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Perceived Contributory Factors to Cleft Palate Development in Fetus among Pregnant Women Attending General Hospitals in Enugu State

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Abstract: The research looked into perceived contributory factors to cleft palate in the development of fetus among pregnant women in General hospitals in Enugu state. Eight research enquiries and the investigation was guided by eight hypotheses. A thorough evaluation of the literature was conducted in line with variables of the work. The study's focus was Enugu State, and it used a descriptive survey research design. The total study's population was 1024 registered pregnant women in the general hospital comprised of (704) urban and (290) rural dwellers also (670) Educated and (354) less educated among the respondents. Due to its manageability, the researcher chose to use the complete population for the study. The tool utilized to gather data was researchers' made questionnaire titled " Percieved contributory factor to Cleft Palate Development questionnaire (PCFCPDQ)". The instruments were validated by three specialists from Enugu State University of Science and Technology, and as the instrument was polychortomously scored, internal consistency was attained using the Cronbach Alpha reliability coefficient. To gain access to the respondents, the researcher hired eight research assistants. To facilitate simple access to the respondents, the researcher acquired an introductory letter from the head of the Department of Human Kinetics and Health Education at ESUT. The responders were given the questionnaire, and the completed forms were immediately gathered. The mean and standard deviation were used to analyze the first eight research questions. The t-test statistic was used to evaluate hypotheses 1 through 8 at the.05 level of significance. The results of the study among others include Perceived lifestyle induces: e.g smoking, alcohol, poor feeding, lack of vitamin induces the development of cleft palate among pregnant women in Enugu State as opined by the respondents. The researcher recommends among others that health practitioners and care givers should on periodic bases review the lifestyle of pregnant women during antenatal visit and encourage them on the need to maintain healthy lifestyle practice during pregnancy.

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I. INTRODUCTION

One of those several congenital birth defects especially during fetal stages of pregnancy is Palate Cleft development. Palate Cleft (PC) is a birth defect anomaly which occurs when embryological structures forming the lip, nose, and palate fail to fuse properly. This condition requires comprehensive, multidisciplinary care from various specialties throughout an individual's growth and development, spanning from infancy to a minimum of 20 years of age, in addition to continuing care for all adult patients (Welsh Health Specialized Services Committee (WHSSC), 2020). American Dental Association (2022), defined Palate Cleft as a birth abnormality marked by the incomplete formation and fusion of facial structures that normally create the palate's roof, encompassing both the hard and soft palates. Cleft palate is a congenital anomaly that occurs when the facial structures that normally form the roof of the mouth, including the hard and soft palate, fail to properly fuse during embryonic development, resulting in a partial or complete separation of the palate."Mayoclinic (2022), explained further that when the tissues in the baby's mouth and face do not correctly fuse together during fetal development, it results in Palate cleft. Typically, the palatal tissues merge between the second and third months of pregnancy, forming a complete palate. However, in cases of cleft palate, this fusion is incomplete, resulting in a partial or total opening (cleft) in the palate (Kimotho and Macharia, 2020).

Cleft Palate occurs one in every 700 live births globally. Mohammed (2022), stated that globally, about 240,000 babies born with birth defects die every year, within the first 28 days

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of life, birth defects result in numerous deaths. Infants with Palate Cleft at birth often experience feeding difficulties, swallowing challenges, and are at risk of liquids or food escaping through the nose. They may also have a nasal tone to their voice and are prone to chronic ear infections (Mayo Clinic, 2018). The estimated prevalence of Cleft Palate in the United States is 1 in 1,600 babies born with Cleft Palate, 1 in 2,800 babies born with Cleft Lip without Cleft Palate, and 1 in 1,700 babies born with Cleft Palate, according to the Centres for Disease Control and Prevention (CDC) (2022).

Studies have been conducted on the perceptions of Cleft palate in many parts of the world including Nigeria. For instance in their study "Prevalence, pattern and perceptions of cleft palate among children born in two hospitals in Kisoro District, Uganda," Kesande, Muwazi, and Bataringaya (2014) found that roughly 45% (n = 9) of the mothers of children with clefts said they felt hurt when they learnt their child had an oral cleft. Eleven of the moms believed that orofacial clefts were caused by a paranormal event. According to eight of the moms, a child who has an oral cleft is looked down upon in their community. It was disclosed by seven women that they have family members with orofacial Clefts. Of the twenty mothers, eighteen lived in hilly regions.

Pregnant mothers attending general hospitals in Enugu should be aware of the potential risks associated with certain medical procedures and treatments. It is important to speak with a licensed healthcare provider prior to having any medical interventions during pregnancy. One of the most common risks associated with medical procedures during pregnancy is the risk of adverse fetal effects. Certain procedures, such as X-rays and certain medications, can potentially harm the developing fetus. For example, X-rays may expose the fetus to ionizing radiation, which can raise the chance of birth abnormalities and other complications. Similarly, certain medications can be harmful to the fetus if taken during pregnancy. To minimize the risks associated with medical procedures during pregnancy, it is critical that expectant mothers should discuss their medical history and current pregnancy with their healthcare provider before undergoing any procedures. This includes discussing any medical conditions or allergies that may affect the safety of certain procedures.

Different contributory factors are related with the development of Cleft palate in fetus during pregnancy. One of the contributory factors to Cleft Palate development in fetus is lifestyle of the pregnant woman because prenatal maternal use of tobacco and alcohol may increase risk (Fell, Dack, Chummun, Sandy, Wren & Lewis, 2022). Environmental factors are other contributory factors that lead to development of Cleft palate. Any element that has an impact on living things, whether biotic (living) or abiotic (non-living), is referred to as an environmental component. Another contributory factor to Cleft palate development is genetic factor. While certain conditions may be attributed to a single genetic mutation, the etiology of clefts is often multifactorial. Health condition of the pregnant woman is another contributory factor to Cleft palate development in fetus during pregnancy. A developing baby in the womb whose mother has the rubella virus is at risk for severe birth defects that could have devastating, lifetime effects, and a pregnant woman who contracts the virus during pregnancy faces the possibility of miscarriage or stillbirth. Therefore, maternal infection can disrupt foetal development and potentially result in congenital defects. The likelihood of having a child with a cleft lip, with or without a cleft palate, is higher for women with pre-existing diabetes. Additionally, obesity has been identified as a trigger for the development of cleft palate. In developing nations especially, obesity is a serious public health issue (Centres for Disease Control and Prevention, 2020). Research by Figueiredo et al. (2015), a mother's pre-pregnancy hypertension raises the fetus's risk of developing cleft lip and palate. Epilepsy is another health condition of the pregnant woman that may contribute to Cleft palate. Cancer is also seen as a contributory factor to Cleft development globally.

Furthermore, location of the pregnant woman is one of the variables that may determine how a pregnant woman perceives, understand, retain and memorize what has been aware of. Urban populations are typically concentrated in and around city areas, characterized by high population densities. In contrast, rural populations are dispersed over larger areas of land, often in developing regions with lower population densities. Education may equip individuals with the knowledge and understanding to appreciate differences and promote inclusivity (Insights, 2024). Individuals with a higher education background may be more likely to have been exposed to information about Cleft Palate through formal education, such as medical or healthcare-related courses(Dardani,Howe,Mukhopadhyay,Stergiakouli, Davies,Karen, Weinberg, Marazita, Mangold, Ludwig,Relton, Smith, Lewis, Sandy, Davies and Sharp, 2020). This exposure can lead to greater awareness and understanding of the challenges faced by individuals with these conditions. As a result, educated individuals may be more empathetic and supportive towards those affected by Cleft palate. Higher education levels are often associated with increased involvement in advocacy efforts and support initiatives for individuals with disabilities (Bengtsson, 2017).

Cleft palate children face a lot of psychological and social challenges leading to stigmatization and low quality of life in relation to dental health; like inability to feed. Infants affected by Cleft Palate experience various complications, including: hearing loss and hear infection, dental issues, speech difficulties, emotional and psychological challenges related to coping with a medical condition. The speech difficulties associated with cleft palates can lead to: Low self-confidence and anxiety in social situations, such as reading

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aloud in school, Discomfort with speech quality, resulting in lower confidence levels or self-consciousness, Self-esteem issues, which can manifest as: Isolation and loneliness, anxiety and depression, Social discomfort and Behavioral problems. Pregnant woman in Enugu State may have different perception on the contributory factors of Cleft Palate development in fetus, which is the reason for this research. It is not yet proven with evidence that pregnant women in Enugu State are not knowledgeable about the contributory factors that can lead to Cleft Palate development in fetus.

➢ *Research Questions*

- What are the perceived lifestyle factors on Cleft Palate development in fetus among pregnant women in Enugu State based on Location?.
- What are the perceived environmental factors on Cleft Palate development in fetus among pregnant women in Enugu State based on Location?
- What are the perceived genetic factors on Cleft Palate development in fetus among pregnant women in Enugu State based on Location?
- What is the perceived pregnancy health condition of the Pregnant woman on Cleft Palate development in fetus among pregnant women in Enugu State based on Location?
- What are the perceived lifestyle factors on Cleft Palate development in fetus among pregnant women in Enugu State based on Educational background?.
- What are the perceived environmental factors on Cleft Palate development in fetus among pregnant women in Enugu State based on Educational background?
- What are the perceived genetic factors on Cleft Palate development in fetus among Pregnant women in Enugu State based on Educational background?
- What is the perceived pregnancy health condition of the pregnant woman on Cleft Palate development in fetus among pregnant women in Enugu State based on Educational background?

➢ *Research Hypotheses*

A significance level of 0.05 and the appropriate degree of freedom were used to test the null hypotheses:

- Ho_1: There is no noticeable variation in the mean ratings of urban and rural pregnant women perceptions of lifestyle factors on Cleft Palate development in fetus in the state of Enugu.
- Ho_2: There is no noticeable variation in the mean ratings of urban and rural pregnant women perceptions of environmental factors on Cleft Palate development in fetus in the state of Enugu.
- Ho_3: There is no noticeable variation in in the mean ratings of urban and rural pregnant women perceptions of genetic factors on Cleft Palate development in fetus in the state of Enugu.
- Ho_4: There is no noticeable variation in in the mean ratings of urban and rural pregnant women perceptions of pregnancy health condition factors on Cleft Palate development in fetus in the state of Enugu.
- Ho_5: There is no noticeable variation in the mean ratings as regard to the perception of highly educated and less educated pregnant women on the lifestyle factor on Cleft Palate development in fetus among pregnant women in the state of Enugu..
- Ho_6: There is no noticeable variation in the mean ratings as regards to the perception of highly educated and less educated pregnant women on the environmental factor on Cleft Palate development in fetus among pregnant women in the state of Enugu..
- Ho_7: There is no noticeable variation in the mean ratings as regards to the perception of highly educated and less educated pregnant women on the genetic factor on Cleft Palate development in fetus among pregnant women in the state of Enugu.
- Ho_8: There is no noticeable variation in the mean rating as regards to the perception of highly educated and less educated women on the pregnancy health condition of the pregnant women on Cleft Palate development in fetus among pregnant women in the state of Enugu.

II. RESEARCH METHOD

A descriptive survey research design was used in the study. By asking respondents directly for information, descriptive survey research designs make it easier to describe a situation as it is and provide more specific and limited data. (Udeoku & Nnamani, 2014). Additionally, Voxco (2021), states that descriptive research is gathering quantitative data that provides you with relevant and accurate details. The design is thought to be suitable for this investigation since it addresses the present trend and also determines the status of the phenomena under study. Orji (2015), adopted descriptive survey design successfully in investigating the level of knowledge of Etiology and control measures of high blood pressure among Adults in Awgu Local Government Area of Enugu State, Nigeria. The research concentrates on perceived contributory factors to cleft palate development in fetus among pregnant women attending general hospitals in Enugu State. The study looked equally at how expectant mothers' perceptions of their lifestyle contributed to the development of Cleft Palate in fetuses, how they perceived environmental factors, how they perceived genetic factors, and how they perceived their expectant mother's pregnancy health condition. Study also considered the educational status of the respondents and their residential locations in other to determine their perception on contributory factors to cleft palate development in fetus. The study's population is one thousand and twenty-four (1,024) registered pregnant women attending antenatal at the General Hospitals in Enugu State spread as follows 734 urban and 290 rural dwellers, 670

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educated and 354 less educated pregnant women. (Hospitals Health Records Department, 2023).

➢ *Sample and Sampling Techniques*

The researcher used all 1024 respondents in the study, taking into account all members of the population through a sampling technique known as the census. This was necessary due to the small number of respondents in the population.

III. RESULTS

Table 1: Mean score with standard deviation of perceived lifestyle factors in the fetus's development of a Cleft Palate among pregnant women in Urban and Rural area of Enugu State.

	ITEMS	**Urban N 734**				**Rural N 290**			
S/N		N	X	SD	D	N	X	SD	D
1	Cigarette smoking	734	2.64	.499	A	"	2.55	.323	A
2	High level of alcohol Consumption	"	2.55	.362	A	"	2.73	.417	A
3	Lack of intake of folic acid	"	2.71	.247	A	"	2.61	.207	A
4	Poor feeding habit	"	2.60	1.43	A	"	2.51	.321	A
5	Lack of vitamin	"	2.48	1.81	D	"	2.44	.304	D
6	Failure to go for medical checkup	"	2.36	.360	D	"	2.67	.294	A
7	Use of amphetamine	"	2.66	.284	A	"	2.82	.268	A
8	Taking Herbal Drug	"	2.45	2.45	D	"	3.16	.389	A
9	Taking certain medications without doctor's prescription	"	2.56	.343	A	"	2.66	.422	A
10	Use of birth control pill	"	2.68	1.69	A	"	2.79	1.44	A
11	Exposure to infection	"	2.53	2.66	A	"	2.63	.339	A
12	Use of certain insecticide	"	2.69	.389	A	"	2.48	.384	D
13	Uses of paints	"	2.51	.421	A	"	2.51	.405	A
14	Uses of products containing mercy	"	2.38	.431	D	"	2.64	.274	A
15	Uses of certain harmful clearing agents	"	2.66	.304	A	"	2.70	.280	A
16	Use of asbestos products	"	2.71	.294	A	"	2.88	.403	A
17	Contact with flame retardants	"	2.83	.236	A	"	2.36	.274	D
18	Use of cocaine	"	2.74	.307	A	"	2.43	.309	D
19	Stress	"	2.68	.401	A	"	2.62	.224	A
20	Peer group influence	"	2.58	.304	A	"	2.77	.294	A
21	Taking HIV drugs	"	2.47	.272	D	"	2.65	.236	A
22	Use of epileptic seizure drug such as Topirramate	"	2.55	.339	A	"	2.59	.345	A
GRAND MEAN			2.59	0.684	A		2.65	0.420	A

Data on table one above shows the grand mean score of pregnant woman in urban and rural areas of Enugu State respectively as 2.59 and 2.65 regarding the perceived lifestyle factors in the development of cleft palate among pregnant women. Further analysis of the item revealed that both respondents agreed on the items except items 6(2.36) 8(2.45) 14(2.38) for urban respondents while item 5(2.44) 17(2.36) and 18(2.43) for the rural respondents as the mean scores of those items are below 2.50.

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- Research Question Two: What are the perceived environmental factors in fetus's development of a Cleft Palate among pregnant women in urban and rural area of Enugu State.

Table 2: Mean score with standard deviation on the perceived environmental factors in fetus's development of a Cleft Palate among pregnant women in urban and rural area of Enugu State.

	ITEMS	**Urban N 734**				**Rural N 290**			
	ITEMS	N	X	SD	D	N	X	SD	D
23	Unhealthy environment	734	2.50	1.42	A	290	2.66	1.33	A
24	Topographical Nature	"	2.61	1.22	A	"	2.71	1.40	A
25	Air Pollution	"	2.54	1.30	A	"	2.50	1.29	A
26	Radiation	"	2.63	1.33	A	"	2.57	1.44	A
27	Inhalation of smoke from burning forest and car exhaust	"	2.72	1.49	A	"	2.75	.379	A
28	Extreme heat	"	2.83	.386	A	"	2.69	.401	A
29	Consumption of contaminated water	"	2.66	.401	A	"	2.49	.437	D
30	Living in an overcrowded environment	"	2.77	.207	A	"	2.94	1.47	A
31	Residential area	"	2,90	1.34	A	"	2.59	1.59	A
32	Poverty	"	2.31	1.39	D	"	2.69	1.69	A
33	Climate change	"	2.64	.309	A	"	2.94	1.77	A
34	Non availability of health facility	"	2.51	.434	A	"	2.81	.433	A
35	Exposure to certain chemicals	"	2.74	.344	A	"	2.61	.381	A
GRAND MEAN			2.64	0.890	A		2.69	1.07	A

Data on table 2 above shows the grand scores of pregnant women in urban and rural parts of Enugu. with respect to perceived environment factors as 2.69 and 2.69 revealed that both participants agreed on the whole items except items 32 (2.31) for urban and item 29 (2.49) for rural respondents. The implication is that environmental factors affect development of cleft palate in fetus among pregnant women as opined by the respondents.

- Research Question Three: What are the perceived genetic factors in fetus's development of a Cleft Palate among pregnant women in urban and rural area of Enugu State?.

Table 3: Mean score with standard deviation on the perceived environmental factors in fetus's development of a Cleft Palate among pregnant women in urban and rural area of Enugu State.

		Urban N 734				**Rural N 290**			
S/N	**ITEMS**	N	X	SD	D	N	X	SD	D
36	Chromosome abnormality	734	2.53	1.33	A	290	2.64	.401	A
37	Change in DNA sequence	"	3.44	1.49	A	"	2.82	1.26	A
38	Vander Woude syndrome	"	2.74	1.54	A	"	2.73	.339	A
39	Velocardiofacial syndrome	"	2.86	.394	A	"	2.44	.497	D
GRAND MEAN			2.89	1.189	A		2.66	0.62	A

Data on table 3 shows the grand mean score of pregnant women in urban and rural parts of Enugu as 2.89 and 2.66 respectively with respect to genetic factors in the development of cleft palate among pregnant women. Further analysis of the item revealed that the participants concurred on the whole items as the individual mean scores of the item is 2.50 and above.

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- Research Question Four: What is the perceived health condition of the pregnant women factors in fetus's development of a Cleft Palate among pregnant women in urban and rural area of Enugu State?

Table 4: Mean score with standard deviation on the perceived health condition of the pregnant women factors in fetus's development of a Cleft Palate among pregnant women in urban and rural area of Enugu State.

	ITEMS	**Urban N 734**				**Rural N 290**			
S/N	**ITEMS**	N	X	SD	D	N	X	SD	D
40	Diabetes	734	2.66	.304	A	290	2.55	.433	A
41	Obesity	"	2.52	.209	A	"	2.64	.409	A
42	Hypertension	"	2.69	.436	A	"	2.70	.373	A
43	Chronic Kidney Diseases	"	2.70	.566	A	"	2.68	.391	A
44	Epileptics	"	2.60	.394	A	"	2.86	.275	A
45	Cancer	"	2.53	.409	A	"	2.53	.357	A
46	Rheumatoid Arthritis	"	2.48	.336	D	"	2.91	.403	A
GRAND MEAN			**2.89**	**1.189**	**A**		**2.66**	**0.62**	**A**

Data on table 4 above shows the grand mean score of pregnant women in urban and rural parts of Enugu as 2.60 and 2.69 respectively with respect to the perceived health condition factors in fetus's development of a Cleft Palate. Further analysis of the item revealed that both respondents agreed on the whole items as the individual mean scores of the items are 2.50 and above.

- Research Question Five

What are the perceived Lifestyle factors in the development of Cleft Palate in fetus among highly educated and less educated pregnant women in Enugu State?

Table 5: Mean score with standard deviation on the perceived Lifestyle factors in the development of Cleft Palate in fetus among highly educated and less educated pregnant women in Enugu State.

		Highly Educated N 670				**Less Educated N 354**			
S/N	**ITEMS**	**N**	**X**	**SD**	**D**	**N**	**X**	**SD**	**D**
47	Cigarette smoking	670	2.64	.499	A	354	2.55	.323	A
48	High level of alcohol Consumption	"	2.55	.362	A	"	2.73	.417	A
49	Lack of intake of folic acid	"	2.71	.247	A	"	2.61	.207	A
50	Poor feeding habit	"	2.60	1.43	A	"	2.51	.321	A
51	Lack of vitamin	"	2.48	1.81	D	"	2.44	.304	D
52	Failure to go for medical checkup	"	2.36	.360	D	"	2.67	.294	A
53	Use of amphetamine	"	2.66	.284	A	"	2.82	.268	A
54	Taking Herbal Drug	"	2.45	2.45	D	"	3.16	.389	A
55	Taking certain medications without doctors prescription	"	2.56	.343	A	"	2.66	.422	A
56	Use of birth control pill	"	2.68	1.69	A	"	2.79	1.44	A
57	Exposure to infection	"	2.53	2.66	A	"	2.63	.339	A
58	Use of certain insecticide	"	2.69	.389	A	"	2.48	.384	D
59	Uses of paints	"	2.51	.421	A	"	2.51	.405	A
60	Uses of products containing mercy	"	2.38	.431	D	"	2.64	.274	A
61	Uses of certain harmful clearing agents	"	2.66	.304	A	"	2.70	.280	A
62	Use of asbestos products	"	2.71	.294	A	"	2.88	.403	A
63	Contact with flame retardants	"	2.83	.236	A	"	2.36	.274	D
64	Use of cocaine	"	2.74	.307	A	"	2.43	.309	D
65	Stress	"	2.68	.401	A	"	2.62	.224	A

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66	Peer group influence	"	2.58	.304	A	"	2.77	.294	A
67	Taking HIV drugs	"	2.47	.272	D	"	2.65	.236	A
68	Use of epileptic seizure drug such as Topirramate	"	2.55	.339	A	"	2.59	.345	A
GRAND MEAN			2.59	0.684	A		2.65	0.420	A

Data on table 5 above shows the grand mean score of pregnant woman who are educated and less educated in Enugu State respectively as 2.59 and 2.65 regarding the perceived lifestyle factors in Fetus's development of Cleft Palate among pregnant women. Further analysis of the item revealed that both respondents agreed on the items except items 6(2.36) 8(2.45) 14(2.38) for educated respondents while item 5(2.44) 17(2.36) and 18(2.43) for the less educated respondents as the mean scores of those items are below 2.50.

- Research Question Six: What are the perceived environmental elements in the development of Cleft Palate in fetus among highly educated and less educated pregnant women in Enugu State?.

Table 6: Mean score with standard deviation on the perceived environmental elements in the development of Cleft Palate in fetus among highly educated and less educated pregnant women in Enugu State.

	ITEMS	**Educated N 670**				**Less Educated N 354**			
S/N	ITEMS	N	X	SD	D	N	X	SD	D
69	Unhealthy environment	670	2.66	1.33	A	354	2.50	1.42	A
70	Topographical Nature	"	2.71	1.4	A	"	2.61	1.22	A
71	Air Pollution	"	2.5	1.29	A	"	2.54	1.3	A
72	Radiation	"	2.57	1.44	A	"	2.63	1.33	A
73	Inhalation of smoke from burning forest and car exhaust	"	2.75	0.379	A	"	2.72	1.49	A
74	Extreme heat	"	2.69	0.401	A	"	2.83	0.386	A
75	Consumption of contaminated water	"	2.49	0.437	D	"	2.66	0.401	A
76	Living in an overcrowded environment	"	2.94	1.47	A	"	2.77	0.207	A
77	Residential area	"	2.59	1.59	A	"	2,90	1.34	A
78	Poverty	"	2.69	1.69	A	"	2.31	1.39	D
79	Climate change	"	2.94	1.77	A	"	2.64	0.309	A
80	Non availability of health facility	"	2.81	0.433	A	"	2.51	0.434	A
81	Exposure to certain chemicals	"	2.61	0.381	A	"	2.74	0.344	A
GRAND MEAN			**2.69**	**1.07**	**A**		**2.64**	**0.89**	**A**

Data on table 6 above shows the grand scores of pregnant women who are educated and less educated in Enugu with respect to perceived environment factors as 2.69 and 2.69 revealed that both respondents agreed on the whole items except items 32 (2.31) for educated and item 29 (2.49) for less educated respondents. According to the responders, this implies that environmental factors have an impact on the development of Cleft Palate in foetuses born to pregnant mothers.

- Research question seven: What are the perceived genetic factors in the development of Cleft Palate in fetus among highly educated and less educated pregnant women in Enugu State?

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Table 7: Mean score with standard deviation on the perceived environmental factors in the development of Cleft Palate in fetus among highly educated and less educated pregnant women in Enugu State.

	ITEMS	**Highly Educated**	**Less Educated**

S/N	ITEMS	N	X	SD	D	N	X	SD	D
82	Chromosome abnormality	670	2.64	0.401	A	354	2.53	1.33	A
83	Change in DNA sequence	“	2.82	1.260	A	“	3.44	1.49	A
84	Vander Woude syndrome	“	2.73	0.339	A	“	2.74	1.54	A
85	Velocardiofacial syndrome	“	2.44	0.497	D	“	2.86	0.394	A
GRAND MEAN			2.70	0.62	A		2.89	1.19	A

Data on table 7 shows the grand mean score of pregnant women who are educated and less educated in Enugu state as 3.89 and 2.66 respectively with respect to genetic factors in the development of Cleft Palate among pregnant women. Further analysis of the item revealed the respondents' agreement with the entire set of items, given that each item's individual mean score was 2.50 or higher.

- Research Question Eight: What is the perceived health conditions factors of the pregnant women in the development of Cleft Palate among highly educated and less educated pregnant women in Enugu State?

Table 8: Mean score with standard deviation on the perceived health conditions factors of the pregnant women in the development of Cleft Palate among highly educated and less educated pregnant women in Enugu State.

	ITEMS	**Highly Educated**	**Less Educated**

S/N	ITEMS	N	X	SD	D	N	X	SD	D
86	Diabetes	670	2.66	0.304	A	354	2.55	0.433	A
87	Obesity	“	2.52	0.209	A	“	2.64	0.409	A
88	Hypertension	“	2.69	0.436	A	“	2.7	0.373	A
89	Chronic Kidney Diseases	“	2.7	0.566	A	“	2.68	0.391	A
90	Epileptics	“	2.6	0.394	A	“	2.86	0.275	A
91	Cancer	“	2.53	0.409	A	“	2.53	0.357	A
92	Rheumatoid Arthritis	“	2.48	0.336	D	“	2.91	0.403	A
GRAND MEAN			2.90	1.19	A		2.66	0.620	A

Data on table 8 above shows the grand mean score of pregnant women who are educated and less educated in Enugu State as 2.60 and 2.69 respectively with respect to the perceived health condition in the development of Cleft palate. Further analysis of the item revealed that both respondents agreed to the whole items as the individual mean scores of the items are 2.50 and above.

- Hypothesis One: The mean evaluations do not significantly differ from one another as regards to the perception of the pregnant women in urban and rural areas as regards to the lifestyle factors in development of Cleft Palate in fetus among pregnant women in Enugu State.

Table 9: showing the result of hypothesis one.

Category	**N**	**X**	**SD**	**Df**	**T-cal**	**T crit**	**Decision**
Urban	734	2.59	0.684	1022	1.48	±1.96	Accepted
Rural	290	2.65	0.420				Null hypo

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Hypothesis I shows the value of t-calculated as 1.48 while the crucial amount was ± 1.96 at 0.05 level of significant different and 1022 degree of freedom. The null hypothesis was not rejected since the computed value is below the crucial value. The conclusion is that, when it comes to the perceived lifestyle factors that contribute to the development of cleft palate in Enugu State, pregnant women in urban and rural areas do not significantly differ in their mean ratings.

- Hypothesis Two: Regarding the perception of environmental factors in the development of Cleft Palate in fetus among pregnant women in Enugu State, there is no statistically significant variation in the mean rating between pregnant women in rural and urban areas.

Table 10: showing the result of hypothesis two.

Category	N	X	SD	Df	t-cal	T-cri	Decision
Urban	734	2.64	0.890	1022	-1.23	±1.96	Accept
Rural	290	2.69	1.071				Null Hypo

In Hypothesis 2, the t-value was computed to be –1.23, and at the 0.05 level of significance difference and 1022 degrees of freedom, the critical value was ± 1.96. The aforementioned results imply that the null hypothesis tested is not rejected because the critical value is bigger than the computed value. This suggests that there is no discernible difference in pregnant women's mean perceptions of environmental factors in Enugu State's rural and urban districts.

- Hypothesis Three:

Regarding the view of pregnant women in Enugu State regarding the role of genetics in the formation of cleft palate in the fetus, there is no statistically significant variation in the mean rating between pregnant women in rural and urban areas.

Table 11: Showing the result of hypothesis 3:

Category	N	X	SD	Df	t-cal	t-critic	Decision
Urban	734	2. 89	1.89				Accepted
				1022	-1.74	±1.96	Null Hypo
Rural	290	2.69	1.071				

According to Hypothesis 3, the critical value was ±1.96 at the 0.05 level of significance and 1022 degrees of freedom, and the value of t-was computed as -1.74. The null hypothesis was not rejected since the computed value is below the crucial value. The consequence is that, in terms of genetic factors influencing the development of cleft palate in foetus, there is no discernible difference between the mean ratings of pregnant women in Enugu state's rural and urban districts.

- Hypothesis Four: Regarding the perception of health condition determinants in the development of Cleft Palate in foetus among pregnant women in Enugu State, there is no statistically significant variation in the mean rating between pregnant women in rural and urban areas.

Table 12: showing the result of hypothesis 4:

Category	N	X	SD	Df	t-cal	t- critical	Decision
Urban	734	2. 60	0.38	1022	-1.89	±1.96	Accepted
Rural	290	2.69	0.48				Null Hypo

Hypothesis 4 indicates that the null hypothesis tested was not rejected, even though the critical value is bigger than the calculated value, with a t-calculated value of -1.89 at the 0.05 threshold of significant difference and 1022 degrees of freedom. This result implied that there was no statistically significant difference between the mean perception scores of pregnant women in Enugu State's rural and urban areas about the development of cleft palate in the foetus among pregnant women in Enugu State.

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- Hypothesis Five: There is no significant difference in the mean ratings as regards to the perception of highly educated and less educated pregnant women on the lifestyle factors in the development of Cleft Palate in fetus among pregnant women in Enugu State.

Table 13: showing the result of hypothesis 5

Category	N	X	SD	Df	t-cal	t-critical	Decision
Educated	670	2. 59	0.684	1022	-1.48	±1.96	Accepted
Less Educated	354	2.65	0.420				Null Hypo

Hypothesis reveals that the t-calculated value was 1.48, and at the 0.05 threshold of significant difference and 1022 degree of freedom, the critical value was ± 1.96. The null hypothesis was not rejected since the computed value is below the crucial value. The inference is that, when it comes to the perceived lifestyle factors that contribute to the development of Cleft Palate in foetuses in Enugu State, there are no appreciable differences in the mean ratings of pregnant women with and without education.

- Hypothesis Six: There is no significant difference in the mean ratings as regards to the perception of highly educated and less educated pregnant women on the environmental factors in the development of Cleft Palate in fetus among pregnant women in Enugu State.

Table 14: showing the result of hypothesis 6

Category	N	X	SD	Df	t-cal	T-cri	Decision
Highly Educated	670	2.64	0.890	1022	-1.63	±1.96	Accepted
Less Educated	354	2.69	1.071				Null Hypo

Hypothesis 6 reveals that the t-calculated value was –1.63, and at the 0.05 threshold of significant difference and 1022 degree of freedom, the critical value was ± 1.96. The aforementioned results imply that the null hypothesis tested is not rejected because the critical value is bigger than the computed value. This suggests that when it comes to how pregnant women in Enugu State perceive environmental influences, there is no discernible difference between the mean perceptions of highly educated and less educated women.

- Hypothesis Seven: Regarding the view of highly educated and less educated pregnant women regarding the role of hereditary factors in the development of Cleft Palate among pregnant women in Enugu State, there is no statistically significant variation in the mean rating.

Table 15: showing the result of hypothesis 7

Category	N	X	SD	Df	t-cal	t-cri	Decision
Highly Educated	670	2. 89	1.89				Accept
				1022	-1.44	±1.96	Null hypo
Less Educated	354	2.69	1.071				

Hypothesis 7 reveals that the critical value was ±1.96 at the 0.05 threshold of significant difference and 1022 degrees of freedom, but the value of t-was computed as -1.44. The null hypothesis was not rejected since the computed value is below the crucial value. Consequently, it may be concluded that the average ratings of highly educated and less educated pregnant women in Enugu State with respect to genetic factors.

- Hypothesis Eight: The mean rating does not significantly differ as regards to the perception of highly educated and less educated women on the health condition of the pregnant women in the development of a fetus's Cleft Palate among pregnant women in Enugu State.

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Table 16: showing the result of hypothesis 8

Category	N	X	SD	Df	t-cal	t-	Decision
						critical	
Highly Educated	670	2. 60	0.38	1022	-1.97	±1.96	Accepted
Less Educated	354	2.69	0.48				Null hypo

Hypothesis 8. The implication of the above finding was that there is no significant difference in the mean perception scores of highly educated and less educated pregnant women in Enugu State with respect to pregnancy health condition in the development of cleft palate in fetus. The value of t-calculated as -1.97s at 0.05 level of significant difference and 1022 degree of freedom shows the critical value is greater than the calculated value the null hypothesis tested was not rejected.

IV. DISCUSSION

- *Perceived lifestyle factors eg. Smoking, alcohol consumption etc greatly induces the development of cleft palate in fetus among pregnant women in Enugu State.*

The results are consistent with the observations made by Nurhayati (2020), who noted that cancer, diabetes, obesity, and cardiovascular disease are some of the chronic health conditions closely linked to lifestyle factors like diet, physical exercise, and alcohol and tobacco use. He mentioned research showing, for instance, that low physical activity levels, a bad diet, and a healthy body weight are linked to higher rates of cancer and metabolic disease-related death in pregnancy. WHO (2023) observed that lifestyle accounted for 60% of associated factors affecting an individual's health and quality of life, which further supports the findings. They saw that millions of people lead unhealthy lifestyles, which leads to disease, incapacity, and even death. Maternal health, exposure to specific drugs or chemicals, and nutrition are a few of these lifestyle influences. One important lifestyle element that can affect a fetus's development of Cleft Palate is the mother's nutrition (Lowensohn, Stadler, and Naze, 2016). An increased risk of certain illnesses has been linked to vitamin deficiencies, such as folic acid. A folic acid shortage during pregnancy has been linked to an increased incidence of Cleft Palate. Folic acid is necessary for proper fetal development. Pregnancy-related exposure to specific drugs or chemicals may also influence a fetus's risk of developing cleft palate (Angulo-Castro, Acosta-Alfaro, Guadron-Llanos, Canizalez-Román, Gonzalez-Ibarra, Osuna-Ramírez and Murillo-Llanes, 2017). Regarding the respondents' perceptions on the role of lifestyle factors in the development of Cleft Palates in fetuses among pregnant women in the state of Enugu, there is no statistically significant disparity in the mean rating scores.

- *Perceived environmental variables such as air pollution, among others, significantly contribute to the development of cleft palate in fetuses among pregnant women in Enugu State.*

The results are consistent with the observations made by the World Health Organisation (2023) that healthier surroundings have the potential to avert about 25% of the world's illness burden. They noted that safe chemical usage, radiation protection, clean air and hygiene, safe and healthy workplaces, safe and sound farming practices, health-promoting cities and constructed environments, and the preservation of natural areas are crucial requirements for optimal health. Cleveclinic (2022) concurred with the findings, stating that environmental factors significantly affect human health. He noted that there are trace amounts of chemicals and toxins in the soiled food we eat, the air we breathe, and the water we drink, and that environmental risks can be physical, chemical, or biological. CDC(2017), highlighted that environmental factors the woman experiences while pregnant may contribute to the formation of a cleft palate in the developing fetus. Prenatal exposure to specific chemicals and inadequate nutrition has been linked to the development of cleft palates in fetuses, among other environmental factors. One environmental factor that has been linked to an increased incidence of Cleft Palate is inhalation of smoke from burning forest and car exhaust during pregnancy. According to "Smiths Recognizable Patterns of Human Malformation" (Print), inhalation of smoke has been determined as a significant environmental risk factor for the formation of palate cleft in offspring. The chemicals present in cigarette smoke, such as nicotine and carbon monoxide, can disrupt normal fetal development, leading to structural abnormalities in the face, including Cleft Palate. Another environmental factor that has been linked to an elevated risk of Cleft Palate in fetuses is maternal alcohol use when pregnant. Mean, does not differ significantly in rating scores of the respondents with respect to the perceived environmental factors in fetus's development of a Cleft Palate among pregnant women in Enugu State as opined by the respondents.

- *Perceived genetic factors eg chromosome etc greatly induces the fetus's development of a cleft palate among pregnant women in Enugu state as opined by the respondents.*

The findings is in agreement with the views of Orphanet (2011) who observed that most diseases cannot be attributed to a single gene or even multiple genes. Instead, they are the consequence of a complicated interaction between our genetic composition and environmental influences. Family history is a strong predictor of an individual's disease risk, as family members share a unique combination of genomic and environmental influences. Disease development is largely influenced by inherited genetic variations within families, both directly and indirectly. This emphasizes how crucial it is to take into account the complex interplay between environment

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and genetics when attempting to understand the pathophysiology of disease. Angulo-Castro, Acosta-Alfaro, Guadron-Llanos, Canizalez-Román , Gonzalez-Ibarra, Osuna-Ramírez and Murillo-Llane (2017), explained that certain genetic traits related to craniofacial development may be passed down through generations, increasing the susceptibility to these birth defects. Furthermore, advances in genetic research have resulted to a better understanding of the molecular mechanisms underlying Cleft Palate. Studies have identified signaling pathways and regulatory networks that are disrupted in individuals with these conditions, shedding light on the intricate genetic processes involved in normal facial development. In general, genetic factors have a major role in the development of Cleft Palate in fetuses among pregnant women. However, environmental variables, including maternal nutrition, exposure to pollutants, and lifestyle choices, all play a role in raising the incidence of these birth abnormalities. Most youngsters who are affected by cleft palate do not exhibit any other abnormalities in their body. Given their well-established significant genetic component, there is a chance that they will reoccur in siblings. According to the respondents, there is no discernible variation in the mean perception scores of the respondents about the believed genetic variables in the development of cleft palate in the foetus among pregnant women in Enugu State.

- *Perceived pregnancy health conditions, such as having diabetes, obesity, etc., which significantly increases the risk of cleft palate development in the fetus.*

The results support the observations of Oginni and Adeneka (2012), who stated that leading a healthy lifestyle and receiving medical attention before, during, and after pregnancy can reduce the risk of physical and mental conditions that affect the health of the pregnant or postpartum person, their baby, or both.

According to the respondents, there is no discernible variation in the mean perception scores of the respondents about the perceived health of pregnant women in Enugu State with regard to the development of cleft palate in fetus.

V. CONCLUSION

The study's results were based on the following findings. Pregnant women's perceived lifestyle choices, such as drinking alcohol and smoking cigarettes, significantly increase the risk of cleft palate development in the foetus. Pregnant women who believe they have a chromosomal issue or other perceived genetic component considerably increase the risk of their foetus developing a Cleft Palate. Pregnant women in Enugu State who perceive health issues related to pregnancy, such as diabetes, may give birth to a fetus with Cleft Palate.

RECOMMENDATIONS

- *According to the study's conclusions, the researcher made the following recommendations;*

Healthcare professionals and carers ought to on periodic bases review the lifestyle of pregnant women during antenatal visit and encourages them on the need to maintain healthy lifestyle practices during pregnancy. Government agencies and others nongovernment organization should conduct a sanitation programming to both pregnant and non-pregnant women in our society to educate them on the consequences of environmental factors on human health. Such with help pregnant women to adopt freely within environment. Wealthy individual and good spirited individuals should as a matter of urgency conduct awareness creation of the genetic factors that affect pregnancy and fetus development of cleft palate in fetus among pregnant women. That pregnant women are encouraged to periodically seek for medical attention during their pregnancy journey to a certain the state of development of the growing fetus.

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