Int. j. adv. multidisc. res. stud. 2025; 5(4):621-626

Received: 02-06-2025
Accepted: 12-07-2025

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Maternal Sociodemographic and Economic factors associated with adverse pregnancy outcome among postnatal women in Federal Medical Center Umuahia, Abia State

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DOI: https://doi.org/10.62225/2583049X.2025.5.4.4653
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Abstract
Pregnancy outcome is the result of conception of pregnancy which is categorized into positive outcome and negative/adverse outcome. However, pregnancy outcome is influenced by various factors. The aim of the research study was to assess maternal socio-demographic and economic factors associated with pregnancy outcome among postnatal women in Federal Medical Centre Umuahia, Abia State. The specific objectives of the study were to examine the types of socio-demographic factors influencing pregnancy outcome, determine the various outcomes of pregnancy associated with the postnatal women, determine association between socio-demographic factors and pregnancy outcome among postnatal women and to determine the significant difference between each economic factor and the pregnancy outcomes of postnatal women in Federal Medical Centre Umuahia, Abia State. The target population comprised of all postnatal women booked in ANC of the FMC who were in their six (6) weeks post natal from March 2020 to February 2021, totaling 2072. The study applied a cross-sectional descriptive study which describes the phenomenon at that particular time and a simple random sampling technique, together with Yaro Yamane's sample size determination to select a sample size of 335 respondents used for analysis. The gathered data was analyzed using the Statistical Package for Social Science (SPSS) version 21; findings presented on tables and analyzed with percentage. Inferential statistics using logistic regression analysis and Chi-square was applied to determine the relationship between the research variables. From the data analysis, the result clearly revealed that out of the eight (8) factors identified, only one (construction design changes) is not a clear significant positive influence for construction project implementation. Furthermore, the study showed that socio-demographic and economic factors have significant effects to pregnancy outcomes of the postnatal women in Federal Medical Centre Umuahia, Abia State, however, marital status, religion and type of house ownership did not influence the pregnancy outcome of the postnatal women in Federal Medical Centre Umuahia, Abia State. The study recommends that programmes should be implemented that educate the women on pros and cons during the course of the antenatal care as that would curb the rate of premature births amongst the women who dropped out of school. Further, the study recommends that the women should be re-oriented on benefits accompanying registering any health insurance schemes made available.

Keywords: Socio-Demographic Factors, Economic Factors, Maternal Health, Pregnancy, Outcome, Postnatal

1. Introduction

There has been a significant decrease in the maternal mortality ratios (MMR) in developed countries during the twentieth century. However, developing countries still suffer from a large number of maternal deaths, and very often, pregnancy could be a risky event in a woman's life in these countries (Naik and Ghosh, 2018). Pregnancy outcome is influenced by hereditary and environmental factors including those which affect stature in early life, current health and nutritional status, inter-pregnancy interval, maternal age, genitourinary or general diseases in women and socioeconomic and educational status. Pregnancy outcome is the result of conception of pregnancy which is categorised into positive outcome and negative/adverse outcome. Pregnancy outcome is termed positive if it includes the following: reached the normal period of gestation (that is, 259–280 days), delivered a live baby without any assistance, baby is weighting 2.5 kg or more and the born baby is without any congenital anomalies. While adverse pregnancy outcome involves low birth weight, preterm delivery, abortion, still birth, congenital malformation, assisted delivery, fetal asphyxia, infection, etc (Zelalem, Belayihun, Teji, Admassu, Zelalem, Belayihun, 2018) [28]. Maternal socio-demographic factors amongst the postnatal women in Federal Medical Centre, Umuahia were meant to include maternal age, maternal place of birth, marital status (married/not married) and education level (primary school, junior high school, high school, university) while maternal economic factors are: occupation (farmer/craftswoman/merchant, manager, intermediate occupation, manual worker, unemployed), income level per month, residence, type of housing and type of health management.

2. Materials and Methods

The research was a cross sectional descriptive study which describes the phenomenon at that particular time. Quantitative data was collected using questionnaires aimed at addressing the objectives of the study. The study was conducted at the Antenatal Clinic (ANC) of the Federal Medical Centre Umuahia and also at the Community Medicine department of Federal Medical Center(FMC) Umuahia. Community Medicine is a department that comprise of NPI (National Programme on Immunization) unit where postnatal women come with their babies for immunization. ANC is in the department of Obstetrics and Gynecology of the FMC, Umuahia. It is situated in Umuahia-North metropolis of Abia State. From records available, an average of 4800 women are seen in the ANC for antenatal care in a year and about 2072 ofthem present for delivery in a year. The sample size of 335 determined using the formula of Taro Yamane (1964). Data collected were analyzed using descriptive statistics of frequencies, percentages and arithmetic average; as well as inferential statistics of chi-square and logistic regression at 0.05 level of significance.

3. Result

A total number of 335 copies of the questionnaire were distributed and obtained from the postnatal women in Federal Medical Centre Umuahia, Abia State. This chapter gives an analysis of data collected from the field. It also presents, interprets and discusses the findings as contained in the study. Analysis was done using the Statistical Package for Social Science (SPSS, version 21). The descriptive analysis of the data involves the use of tables and percentages. While inferential statistics was carried out using the Logistic Regression Analysis and Chi-square to ascertain and validate relationships inherent in the variables. At the end of the presentations, a summary of the results obtained was made.

3.1 Demographic characteristics of the respondents in Federal Medical Centre Umuahia, Abia State.

Table 1: Socio-demographic characteristics of respondents (n=335)

Independent variable	Respondent response	Frequency (N)	Percentage (%)
Age	26-30	132	39.4
	31-35	119	35.5
	36-40	51	15.2
	41-45	33	9.9
Marital Status	Single	17	5.1
	Married	301	89.8
	Separated	17	5.1
Religion	Christianity	318	94.9
	Islam	17	5.1
Education	Secondary	68	20.3
	Tertiary	267	79.7
Live with	Family	84	25.1
	Spouse	251	74.9
Residence	Rural setting	67	20.0
	Urban setting	268	80.0

From Table 1, results showed that, the respondents were at least 26 years of age. A greater number 132(39.4%) of the respondents aged 26 to 30 years of age, followed by those aged 31 to 35 years of age (35.5%), those aged 36 to 40 (15.2%), and lastly, 41-45 years of age (9.9%).

Regarding the respondent's marital status, majority of them 301 (89.9%) were married, while 17(5.1%) of them were single, and 17(5.1%) of them were separated.

As pertaining to religion, majority of the women 318(94.9%) reported that they were Christians while 17(5.1%) were Muslims. When the respondents were asked about their level of education attained, about 267(79.7%) of them had attained tertiary institutions, while 68(20.3%) reported that they had only ended their education at the secondary level.

When the respondents were further queried to ascertain with whom they are dwelling, majority of the women 251 (74.9%) declared they were living with their spouse, while 84 (25.1%) reported they were living with their family.

The study further sought to understand the area in which the women lived. It was also noted that, the majority of the women 268 (80%) were staying in an urban setting, while about 67 (20%) indicated they were straying in the rural arears.

3.2 The various economic factors affecting pregnancy outcome among postnatal women in Federal Medical Centre Umuahia, Abia State

Table 2: Economic characteristics of respondents (n=335)

Independent variable	Respondent response	Frequency (N)	Percentage (%)
Income level	Below 5,000	119	35.5
	5,000-20,000	17	5.1
	21,000-50,000	17	5.1
	51,000-80,000	49	14.6
	81,000-100,000	16	4.8
	above 100,000	117	34.9
Occupation	Casual Jobs	17	5.1
	Self-employed	50	14.9
	Salaried Job	200	59.7
	Unemployed	68	20.3
Health Management	NHIS	185	55.2
	Not Insured	133	39.7
	Others	17	5.1
Owner House	Own Home	65	19.4
	Rental	253	75.5
	Others	17	5.1
Type Housing	Temporary	253	75.5
	Semi-temporary	17	5.1
	Permanent	65	19.4

Table 2 sought to examine the economic factors of the postnatal women in Federal Medical Centre Umuahia, Abia State. With regard to their level of income, it was reported that 119(35.5%) of the women earned below N5,000, followed by 117(34.9%) of the women that earned above

N100,000.It was also reported that, 49(14.6%) of the women earned between N51,000-N80,000, while 17(5.1%) of the women earned N5,000 – N20,000, 17(5.1) of them also earned N21,000-N50,000, and lastly, 16(4.85%) of the women earned N81,000-N100,000.
Concerning their occupation, majority of the women 200(59.7%) reported they were salary workers, 50(14.9%) indicated that they were self-employed, 17(5.1%) indicated they had casual jobs, while 68(20.3%) of the women were unemployed.
Regarding health management of the respondents, majority 185(55.2%) of the women indicated they were registered with NHIS, 133 (39.7%) revealed that they are not under health insurance, while 17(5.1%) indicated otherwise.
The study also revealed that, majority of the women 253(75.5%) are living in rented apartments, 65(19.4%) declared they were living in their own houses, while 17(5.1%) indicated that they were neither living in their own houses nor rented apartments.
It was further ascertained that, majority 253(75.5%) of the women lived a house they considered temporary, 17(5.1%) of the women considered their abode as semi-temporary, while 65(19.4%) of the women considered their dwelling place to be a permanent abode.

3.3 The various pregnancy outcomes associated with postnatal women in Federal Medical Centre Umuahia, Abia State.

Table 3: The Various pregnancy outcomes (n=335)

Independent variable	Respondent response	Frequency (N)	Percentage (%)
Delivery Mode	Normal Vaginal	168	50.1
	Caese. Section	167	49.9
Gestation at Birth	28-37weeks	100	29.9
	above 37weeks	235	70.1
BMI	< 18.5	16	4.8
	18.5-24.9	167	49.9
	25-29.9	85	25.4
	30 and Above	67	20.0
Delivery Outcome	Live Birth	318	94.9
	Premature Birth	17	5.1
Weight at Birth	Below 2500g	49	14.6
	500g-3500g	185	55.2
	3500g-Above	101	30.1

Table 3 sought to identify the various factors associated with pregnancy outcomes of the postnatal women in Federal Medical Centre Umuahia, Abia State.
It was reported that, the number of women 168(50.1%) that delivered through normal vaginal were slightly more than the women 167(49.9%) that delivered through caesarean section. It was also noted that, 235(70.1%) reported that their length of gestation at birth was above 37 weeks while 100(29.9%) indicated that theirs was between 28 – 37 weeks.
It was reported that, majority of the women 167(49.9%) had their BMI lie between 18.5-24.9, followed by 85(25.4%) of the women whose BMI lie between 25-29.9, 67(20%) whose BMI lie between 30 and above, and lastly, 16(4.8%) whose BMI is less than 18.5.
It was further noted that, majority of the women 318(94.9%) had a live birth, against the very few 17(5.1%) of them whose delivery outcome as premature birth.

Lastly the most common range of weight at birth was reported by 185(55.2%) of the women to lie between 500g-3500g, followed by 101(30.1%) of the women that indicated the nearest common weight at birth range lied between 3500g -above, while 49(14.6%) indicated that weight at birth below 2500g is not common.

3.4 The association between sociodemographic factors and pregnancy outcome among postnatal women in Federal Medical Centre Umuahia, Abia State

Table 4: Association between sociodemographic factors and pregnancy outcomes (n=335)

Independent variable	Respondent response	Live Birth	Premature Birth	Sig.
Age	26-30	115(87.1%)	17(12.9%)	$\chi^2\chi^2$ =27.542[a]
	31-35	119(100%)	0(0%)	df=3
	36-40	51(100%)	0(0%)	p=0.00
	41-45	33(100%)	0(0%)	
Marital Status	Single	17(100%)	0(0%)	$\chi^2\chi^2$ =2.023[a]
	Married	284(94.4%)	17(5.6%)	df=2
	Separated	17(100%)	0(0%)	p=0.364
Religion	Christianity	301(94.7%)	17(5.3%)	$\chi^2\chi^2$ =.957[a]
	Islam	17(100%)	0(0%)	df=1
				p=0.32
Education	Secondary	51(75%)	17(25%)	$\chi^2\chi^2$ =70.318[a]
	Tertiary	267(100%)	0(0%)	df=1
				p=0.00
Live with	Family	84(100%)	0(0%)	$\chi^2\chi^2$ =5.993[a]
	Spouse	234(93.2%)	17(6.8%)	df=1
				p=0.014
Residence	Rural	67(100%)	0(0%)	$\chi^2\chi^2$ =4.477[a]
	Urban	251(93.7%)	17(6.3%)	df=1
				p=0.034

Table 4 sought to determine the association between sociodemographic factors and pregnancy outcomes of postnatal women in Federal Medical Centre Umuahia, Abia State.
The results showed that, amongst the women aged 26-30, about 115(87.1%) of them had live birth, while only 17(12.9%) of them had premature birth. Amongst the women aged 31-35, where most birth delivery occurred, 119(100%) of them had live births and no record of premature birth. Concerning those of the women between 36-40 age range, 51(100%) of them at that range only recorded live births. Amongst those at 41-45 of age range, 33(100%) of them recorded live births and no premature births. There was an association between age of the respondents and a pregnancy outcome (p=0.00).
With respect to marital status of the women, the highest live birth 284(94.4%) occurred amongst married women, while 17(5.6%) of the married women also recorded premature births. The unmarried mothers had a record of 17(100%) live births, and no premature births. About 17(100%) of the women that indicated they were separated from husbands only had a record of live births and no premature births. There was no sufficient claim (p=0.364) to establish that marital status influenced pregnancy outcome amongst the postnatal women in Federal Medical Centre Umuahia, Abia State.

Pertaining to religion, majority 301(94.7%) of the Christian women had live births, while 17(5.3%) of them witnessed premature births. About 17(100%) of the Muslim women had just live births, they did not witness any premature births. There exists no association (p=0.32) between religion of the respondents and the pregnancy outcome of the postnatal women in Federal Medical Centre Umuahia, Abia State.

And as pertaining to education of the respondents, majority 234(93.2%) of the women who has attained tertiary institutions recorded live births and no premature births. About 51(75%) of the women who only attained secondary education recorded live births, while 17(25%) of the women with secondary education indicated a record of premature births amongst them. There was an association between level of education of respondents and pregnancy outcome (p=0.00).

Concerning whom the postnatal women live with, majority 234(93.2%) of them that live with their spouse recorded a successful live birth, and only17(6.8%) recorded premature births.About 84(100%) live with their family, and they recorded no premature births. There was an association between whom the respondents live with and pregnancy outcome (p=0.014).

As regards the residence of the respondents, majority 251(93.7%) of the women who live the urban areas recorded the highest live births, while only 17(6.3%) of them in the urban areas witnessed premature births. Those of the women 67(100%) that dwell in the rural areas recorded only live births and no premature births amongst them. There was a sufficient association between respondents' residence and pregnancy outcome (p=0.034).

3.5 Significance difference between each economic factor and pregnancy outcome among postnatal women in Federal Medical Centre Umuahia, Abia State.

Table 5: Difference between each economic factor and pregnancy outcomes (n=335)

Independent variable	Respondent response	Live Birth	Premature Birth	Sig.
Income level	Below 5,000	9(14%)	57(86%)	$\chi^2\chi^2$ =35.000[a]
	5,000-20,000	28(55%)	23(45%)	df=5
	21,000-50,000	36(100%)	0(0%)	d=0.00
	51,000-80,000	49(100%)	0(0%)	
	81,000-100,000	16(100%)	0(0%)	
	above 100,000	90(78%)	27(22%)	
Occupation	Casual Jobs	17(100%)	0(0%)	$\chi^2\chi^2$ =102.080[a]
	Self-employed	33(66%)	17(34%)	df=3
	Salaried Job	200(100%)	0(100%)	p=0.00
	Unemployed	68(100%)	0(100%)	
Health Management	NHIS	185(100%)	0(0%)	$\chi^2\chi^2$ =27.200[a]
	Not Insured	116(87.2%)	17(12.8%)	df=2
	Others	17(100%)	0(0%)	p=0.00
Owner House	Own Home	65(100%)	0(0%)	$\chi^2\chi^2$ =5.804[a]
	Rental	236(93.3%)	17(6.7%)	df=2
	Others	17(100%)	0(0%)	p=0.05
Type of Housing	Temporary	236(93.3%)	17(6.7%)	$\chi^2\chi^2$ =5.804[a]
	Semi-temporary	17(100%)	0(0%)	df=2
	Permanent	65(100%)	0(0%)	p=0.05

Table 5 is an attempt to determine the significant difference between each economic factor and pregnancy outcomes of postnatal women in Federal Medical Centre Umuahia, Abia State.

The results indicated that, majority 57(86%) of the respondents whose level of income fell below N5,000 recorded the highest premature births. About 28(55%) of the women whose income level lied between N21,000-N50,000 recorded live births and 23(45%) recorded premature births. Amongst the next category of women 49(100%) whose income level fell between N51,000-N80,000, recorded a total live birth. The women 16(100%) whose income level fell between N81,000-N100,000 marked a total live birth in their pregnancy outcome. And lastly, the women whose income was above N100,000 recorded the highest live births 90(78%) and very few 27(22%) premature births. There exists a significance difference between income levels and pregnancy outcome (p=0.00).

The occupation showed that, all the women with casual jobs 17(100%) recorded a total live birth and no premature births. It was further indicated that, those 33(66%) of the women with self-employed jobs recorded a live birth while 17(34%) of them witnessed premature births. It was indicated that, all the women 200(100%) with salaried jobs recorded total live births. It was also revealed that, all the women 68(100%) that are unemployed recorded a total live birth as pregnancy outcome. There exists a significant difference (p=0.00) between the kind of jobs and a pregnancy outcome of the postnatal women in Federal Medical Centre Umuahia, Abia State.

The study further ascertained that, of all the women 185(100%) that were registered under NHIS, a total live birth pregnancy outcome was observed. And amongst the 116(87.2%) of the women that are not under health insurance a live birth was recorded while 17(12.8%) of the women recorded premature birth. The other category of women 17(100%) who were neither registered with NHIS nor under a health insurance, recorded a total live birth. There exists a significance difference amongst the women under various health management and their pregnancy outcomes (p=0.00).

As pertaining to whether they owned the house they dwell, 65(100%) who indicated they did, recorded a total live birth. The other 236(93.3%) of the women who lived in rented

apartment recorded a live birth while 17(6.7%) of the women recorded premature births. The other 17(100%) of women who indicated they neither lived in their own house nor rented apartment recorded a total live birth. There exists no significant difference (p=0.05) in pregnancy outcome amongst the postnatal women in Federal Medical Centre Umuahia, Abia State.
Concerning type of housing, 236(93.3%) of the women who indicated temporary recorded live births while 17(6.7%) of them recorded premature births. Those 17(100%) of the women who indicated semi-temporary recorded a complete live birth amongst them. Those 65(100%) of the women who indicated their type of housing to be permanent recorded a complete live brith as pregnancy outcome. There exists no significant difference in type of housing of the women and pregnancy outcome (p=0.05).

Hypotheses

H_{01} : Socio-demographic factors have no significant effect on the pregnancy outcome of postnatal women in Federal Medical Centre Umuahia, Abia State.

Table 6: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-2.929	.249	138.427	1	.000	.053

Table 6 sought to ascertain and to establish if a socio-demographic factor has a significant effect on the pregnancy outcomes of the postnatal women in Federal Medical Centre Umuahia, Abia State. At $\alpha = 0.05, \alpha = 0.05,$ and $p - value$ $p - value$ (0.00), we reject the null hypothesis and conclude that socio-demographic factors of the women significantly influenced their pregnancy outcome. We therefore infer that socio-demographic factors have significant effects to pregnancy outcomes.

H_{02}: Economic factors have no significant effect on the pregnancy outcome of postnatal women in Federal Medical Centre Umuahia, Abia State

Table 7: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-2.929	.249	138.427	1	.000	.053

Table 7 sought to ascertain and to establish if the economic factors of the postnatal women have a significant effect on their pregnancy outcomes. At $\alpha = 0.05, \alpha = 0.05,$ and $p - value$ $p - value$ (0.00), we reject the null hypothesis and conclude that the economic factors of the women significantly influenced their pregnancy outcome. We therefore deduce that economic factors have significant effects to pregnancy outcome.

4. Conclusion

The following deductions were established based on the findings and discussions:
1. Marital status did not influence the pregnancy outcome of the postnatal women in Federal Medical Centre Umuahia, Abia State
2. Religion did not influence the pregnancy outcome of the postnatal women in Federal Medical Centre Umuahia, Abia State.
3. Level of education influenced pregnancy outcome of the postnatal women in Federal Medical Centre Umuahia, Abia State.
4. There is a significant association between respondents' residence and pregnancy outcome
5. Level of income of the women influenced pregnancy outcome.
6. There exists a significant difference in pregnancy outcome amongst the women under health management and those that were not.
7. Pregnancy outcome had nothing to do with whether the women lived in their own house or rented apartment amongst the postnatal women in Federal Medical Centre Umuahia, Abia State.
8. It was also concluded that sociodemographic and economic factors have significant effects to pregnancy outcomes of the postnatal women in Federal Medical Centre Umuahia, Abia State.

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