanhour University.
- Permission was obtained from the ministry of health representative and from the directors of the selected settings.

- Directors of selected settings were informed about the date and the time of data collection.
- Informed consent was obtained from all participant included in the study after explanation of the aim of the study and assured them that collected data will be used only for the study purpose, and their participation in the study is voluntary and they could withdraw at any time.
- Dealing with the study subjects respectively regardless of their age, sex, religion and their socioeconomic status.
- Confidentiality and privacy of pregnant women's response was maintained.
- Anonymity was guaranteed by using code numbers instead of names.

Results

Table (1) shows that all participants were in the age between 17 and 41 years old; less than half (45.8%) of them had university education; less than two thirds (62.8%) of them were not working; 66.2% of them were married at an age above 20 years; meanwhile, more than two thirds (69.8%) of them have been married for less than 5 years. More than half of the studied sample resided in rural areas (53.2%) and belonged to nuclear families (53.9%). Whereas more than half (57.6%) of them have fewer than five family members. Less than two thirds (62.5%) of them reported feeling their husbands and families support them to a "fair" level. Moreover, the majority of them (86.3%) stated that they were not exposed to domestic violence.

Table (2) clarifies that the percentage of pregnant women who had a history of chronic diseases was 11.1%. Slightly fewer than one tenth (9.2%) of them reported having mental health problems in the past. In terms of obstetrical history, it was found that 53.0% of pregnant women were primigravida. However, pregnant women who have already given birth more than once (N = 376) are also listed along with their obstetric history. The majority (92.0%) of them had never had an abortion; more than two-thirds (67.5%) of them had one child; and nearly one-third (33.5%) of them had only girls.

Moreover, two-thirds (69.7%) of the multiparous women had good previous pregnancy experiences, while 56.6% of these women reported good prior delivery experiences. Less than two-thirds (63.8%) of them had never had postpartum problems before. In relation to their current pregnancy, the table indicates that more than half (51.4%) of the pregnant women were in the second trimester of their pregnancies. However, the majority (81.2%) of women's pregnancies occurred naturally. Meanwhile, 16.2% of the pregnant women hadn't made any plans for their current pregnancy. Yet, 60.3% of them said they sometimes experienced minor discomfort.

Table (3) demonstrates that more than half (51.0 %) of the pregnant women obtained an average level of mental well-being. It was ranged from 18 to 68 score with a mean of 44.35±14.22.

Table (4) highlights that most pregnant women of all age groups had an average level of mental well-being. However, 19.8%, 16.3% of women in the age of less than 20 years had either low or below average level of mental wellbeing. While, more than one fifth (21.9%) of women in the age range between 25 and 30 years had an above average level of mental well-being. These differences were statistically significant ($X^2= 43.095$, $P= 0.000$). Yet, there was a statistically significant relationship between pregnant women's education and their level of mental well-being ($X^2 = 301.141$, $P = 0.000$), as the majority (83.8%) of the pregnant women who had post-university education had an above-average level of mental well-being. On the contrary, those who were illiterate (43.9%) had a low level of mental well-being.

As for the **mother's working status** and **family income adequacy**, 21.5%, 49.3% of the pregnant women who were not working and reported that their families' income was not adequate respectively had low level of mental well-being. A statistically significant relationship was observed between pregnant women's working status, family income adequacy and their level of mental well-being ($X^2 = 51.033$, $P = 0.000$, $X^2 = 224.566$, $P = 0.000$, respectively). Concerning the **age of marriage**, the average level of mental well-being was present in more than half (54.7%) of the pregnant women who married when they were older than 20 years. ($X^2= 54.357$, $P = 0.000$). Regarding the **length of marriage**, 34.8%, 13.0% of the pregnant women who have been married for 10 years or more had low or below average level of mental well-being respectively ($X^2= 48.417$, $P = 0.000$).

Relating to **place of residence** and **type of family**, less than two thirds (58.3%, 60.3%) of the pregnant women who were living in urban areas and lived in nuclear families had an average level of mental well-being. A statistically significant relation was observed between **place of residence**, **type of family**, and pregnant women's level of mental well-being ($X^2= 51.920$, $P= 0.000$, $X^2= 73.534$, $P = 0.000$, respectively). Additionally, with respect to **the number of family members**, more than half (58.6%) of the pregnant women with fewer than five family members had an average level of mental well-being. A statistically significant relation was observed. ($X^2= 95.572$, $P = 0.000$). The majority of pregnant women (57.8%, 17.0%, respectively) with supportive husbands and families had mental health that was average or above average. ($X^2= 42.438$, $P = 0.003$). However, the majority (89.3%) of pregnant women who were always exposed to domestic violence had a low level of mental well-being. A statistically significant relation was observed between exposure to domestic violence and pregnant women's level of mental well-being ($X^2= 213.834$, $P = 0.000$).

Table (5) displays the relationship between pregnant women's level of mental well-being and their health related data. A low level of mental well-being was observed in nearly one-fifth (19.1%) of pregnant women with chronic diseases. While nearly the same percentage (18.8%) had an above-average level of mental wellbeing was observed among pregnant women without chronic diseases. Fortunately, average and above-average levels of mental well-being were present in more than two-thirds (50.0%, 18.5%) of the

subjects who did not have mental health problems. A statistically significant relation was observed ($X^2= 18.423$, $P = 0.000$, $X^2= 51.625$, $P = 0.000$, respectively). Furthermore, the average level of mental well-being was present in 57.3% of primigravida pregnant women. In contrast, 40.0% of pregnant women who had an abortion before were having poor mental health. There was a significant relation observed between the number of pregnancies and experience of abortion and level of mental well-being ($X^2= 90.551$, $P = 0.000$, $X^2= 33.650$, $P = 0.000$, respectively).

A greater level of mental well-being was linked with having more children ($X^2 = 50.543$, $P = 0.003$); 55.8% of women had two children, and 38.9% had three or more had an average level of mental wellbeing. Moreover, the majority (78.6%) of pregnant women who have boys only had an average level of mental well-being. A statistically significant relation was observed between the **gender of children** and pregnant women's level of mental well-being ($X^2= 17.287$, $P = 0.031$). Pregnant women (47.1% and 34.4%) who reported having a bad experience with their most recent pregnancy and last delivery, respectively, were more likely to have a low level of mental well-being ($X^2 = 128.809$, $P = 0.000$, $X^2 = 75.087$, $P = 0.000$). Furthermore, a statistically significant relation was observed between pregnant women's reporting of previous postpartum problems and their level of mental well-being ($X^2= 32.789$, $P = 0.000$).

Current pregnancy related data shows that more than half (53.7%, 53.1%) of pregnant women who were in the third trimester of pregnancy and got pregnant naturally had an average level of mental well-being. There was no statistically significant relation observed between the **trimester of pregnancy, the conception occurrence method** and pregnant women's level of mental well-being. ($X^2= 26.153$, $P = 0.068$, and $X^2= 17.011$, $P = 0.092$, respectively). Concerning **planning for current pregnancy**, the table indicates that nearly half (28.5% and 16.9%) of the women who didn't plan for their pregnancy had low and below average level of mental well-being. There was a statistically significant relation between planning for pregnancy and pregnant women's level of mental well-being ($X^2=16.475$, $P = 0.001$). There was a statistically significant relationship observed between the **presence of minor discomfort** and pregnant women's level of mental well-being ($X^2= 45.065$, $P = 0.000$) as more than half (59.3%) of them who hadn't experienced minor discomfort during pregnancy had an average level of mental well-being.

Table (6) illustrates that the regression model is statistically significant ($F=57.931$, $p=.000$). Age ($p=.016$), education ($p=.010$), residence ($p=.000$), working status ($p=.021$), type of family ($p=.000$), age of marriage ($p=.003$), number of family members ($p=.000$), presence of chronic diseases ($p=.048$), history of mental problems ($p=.028$), gravidity ($p=.003$), previous abortion ($p=.000$), number of live children ($p=.023$), presence of minor discomfort ($p=.000$), husband and family support ($p=.000$) and exposure to domestic violence ($p=.000$) are significant factors associated with mental wellbeing among pregnant women. The value of R^2 shows that 78.4% of the participant's mental wellbeing can be predicted through the regression model of the related variables.

Table (1): Distribution of the studied pregnant women according to their personal data.

Personal data	Total (N= 800)	
	No.	%
Age (years)		
- <20	86	10.8
- 20-	343	42.9
- 25-	279	34.8
- 30 or more	92	11.5
Min -Max	17.0 - 41.0	Mean \pm SD 24.56 \pm 4.025
Education		
- Illiterate	57	7.1
- Basic education	94	11.8
- Secondary education	246	30.7
- University education	366	45.8
- Post university education	37	4.6
Working status		
- Not working	502	62.8
- Working	298	37.2
Income adequacy		
- Not Adequate	71	8.9
- Adequate	556	69.5
- Adequate & exceed	173	21.6
Age of marriage (years)		
- <18	15	1.9
- 18-	255	31.9
- \geq 20	530	66.2
Min -Max	16.0 – 29.2	Mean \pm SD 22.12 \pm 3.32
Length of marriage (years)		
- <5	558	69.8
- 5-	196	24.4
- 10 or more	46	5.75
Min -Max	1.0 - 20.0	Mean \pm SD 3.49 \pm 3.73
Residence		
- Rural	426	53.2
- Urban	374	46.8
Type of family		
- Nuclear	431	53.9
- Extended	369	46.1
Number of family members		
- < 5	461	57.6
- \geq 5	339	42.4
Husband and family support		
- Good	294	36.7
- Fair	500	62.5
- Poor	6	0.8
Exposure to domestic violence		
- No	690	86.3
- Sometimes	92	11.5
- Always	18	2.2

Table (2): Distribution of the studied pregnant women according to their health related data.

Health related data	Total (N= 800)	
	No.	%
Medical history		
Presence of chronic diseases	N= 800	
- No	711	88.9
- Yes	89	11.1
History of mental problems	N= 800	
- No	726	90.8
- Yes	74	9.2
Obstetrical history		
Gravidity		
- Primigravida	424	53.0
- Multigravida	376	47.0
Previous abortion	N= 376	
- No	346	92.0
- Yes	30	8.0
Number of live children	N= 376	
- One	254	67.5
- Two	86	22.9
- Three or more	36	9.6
Gender of children	N= 376	
- Girls only	126	33.5
- Boys only	212	56.4
- Girls and boys	38	10.1
Last pregnancy experiences	N= 376	
- Very bad	27	7.2
- Bad	87	23.1
- Good	262	69.7
Last delivery experiences	N= 376	
- Very bad	41	10.9
- Bad	122	32.5
- Good	213	56.6
Previous post-partum problems	N= 376	
- No	240	63.8
- Yes	136	36.2
Current pregnancy related data		
Trimesters	N= 800	
- First trimester	212	26.5
- Second trimester	411	51.4
- Third trimester	177	22.1
Conception occurrence method	N= 800	
- Natural	651	81.2
- After ovarian stimulation	118	14.8
- In vitro fertilization	32	4.0
Planning for current pregnancy	N= 800	
- No	130	16.2
- Yes	670	83.8
Presence of minor discomfort	N= 800	
- No	91	11.4
- Sometimes	482	60.3
- Always	227	28.4

Table (3): Distribution of the studied pregnant women according to their level of mental well-being.

Level of mental well-being	No. N=800	%
- Low Well-being state	127	15.9
- Below average Well-being state	130	16.2
- Average Well-being state	408	51.0
- Above average Well-being state	135	16.9
Max- Min	18 - 68	
Mean ± SD	44.35±14.22	

Table (4): Relationship between pregnant women's level of mental well-being and their personal data.

Personal data	Level of Mental Well-being								Test of Significance
	Low		Below Average		Average		Above Average		
	No.	%	No.	%	No.	%	No.	%	
Age (years)									
- <20	17	19.8	14	16.3	52	60.4	3	3.4	X ² = 43.095 P= 0.000*
- 20-	57	16.6	58	16.9	175	51.0	53	15.5	
- 25-	39	14.0	48	17.2	131	47.0	61	21.9	
- 30 or more	14	15.2	10	10.9	50	54.3	18	19.6	
Education									
- Illiterate	25	43.9	12	21.1	18	31.6	2	3.5	X ² = 301.141 P=0.000*
- Basic education	36	38.3	34	36.2	18	19.1	6	6.4	
- Secondary education	48	19.5	22	8.9	156	63.4	20	8.1	
- University education	18	4.9	62	16.9	210	57.4	76	20.8	
- Post university	0	0.0	0	0.0	6	16.2	31	83.8	
Working status									
- Not working	108	21.5	76	15.1	253	50.4	65	12.9	X ² = 51.033 P=0.000*
- Working	19	6.4	54	18.1	155	52.0	70	23.5	
Income adequacy									
- Not adequate	35	49.3	7	9.9	22	31.0	7	9.9	X ² = 224.566 P=0.00*
- Adequate	88	15.8	122	21.9	294	52.9	52	9.5	
- Adequate & exceed	4	2.3	1	0.6	92	53.2	76	43.9	
Age of marriage									
- <18	4	26.7	4	26.7	5	33.3	2	13.3	X ² = 157.357 P=0.000*
- 18-	79	31.0	50	19.6	113	44.3	13	5.1	
- ≥20	44	8.3	76	14.3	290	54.7	120	22.6	
Length of marriage (years)									
- <5	70	12.5	82	14.7	295	52.9	111	19.9	X ² =48.417 P=0.00*
- 5-	41	20.9	42	21.4	90	45.9	23	11.7	
- 10 or more	16	34.8	6	13.0	23	50.0	1	2.2	
Residence									
- Rural	92	21.6	84	19.7	190	44.6	60	14.1	X ² = 51.920 P=0.000*
- Urban	35	9.4	46	12.3	218	58.3	75	20.1	
Type of family									
- Nuclear	28	6.5	56	13.0	260	60.3	87	20.2	X ² = 73.534 P=0.000*
- Extended	99	26.8	74	20.1	148	40.1	48	13.0	
Number of family members									
- < 5	32	6.9	60	13.0	270	58.6	99	21.5	X ² = 95.572 P=0.000*
- ≥ 5	95	28.0	70	20.6	138	40.7	36	10.6	
Husband and family support									
- Good	60	20.4	14	4.8	170	57.8	50	17.0	X ² =42.438 P=0.003*
- Fair	64	12.8	113	22.6	238	47.6	85	17.0	
- Poor	3	50.0	3	50.0	0	0.0	0	0.0	
Exposure to any form of domestic violence									
- No	30	4.4	110	16.3	400	59.3	135	20.0	X ² =213.834 P=0.000*
- Sometimes	72	74.2	18	18.6	7	7.2	0	0.0	
- Always	25	89.3	2	7.1	1	3.6	0	0.0	

X² Chi Square Test * Statistically significant at p ≤ 0.05

Table (5): Relationship between pregnant women's level of mental well-being and their health related data.

Health related data	Levels of Mental Well-being								Test of Significance
	Low		Below Average		Average		Above Average		
	No.	%	No.	%	No.	%	No.	%	
Presence of chronic diseases									
- No	110	15.5	112	15.8	355	49.9	134	18.8	X ² = 18.423 P= 0.000*
- Yes	17	19.1	18	20.2	53	59.6	1	1.1	
History of mental problems									
- No	117	16.1	112	15.4	363	50.0	134	18.5	X ² = 51.625 P=0.000*
- Yes	10	13.5	18	24.3	45	60.8	1	1.4	
Gravidity									
- Primigravida	45	10.6	63	14.9	243	57.3	73	17.2	X ² = 90.551 P=0.000*
- Multigravida	82	21.8	67	17.8	165	43.9	62	16.5	
Previous abortion N= 80 N= 66 N= 171 N= 59									
- No	68	19.6	56	16.2	163	47.1	59	17.1	X ² = 33.650 P=0.000*
- Yes	12	40.0	10	33.3	8	26.7	0	0.0	
Number of children N= 80 N= 66 N= 171 N= 59									
- One	66	26.0	43	16.9	109	42.9	36	14.2	X ² =50.543 P=0.003*
- Two	12	14.0	13	15.1	48	55.8	13	15.1	
- Three or more	2	5.6	10	27.8	14	38.9	10	27.8	
Gender of children N= 80 N= 66 N= 171 N= 59									
- Boys only	6	4.8	4	4.8	99	78.6	15	11.9	X ² = 17.287 P=0.031*
- Girls only	68	32.1	35	21.2	64	30.2	35	16.5	
- Girls and boys	6	15.8	15	39.5	8	21.1	9	23.7	
Last pregnancy experiences N= 80 N= 66 N= 171 N= 59									
- Very bad	1	3.7	4	14.8	20	74.1	2	7.4	X ² = 128.809 P=0.000*
- Bad	41	47.1	20	23.0	25	28.7	1	1.1	
- Good	38	14.5	42	16.0	126	48.1	56	21.4	
Last delivery experiences N= 80 N= 66 N= 171 N= 59									
- Very bad	4	9.8	8	19.5	22	53.7	7	7.1	X ² = 75.087 P=0.000*
- Bad	42	34.4	28	23.0	44	36.1	8	6.6	
- Good	34	16.0	30	14.1	105	49.3	44	20.7	
Previous post-partum problems N= 80 N= 66 N= 171 N= 59									
- No	28	11.7	41	17.1	112	46.7	59	24.5	X ² = 32.789 P=0.000*
- Yes	52	38.2	25	18.4	59	43.4	0	0.0	
Trimesters									
- First trimester	27	12.7	32	15.1	100	47.2	53	25.0	X ² = 26.153 P= 0.068
- Second trimester	82	20.0	60	14.6	213	51.8	56	13.6	
- Third trimester	18	10.2	38	21.5	95	53.7	26	14.7	
Conception occurrence method									
- Natural	92	14.1	91	14.0	346	53.1	122	18.7	X ² = 17.011 P=0.092
- Ovarian stimulation	25	21.2	28	23.7	52	44.1	13	11.0	
- In vitro fertilization	10	31.3	11	34.4	10	31.3	1	3.1	
Planning for current pregnancy									
- No	37	28.5	22	16.9	54	41.5	17	13.1	X ² =16.475 P=0.001*
- Yes	90	13.4	108	16.1	354	52.8	118	17.6	
Presence of minor discomfort									
- No	2	2.2	13	14.3	54	59.3	22	24.2	X ² = 45.065 P= 0.000*
- Sometimes.	71	14.7	71	14.7	242	50.2	98	20.3	
- Always	54	23.8	46	20.3	112	49.3	15	6.6	

X² = Chi Square Test * statistically significant at p ≤0.05

Table (6): Multiple linear regression model for factors associated with pregnant women's mental well-being:

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	upper Bound
- (Constant)	35.131	9.942		3.534	.000	15.578	54.684
- Age	-.589-	.244	-.159-	-2.415-	.016	-1.069-	-.109-
- Education	1.176	.454	.122	2.591	.010	.283	2.068
- Residence	-7.479-	1.197	-.246-	-6.249-	.000	-9.833-	-5.125-
- Working status	.636	.275	.073	2.311	.021	.095	1.178
- Type of family	5.781	1.403	.192	4.121	.000	3.022	8.540
- Age of marriage	.637	.216	.147	2.947	.003	.212	1.062
- Length of marriage	.446	.299	.109	1.491	.137	-.142-	1.034
- Number of family members	-14.166-	1.356	-.467-	-10.445-	.000	-16.833-	-11.498-
- Income adequacy	-1.974-	1.087	-.074-	-1.817-	.070	- 4.112-	.163
- Presence of chronic diseases	2.740	1.380	.059	1.986	.048	.027	5.454
- History of mental problems	-3.396-	1.538	-.080-	-2.208-	.028	-6.421-	-.371-
- Gravidity	3.617	1.192	.210	3.035	.003	1.273	5.961
- Previous abortion	-5.734-	.885	-.272-	-6.480-	.000	-7.474-	-3.993-
- Number of live children	-3.595-	1.577	-.156-	-2.280-	.023	-6.697-	-.494-
- Last pregnancy experiences	.107	.868	.004	.123	.902	-1.601-	1.814
- Last delivery experiences	1.348	.775	.060	1.739	.083	9.042	11.799
- Previous post-partum problems	-.130-	.918	-.005-	-.141-	.888	-.176-	2.873
- Conception occurrence method	1.623	1.334	.036	1.216	.225	-7.786-	-4.260-
- Planning for current pregnancy	1.469	1.083	.046	1.356	.176	-1.935-	1.675
- Presence of minor discomfort	-3.137-	.847	-.114-	-3.706-	.000	-1.001-	4.246
- Husband and family support	10.421	.701	.531	14.871	.000	-.662-	3.599
- Exposure to domestic violence	-6.023-	.896	-.237-	-6.719-	.000	-4.802-	-1.472-
R²	.784						
F(P)	57.931(.000*)						

Statistically significant at $p \leq 0.05$

Discussion

The conventional paradigm has considered mental disorders and mental well-being as being at different ends of the same continuum, however this perspective has undergone a shift in recent decades. As a result, people may be classified into categories based on both their degree of mental disorders and their level of mental well-being (**Iasiello et al., 2020**).

Despite being a crucial aspect of reproductive health, mental health is frequently overlooked. The factors that lead to greater levels of mental well-being during pregnancy have not been the focus of many researches, despite the significance of a higher level of mental wellbeing. Contrarily, a lot of studies have been carried out regarding the risk and protective factors of mental illness in pregnant women (**Arrais & Araujo, 2017; Biaggi et al., 2016**). Hence, the main purpose of this study was to assess mental well-being and its associated factors among pregnant women in El-Beheira governorate.

The current study results showed that, slightly more than half of the pregnant women obtained average level of mental well-being with a mean of 44.35 ± 14.22 . These results agreed with another study conducted by **Gaucher et al. (2022)** in France which found that pregnant women had a median WEMWBS score of 49.

Age and education might affect how people see their capacity for self-reliance, self-control, self-efficacy, optimism, spirituality, personal well-being, social support, and racial and gender justice and subsequently can affect mental well-being. (**Harmel & Aparecida, 2022**). In this respect, the present study revealed that more than one third of women in the age of less than 20 years had either low or below average level of mental well-being. While, more than one fifth of women in the age range between 25 and 30 years had above average level of mental well-being. This is consistent with **Losada-Baltar et al. (2021)** who found a link between chronological age and psychological well-being, suggesting that younger individuals may require stronger coping mechanisms. Moreover, our result was in agreement with **Bödecs et al. (2013)** who found that women who were under 20 years old had significantly higher risks for depression and anxiety.

Education is an element that provides opportunities and recognition capabilities, as well as positive emotional and psychological attributions. The current study found that, pregnant women who were illiterate had a lower level of mental well-being than those with higher education. This finding was in agreement with a study conducted by **Soutter et al. (2011)** who clarified that experiences of well-being go beyond age and include aspects of being, having, relating, thinking, experiencing, functioning, and achieving goals, which are commonly emphasized and promoted in educational institutions.

The current findings also showed that substantial percentages of pregnant women who were not working and who claimed that their families' income was insufficient, respectively, had low levels of mental well-being. **Bödecs et al. (2013)** found, in agreement with the current study, that women who were unemployed and of low socioeconomic status had considerably higher mean scores for depression and anxiety.

The present study showed that more than half of the pregnant women who married after turning 20 had average levels of mental well-being. These findings are in accordance with earlier studies: women who had children before turning 20 had greater levels of somatization, anxiety, and depressive symptoms than women who had children later in life (**Sezgin et al., 2019**).

Chronic diseases and mental disorders are correlated in both directions. The burden of having a chronic disease and how it affects people's quality of life is the first and most significant aspect that might explain how the condition causes or exacerbates mental illness (**Herrera et al., 2021**). Pregnant or postpartum women with chronic medical disorders were more likely to experience new-onset perinatal mental illness. A previous study done by **Brown et al., 2019** revealed that, the prevalence of prenatal mental disorder was higher in women with chronic physical conditions (20.4%) than in those without (15.6%). These findings aligned with the current study since low mental well-being was observed in nearly one-fifth of the pregnant women with chronic illnesses. While nearly the same percentage of above-average mental health was observed among pregnant women without chronic illnesses.

One concerning finding from the present study is that almost two-thirds of the women without a history of mental health issues had average or above-average levels of mental well-being. This result aligns with body of research demonstrating that a past history of mental illness is a risk factor for mental health issues both during and after pregnancy (**Phan et al., 2019**). In addition, it agreed with an European cross-sectional study done by **Tauqeer et al., 2023** which reported that women who had pre-existing mental diseases who were pregnant or recently gave birth had higher rates of significant depression and anxiety symptoms.

Gravidity is one of the main predictors for mental well-being in the present study, since the percentage of primigravida pregnant women who had average and above average mental well-being state is greater than the percentage of multigravida women. This finding is agreed with the results of the study conducted by **Sharma & Sharma (2022)** which revealed significant difference in mental health between the group of multigravida and primigravida across the three trimesters of pregnancy.

Fewer than fifty percent of pregnant women who had previously undergone abortions reported having poor mental health. In their study, **Alqahtani et al. (2018)** also found that history of abortion was an important predictor of anxiety. This can be explained by the fact that having an abortion makes women anxious about future pregnancies.

Despite the fact that minor discomforts are not life-threatening, their presence reduces the mother's sense of comfort and wellbeing, and their disregard may result in major issues (**Hassan et al., 2020**). In accordance with this fact, our study found that the average level of mental health was present in more than half of pregnant women who had not experienced minor discomfort throughout pregnancy.

Residence and type of family may give an idea about the circumstances in which the pregnant women live. The findings of the current study revealed that, less than two thirds of the pregnant women who were living in urban areas and lived in nuclear families had an average level of mental well-being. These results opposed with the results of a study conducted by **Ghaffar et al. (2017)** which stated urban pregnant women were more likely to experience anxiety and depression than rural pregnant women, which led to a greater prevalence of mental illnesses in urban communities compared to rural populations.

However, the existing study go in line with study conducted by **Chen et al. (2019)** in China, who found that compared to women living in nuclear families, women in extended families were twice as likely to have prenatal depression. This may be attributed to that pregnant women who are living in extended family had more responsibilities and troublesome relationships with husband's family than those living in nuclear family.

Women go through significant physiological changes when they become pregnant, and they may worry about their own health and the welfare of the unborn child while they wait for the baby to arrive or if they have trouble caring for the newborn after giving birth. As a result, receiving social support during pregnancy appears to be crucial to helping women adjust to their new responsibilities as mothers and to enhancing their mental health. Particular attention has been paid to the significance of social support during the perinatal period as a potential protective factor against coping challenges driven by the several obstacles that motherhood entails (**Herbell & Zauszniewski, 2019**).

In this regard, the majority of pregnant women in our study with supportive husbands and families had mental health that was average or above average. The finding was consistent with previous studies conducted by **Bedaso et al. (2021)** and **Nath et al. (2019)** which revealed that pregnancy and motherhood stressors were better for women to deal with if their husbands, family, and social networks were supportive and women's mental health may suffer if they feel unable to manage life's stressors as a result of feeling socially isolated.

Pregnant women are at risk from domestic and gender-based violence. Perinatal period can incite violence and amplify previous abuse because of the changes or stresses that pregnancy or the birth of a new child might bring for a family. Exposure to violence may directly lead to the woman's emotional and mental health issues, including depression, anxiety, and post-traumatic stress disorder (**Mahapatro et al, 2022**). In our study, the low level of mental well-being was significantly associated with exposure to domestic violence. Relatedly, many studies reported that, such as the study done by **Jones (2019)** in New York, exposure to violence was associated with depressive symptoms among mothers. Additionally, **Mansouri et al. (2022)** found that pregnant women with a history of domestic violence had significantly higher mean scores on the subscales and overall mental health issues.

Conclusion

In conclusion, our results disclosed that slightly more than half of the pregnant women obtained average level of mental well-being. Residence, type of family, number of family members, previous abortion, presence of minor discomfort, husband and family support, and exposure to domestic violence, are the strongest factors associated with mental well-being during the pregnancy period.

Recommendations

Based upon the findings of the current study, the following recommendations are suggested:

- Expand the focus of adequate prenatal care beyond obstetric considerations to include numerous mental and psychosocial aspects.
- Implement a standardized maternal mental health screening strategy to ensure continuity and consistency in mental health screening practices during pregnancy.
- Activate and motivate counselling service in family-centered primary healthcare settings for the benefits of both the pregnant women and their families.
- Use mass media and modern technological communication means to strengthen the value given to maternal mental health by individuals and communities.
- Incorporate social support, such as through online partner sessions or group therapy techniques, into initiatives aimed at improving positive mental health.
- Apply positive mental health interventions during pregnancy, especially for pregnant women with mental health problems.

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الملخص العربي

الرفاهية العقلية والعوامل المرتبطة بها لدى النساء الحوامل بمحافظة البحيرة

المقدمة: يعتبر الحمل فترة دقيقة ومعقدة للغاية في حياة المرأة فهي تأتي مصحوبة بتغيرات بيولوجية وفسولوجية ونفسية واجتماعية كبيرة يمكن أن تؤثر سلبيًا على رفايتها العقلية. ويعد الضرر الناجم عن ضعف الرفاهية العقلية أثناء الحمل هائلًا قد يصل في الحالات الشديدة إلى محاولة الإنتحار. وعلى الرغم من أن الرفاهية العقلية تشكل جانبًا حاسمًا من جوانب الصحة الإنجابية، إلا أنه كثيرًا ما يتم تجاهلها، ولم تكن العوامل التي تؤدي إلى مستويات أعلى من الرفاهية العقلية أثناء الحمل محورًا للعديد من الأبحاث. ولذلك، تتطلب الرفاهية العقلية للأمهات تعريفًا واضحًا لكل عامل من العوامل المرتبطة بها لمساعدة مقدمي الرعاية الصحية في تطوير برامج رعاية وقائية فعالة.

الهدف من الدراسة: أجريت هذه الدراسة بهدف تقييم الرفاهية العقلية وتحديد العوامل المرتبطة بها لدى النساء الحوامل بمحافظة البحيرة. **تصميم البحث:** تم استخدام التصميم الوصفي المقطعي لإجراء هذه الدراسة. **مكان إجراء البحث:** أجريت هذه الدراسة في 16 مركزًا لرعاية الأمومة والطفولة ومراكز ووحدات صحة الأسرة التابعة لوزارة الصحة والسكان بمحافظة البحيرة. **عينة البحث:** شملت عينة البحث 800 امرأة حامل من المترددات على مراكز رعاية الأمومة والطفولة ومراكز ووحدات صحة الأسرة التي تم اختيارها.

أدوات جمع البيانات: الأداة الأولى: استبيان الجانب الشخصي والصحي للنساء الحوامل، **والأداة الثانية:** مقياس وارويك – إدنبره للرفاهية العقلية (WEMWBS) - Edinburgh Mental Well-being Scale Warwick. **النتائج:** حصل ما يزيد قليلاً عن النصف (51.0%) من النساء الحوامل على مستوى متوسط من الرفاهية العقلية، بينما حصل الثلث تقريباً (32.1%) منهم على مستوى منخفض أو أقل من المتوسط بمتوسط درجات 44.35 ± 14.22 . **الخلاصة:** إن مكان الإقامة، ونوع الأسرة، وعدد أفراد الأسرة، والتعرض السابق للإجهاد، ووجود متاعب أثناء الحمل، ودعم الزوج والأسرة، والتعرض للعنف المنزلي هي أقوى العوامل المرتبطة بالرفاهية العقلية خلال فترة الحمل.

التوصيات: توسيع نطاق التركيز على الرعاية المناسبة قبل الولادة بما يتجاوز الاعتبارات النسائية ليشمل العديد من الجوانب العقلية والاجتماعية. تنفيذ استراتيجية موحدة لفحص الصحة العقلية للأمهات لضمان الاستمرارية والاتساق في ممارسات فحص الرفاهية العقلية أثناء الحمل.