

Evaluation and Comparison of Nutritional Status, Quality of Life and Psychometric Morbidity During Gestational and Perinatal Period

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Abstract: Nutrition plays a pivotal role in both foetal development and maternal well-being, with malnutrition posing risks, including psychometric morbidity. Addressing both nutritional and psychological factors is crucial for optimal maternal and infant health. This research aims to understand the interplay and impact of these factors during and after pregnancy. **Aim:** The study aims to evaluate and compare nutritional status, psychometric morbidity, and quality of life during gestation and the perinatal period. **Settings and Design:** Conducted at the Obstetrics and Gynaecology ward at Erode Tertiary Care Hospital, the study is structured as a cross-sectional investigation. **Methods and Material:** The study involved 365 participants meeting inclusion criteria, excluding those with a history of mental health issues. Comprehensive data collection included information on nutritional and lifestyle habits, psychological well-being, pregnancy-related experiences, and demographics. **Statistical analysis used:** Statistical analysis used SPSS Version 27, employing Spearman's rho and the Chi-Square test. **Results:** Among 365 perinatal women, the 21-25 age group (52.7%) showed a significant impact of psychological challenges and poor nutritional intake among young adults. Findings revealed a highly significant relationship between poor psychological status and inadequate nutritional intake (Spearman's rho = 0.388). A significant association (<0.001) was found between poor psychological status, inadequate nutritional intake, and adverse perinatal outcomes. **Conclusions:** The study stresses addressing mental well-being and nutrition in perinatal care, linking poor psychological health to obstetric complications, underscoring the role of nutrition, and advocating holistic support via positive lifestyle habits for pregnant women.

Keywords: Nutritional status, Quality of life, and Psychometric morbidity.

1. Introduction:

Nutrition plays a crucial role in foetal development and maternal well-being, impacting the long-term health of offspring.⁽¹⁾ Malnutrition increases the risks of preterm labour, anaemia, pre-eclampsia, miscarriages, and foetal death.⁽²⁾ Psychometric morbidity, including anxiety and depression, can stem from various factors and adversely affect health-related behaviours during pregnancy.⁽³⁾ Addressing both nutritional and psychological factors is crucial for optimal maternal and infant health. The study aims to evaluate and compare nutritional status, psychometric morbidity, and quality of life during gestation and the perinatal period, considering socio-demographic details, identifying risk factors, and raising awareness for necessary dietary modifications.

2. Materials and Methods:

The study at Erode Tertiary Care Hospital was conducted over a span of 6 months, commencing from the initiation date. The sample size, determined using Rao soft with a 5% margin of error and a 95% confidence interval, was established at 360 participants. The research adopted a cross-sectional study design. Inclusion criteria encompassed individuals aged over 18 years, perinatal women, and those who willingly chose to participate. On the contrary, exclusion criteria involved individuals with a history of mental health issues or previous psychological illnesses. The study meticulously excluded participants meeting these exclusion criteria.

2.1. Data Collection Instruments and Procedure:

Data for the study were gathered through the administration of a self-developed questionnaire, which had been meticulously crafted based on an in-depth review of existing literature, and the utilization of the World Health Organization Quality of Life scale. The questionnaire was designed to comprehensively capture various aspects of participants' lives, including nutritional habits, lifestyle choices, psychological well-being, pregnancy-related experiences, and demographic information. This thorough approach aimed to facilitate a holistic assessment of the intricate interplay between nutrition and psychometric health during both gestation and the perinatal period. Initially, socio-demographic, psychometric, and nutritional details of pregnant and postpartum women were collected. The study population was then categorized based on nutritional status (good or poor) and psychometric morbidity (ranging from normal to severe). Subsequently, the research delved into identifying the causes and risk factors associated with psychometric morbidity and poor nutrition. Moreover, the study explored the relationship between obstetric complications and both psychometric morbidity and poor nutrition. By conducting this multifaceted investigation, the research aimed to provide a nuanced understanding of the quality of life experienced by perinatal women, offering valuable insights into the factors influencing their well-being during this critical life stage.

2.2. Statistical Methods:

The gathered data were entered into the Excel Sheet and analysed utilizing SPSS V.27. For assessing nutritional status and quality of life, a scoring system was employed wherein good responses were designated a score of "0," moderate responses were assigned a score of "1," and poor responses were allocated a score of "2." Regarding psychometric morbidity, normal responses were given a score of "0," mild responses were scored as "1," moderate responses received a score of "2," less severe responses were assigned a score of "3," and severe responses were attributed a score of "4." The total score for nutritional status was set at 10, for psychometric morbidity it was 15, and for quality of life it was 5. A comparison between the psychometric morbidity and nutritional practices of pregnant and perinatal women was done by using Spearman's rho and Chi-Square test.

2.3. Ethical Considerations:

The study adhered to the Declaration of Helsinki principles and received ethical approval from the JKKNCP/IEC-CER/12242123 ethical committee. Informed consent was obtained from all participants, who were fully informed of the study's purpose, risks, benefits, and their right to withdraw at any time. Confidentiality was maintained through data anonymization and secure storage, with support services provided for participants as needed.

3. Results:

Among 365 perinatal women, the majority fell within the 21-25 age group (52.9%), followed by the 18-20 age group (18.4%). The 26-30 age group (24.4%) and ≥ 31 age group (4.4%) were less affected. Educational backgrounds varied, with 49.5% completing high school and 31% pursuing a college education. A small percentage (2.6%) were uneducated, 3.6% attended primary school, and 13.2% attended secondary school. The predominant occupation was housewives (74%), with 17.5% being pregnant and unemployed, and 8.5% employed. Monthly incomes varied, with 55.9% earning 10001-20000 units, 18.9% earning 5001-10000, and 21.6% earning >20000. Lifestyle habits included no alcohol or smoking (0%), 22.1% engaging in physical exercise, 5.2% practicing meditation, 13.1% following healthy sleep practices, and the majority (59.4%) having no specific lifestyle habits. Nutritional status varied: 38.6% had good nutrition, 36.9% moderate, and 24.3% poor. Regarding psychological distress, 57.2% were normal, 30.1% mild, 9% moderate, 3% less severe, and 0.5% severe. Quality of life showed 40.2% with poor, 24.6% with moderate, and 35% with good quality of life among the 365 participants. (Table 1)

Table 1: Descriptive analysis distribution of study participants based on Sociodemographic and Balancing Act	
Variables	n %
Age Group (in years)(n=365)	
18-20	18.4%
21-25	52.7%
26-30	24.4%
≥31	4.4%
Education level(n=365)	
Primary school	3.6%
Secondary school	13.2%
High school	49.5%
College	31%
Uneducated	2.6%
Occupation(n=365)	
Housewife	74%
Employed	8.5%
Pregnant Unemployed	17.5%
Monthly Income(n=365)	
≤3000	1.1%
3001-5000	2.5%
5001-10000	18.9%
10001-20000	55.9%
>20000	21.6%
Lifestyle Habits(n=365)	
Smoking / Alcohol	0%
Physical exercise	22.1%
Meditation	5.2%
Healthy sleep practice	13.1%
None	59.4%
Nutritional status(n=365)	
Poor	24.3%
Moderate	36.9%
Good	38.6%
Psychological Distress(n=365)	
Normal	57.2%
Mild	30.1%
Moderate	9%
Less Severe	3%
Severe	0.5%

Quality of Life(n=365)	
Poor	40.2%
Moderate	24.6%
Good	35%

The correlation between nutritional status and psychological status, assessed using Spearman's rho, revealed a positive relationship with a p-value of < 0.001 and a rho value of 0.388. (Table 2). When examining the association of gestational and perinatal periods with nutritional status, a chi-square test indicated a p-value < 0.001. Similarly, the comparison of gestational and perinatal periods with psychological status, using a chi-square test, yielded a p-value < 0.001. (Table 3)

Table 2: Correlation of Nutritional Status and Psychological Status

Nutritional status	Psychological status					Spearman's rho	p value
	Severe	Less Severe	Moderate	Mild	Normal		
Poor	2	11	18	32	26	+0.388	<0.001*
Moderate	0	0	13	43	79		
Good	0	0	2	35	104		

*Significant

Table 3: Bivariate Analysis comparison of Nutritional outcomes and Psychological Status with Gestational Period and Perinatal Period women

Variables	Pregnancy Period (%)	Perinatal Period (%)	Confidence Interval		P
			Pregnancy Period	Perinatal Period	
Nutritional status(n=365)					
Poor	24.3%	24.3%	121.67 ±2.404	25.15 ±2.580	< 0.001*
Moderate	36.9%	34.4%			
Good	38.6%	40.8%			
Psychological Distress(n=365)					
Normal			73 ±7.681	73 ±9.814	< 0.001*
Mild	0.5%	0.5%			
Moderate	3.0%	3.0%			

Less Severe	9.0%	59.7%			
Severe	30.1%	29.0%			
	57.2%	7.6%			
*Significant					

4. Discussion:

In this investigation, 365 perinatal women were evaluated, with a predominant representation in the 21-25 age group (52.7%) and the 18-20 age group (18.4%), indicating a notable impact of psychological challenges and poor nutritional intake among young adults in their early twenties which is also similar to Shan et al., (2022) study.⁽⁴⁾ The participants had diverse educational backgrounds, with a substantial portion having completed high school (49.5%) and college education (31%). This diversity underscores the potential connection between education levels and knowledge about pregnancy-related issues. These results align with Kiftia M et al., (2022) study, indicating that individuals with higher education levels (65.9% and 70%) showed a better understanding of pregnancy signs and risks.⁽⁵⁾ The study identified a prevalent trend, with 74% of participants being housewives and 17.5% categorized as unemployed during pregnancy, both groups consistently exhibiting a higher prevalence of mental disorders compared to their employed counterparts (8.5%) aligning with findings from a study by Syed et al., (2022).⁽⁴⁾ Income distribution varied, with a small fraction earning ≤ 3000 units (1.1%), 2.5% falling in the 3001 to 5000 unit range, and a majority (55.9%) having incomes ranging from 10001 to 20000 units. Lower income levels were associated with higher prevalence of psychological disorders and poor nutritional intake. Lifestyle habits varied, with none engaging in alcohol or smoking, 22.1% incorporating physical exerciseduring pregnancy are recommended and shown to reduce the risk of complications and improve outcomes aligning with findings from a study byGrenieret al., (2020),⁽⁶⁾ 5.2% practicing meditationfor relaxation and emotional balance. The practice of meditation was found to reduce psychological distress during pregnancy, as indicated by Dhillon et al. (2017),⁽⁷⁾ and 13.1% following healthy sleep practices, according to Anbesaw et al. (2021), their study found that the prevalence of poor sleep quality among pregnant women was 30.8%.⁽⁸⁾ However, the majority (59.4%) did not adopt specific lifestyle habits. Nutritional status showed 38.6% maintaining commendable profiles, 36.9% exhibiting moderate status, and 24.3% having poor status, posing significant risks for adverse outcomes. These results align with a study by Woldeamanuel GG et al., (2019), highlighting the link between poor prenatal nutrition and complications during childbirth, emphasizing the importance of nutrition in perinatal health.⁽⁹⁾ Regarding psychological well-being, the majority (57.2%) showed no signs of mental disorders, while a small subset faced significant challenges, with 0.5% experiencing severe psychological distress and 3% grappling with predominantly psychological issues, both associated with a heightened risk of obstetric complications. Additionally, 9%

exhibited moderate psychological distress, putting them at risk for various complications, while the remaining 30.1% had a lesser degree of psychological distress but still carried potential risks for obstetric complications. These findings emphasize the importance of addressing psychological well-being in perinatal care to mitigate potential complications. These results align with a study by Getaneh Tesfaye et al., (2023) found a notably high prevalence of pregnancy-related psychological distress, surpassing previous studies.⁽¹⁰⁾ Out of 365 study participants, 147(40.2%) patients had poor quality of life, 90(24.6%) patients had moderate quality of life, and the remaining 128 (35%) patients had good quality of life.

The p-value (<0.001) reveals a highly significant relationship between poor psychological status and inadequate nutritional intake. A Spearman's rho of 0.388 indicates a positive but weak correlation, suggesting a tendency to move together, influenced by other factors. For the comparison of gestational and perinatal periods with nutritional status, a chi-square test with a p-value <0.001 signifies a highly statistically significant association. This suggests a strong link between poor nutrition during pregnancy and adverse perinatal outcomes. Similarly, in the comparison of gestational and perinatal periods with psychological status, a p-value <0.001 from a chi-square test indicates a highly significant association. The severity of psychological illness during pregnancy is strongly linked to predicting poor outcomes in the perinatal period, unlikely to be due to random fluctuations.

5. Conclusion:

The research underscores the crucial need to address both mental well-being and nutritional status during perinatal care due to their close association with obstetric complications. Poor psychological health poses a significant risk, correlating with increased chances of complications like stillbirth, miscarriage, and maternal health issues. Additionally, the study highlights the pivotal role of nutrition in perinatal health, where inadequate nutritional status heightens risks of adverse outcomes like low birth weight and infant neuronal development issues. Encouraging positive lifestyle habits such as healthy sleep, physical exercise, and meditation can contribute to improved overall well-being for pregnant women. While a considerable number of patients reported good quality of life, a substantial portion experienced psychological distress and inadequate nutritional status, underscoring the necessity for comprehensive and holistic support during pregnancy and the perinatal period.

6. Limitations:

The study's limited sample size may restrict its applicability to diverse perinatal populations, and the absence of an assessment for confounding variables like pre-existing medical conditions could affect observed associations. Future research should delve into specific nutritional factors influencing perinatal outcomes and explore the long-term effects of lifestyle habits on both mothers and children.

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