

## The Pattern of Otorhinolaryngological Manifestations in Pregnant Women in South Western-Nigeria

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### Abstract:

**Background:** A substantial number of changes occur throughout the entire body of a female during pregnancy. Although most of these changes produce no harm to the expectant mother or foetus, as many are benign and get to the normal during the postpartum period, but some don't. The hormonal and physiological developments that take place during this period may affect the ear, nose and throat of to be mothers and often cause considerable amount of uneasiness, discomfort and anxiety. Therefore, the pregnancy should take special attention due to changes that affect both the expectant mother and her foetus and the relation between these fluctuations and ENT difficulties. It is also important for the Physician to have information of these common changes and treat them with precaution seeing the possible effects to both the mother and developing foetus during this vital period.

**Objective:** The objective of this study is to find out the Otorhinolaryngological health issues of pregnant women.

**Material and Methods:** It was a cross sectional study carried amongst 200 consenting pregnant women. Ethical supports were sought from the hospital's ethical team. The questionnaire was given among consenting pregnant women. Data acquired was analysed using the Epi info version 6. Qualitative data were plotted using frequencies and percentages. Barnard's exact test was used for categorical data, and the  $P \leq 0.05$  was considered statistically significant.

**Results:** A total of 200 pregnant women were recruited during the study (August 2017 to August 2018). The age range was from 18 – 44 years. The maximum no. of pregnant women i.e., 45% was Primigravida, 38% were Gravida 2, and 17% were Gravida 3 or more. Out of 200, the maximum no. of pregnant women i.e. 47% reported in 3rd trimester, 32% in 2nd and 21% in the 1st trimester. Out of 200 pregnant women most common otological complaint was ear itching (32.5%) followed by vertigo (6.5%), Tinnitus (6%), Autophony (5.5%), Aural Fullness (5%), Otagia (4.5%), Hearing loss (3.5%), Ear discharge (2%). Least common was facial weakness (0.5%). Most common nasal complaint was Headache (50.5%) followed by Nasal discharge (35%), nasal congestion (32%), Excessive sneezing (25.5%), snoring (22.5%), Postnasal dripping (15.1%), Nasal itch (14.5%), Atopy (10%) Sleep apnoea (8.5%). Least common were Anosmia (1%) and Facial pain / heaviness (0.5%). Most common Oral and Throat complaint was Heartburn-GERD (60%) followed by Excessive salivation (17.5%), Sore throat (11.5%), Hoarseness (6.5%), Nasal regurgitation (5.5%), Gum swelling (5%), Loss of voice (4%). Least common were Gum pains (3.5%) and Nocturnal aspiration (0.5%).

**Conclusion:** The shared Otorhinolaryngological complaints reported in this study showed eminence of features of likely otomycosis, rhinitis and gastroesophageal reflux disease. Most of the above-mentioned disorders are a direct consequence of the physiological variations of pregnancy. Thorough information of these conditions and their safe handling would be beneficial both to the expectant mother and the growing foetus.

**Key Words:** ENT Manifestations, Pregnancy, Otorhinolaryngological Conditions.

## **Introduction:**

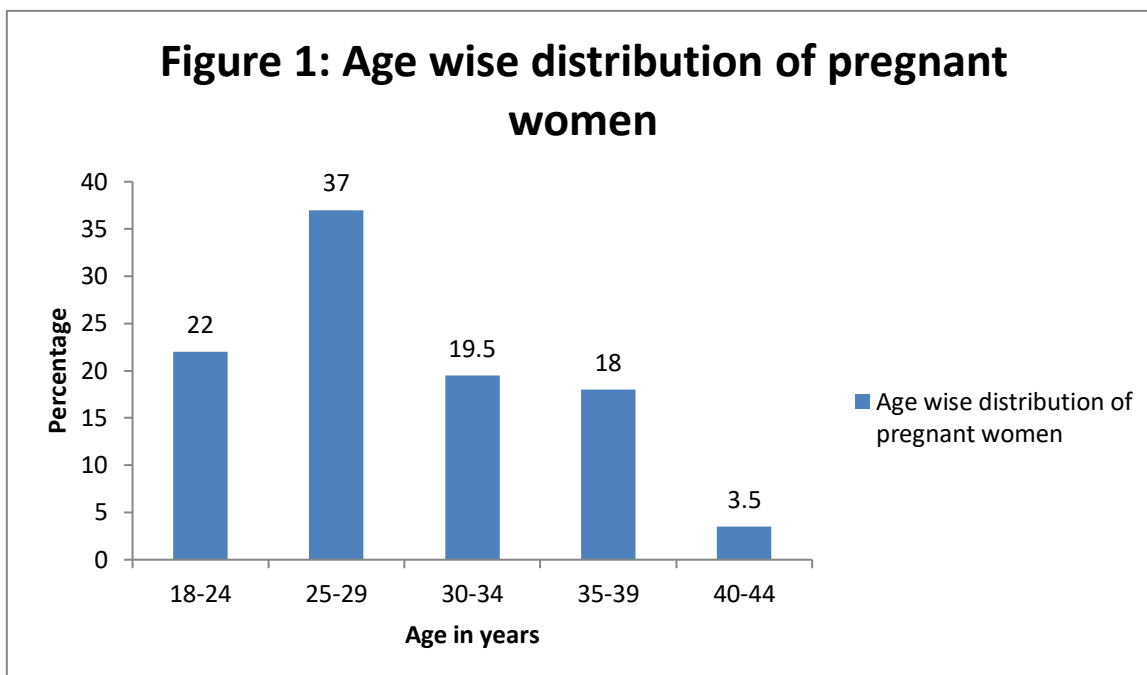
Pregnancy is the period where numerous metabolic, endocrinological and physiological variations occur throughout entire body including Ear, Nose and Throat. The modified hormonal setting is responsible for these problems be it physiological or pathological. This adjustment is due mainly due to the production of hormones like oestrogen and progesterone as well as placental hormones like Human chorionic gonadotropin (HCG), Human placental lactogen (HPL), somatomammotropin, Human chorionic thyrotropin (HCT) and human chorionic corticotropin<sup>1</sup>. These clusters of hormones have a huge consequence on the physiology and immunological reaction of the body. While most of these ENT fluctuations are temporary and will disappear after the birth of foetus, but some may continue<sup>2</sup>. Metabolic and physiologic fluctuations in pregnancy result in amplified cardiac output and an increase in blood volume. This results in swollen mucus membranes<sup>3</sup>. Oestrogen and progesterone surge during the third trimester causing alterations in mucosal lining, especially nasal, oral, pharyngeal and laryngeal linings<sup>2</sup>. There is also an elevation in serum cortisol level causing relative gestational immunosuppression, which may lead to reactivation of latent and hidden viral infections<sup>3</sup>. Conditions of the ear that manifests during pregnancy include Eustachian tube dysfunction and disorders (ETD), Otosclerosis and sudden hearing loss (Conductive or Sensorineural)<sup>2</sup>. Pregnancy also flares up giddiness spells in women with Meniere's disorder<sup>4</sup>. Bell's palsy and tinnitus happen more often during the third trimester of gravidity<sup>5</sup>. Nasal illnesses that are not infrequent in pregnancy comprise rhinitis, allergic rhinitis and nasal haemangioma<sup>2</sup>. Oral and throat disorders commonly faced in pregnancy comprise obstructive sleep apnoea, gastroesophageal reflux, granuloma gravidarum, laryngopathia gravidarum and ptyalism gravidarum<sup>2</sup>. Gastroesophageal reflux (GERD) is seen in 30–80% of expectant women<sup>4</sup>, whereas granuloma gravidarum in up to 5%<sup>6</sup>. The pregnant women face a perplexing time zone which may be made more stressful by rising ENT associated disorders. Although the greatest symptoms are slight and temporary, it is significant that otorhinolaryngologist identify the possible influences that pregnancy can exhibit in order to treat and assure the patient. The purpose of this study was to discover out the common ear, nose and throat complaints and the outline of their distribution throughout the confinement.

## **Material and Methods:**

This is a survey based cross-sectional study conducted at the ENT hospital and ante-natal hospitals. Two hundred pregnant visiting the ante-natal clinic throughout all the 3 trimesters were taken for this study. All these expectant pregnant women with ENT manifestations were lay open to to detailed history, routine physical check-up and entire ENT examination. The examination of Nose comprises examination of external nose and vestibule, Anterior rhinoscopy, posterior rhinoscopy, endoscopy (if required), functional examination of nose with analysis for patency and perception of smell in gravid women. Examination of Ear contains examination of external pinna, external auditory canal, tympanic membrane, middle ear and mastoid region, assessment of Eustachian tube and its patency, Rinne's and Weber's tests, facial nerve (VII) examination. Complete inspection of oral cavity. Examination of Throat consists of external examination of Larynx and vocal cords, indirect laryngoscopy, flexible or rigid fibre-optic endoscopy wherever required, assessment of cervical lymph nodes enlargement, examination of thyroid gland. Hearing and listening was evaluated by pure tone audiometry and hearing thresholds were measured. Short increment Sensitivity Index (SISI) and Tone Decay was executed wherever required. Impedance audiometry was also performed. Routine Haematological investigations including Haemoglobin levels, Bleeding time, Clotting time, Total leucocyte counts, Differential leucocyte counts, Platelet count, Renal function tests, Liver function tests, Random Blood sugar and Thyroid function tests were done. Data obtained were analysed using the Epi info version 6. Qualitative data were plotted using frequencies and percentages. Barnard's exact test was used for categorical values, and the  $P \leq 0.05$  was taken as statistically significant value.

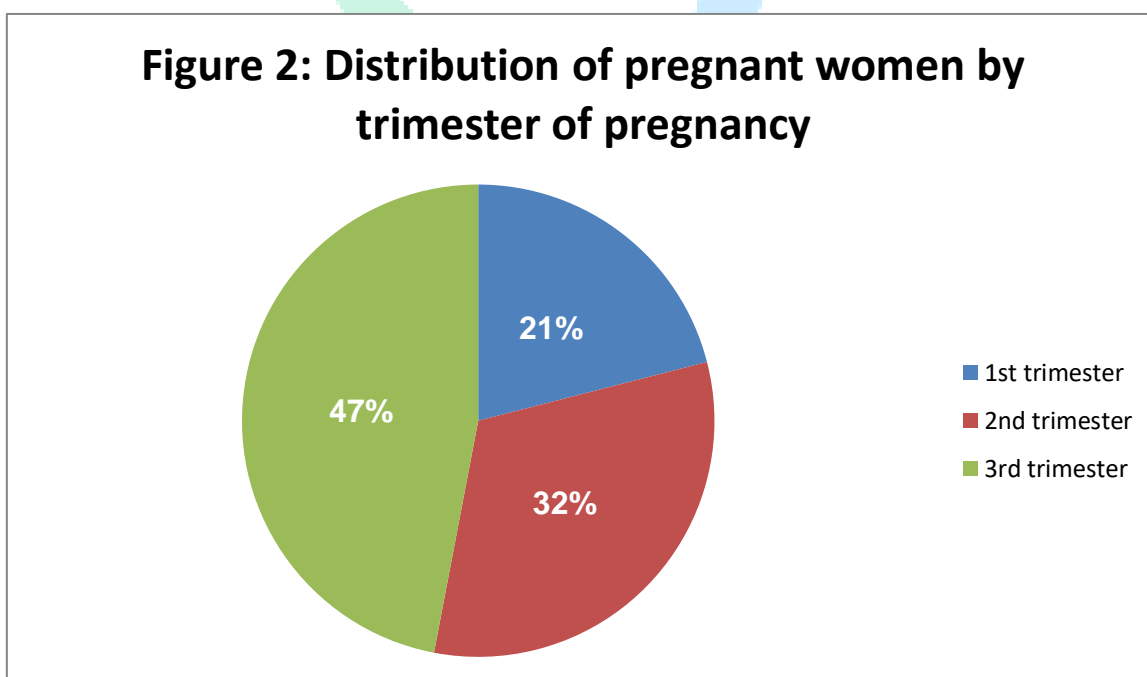
## **Results:**

A total of 200 expectant pregnant women were employed during the study (August 2017 to August 2018). The age range was from 18 – 44 years. The maximum number of pregnant women i.e., 37% was in the age group of 25-29 years (Figure 1). The least number of expectant pregnant women were seen in the age group of 40-44years. Mean age with standard deviation for the pregnant women was  $27.39 \pm 4.6$  years. Median age was 27 years.



The maximum no. of pregnant women i.e., 45% was Primigravida, 38% were Gravida 2, and 17% were Gravida 3 or more. Out of 200, the maximum no. of pregnant women i.e. 47% reported in 3rd trimester,

32% in 2nd and 21% in the 1st trimester (Figure 2). All the expectant pregnant women in our study were married 200 (100.0%).



**Table 1: Ear Complaints**

Complaints	Frequency (n=200)	Percentage (%)
Hearing loss (SNHL)	7	3.5
Vertigo (Giddiness)	13	6.5
Aural fullness	10	5
Tinnitus (Ringing)	12	6
Otalgia (Pain in ear)	9	4.5
Ear discharge	4	2
Facial weakness (Palsy)	1	0.5
Ear itching (Otomycosis)	65	32.5
Autophony	11	5.5

Out of 200 pregnant women most common otological complaint was ear itching (32.5%) followed by vertigo (6.5%), Tinnitus (6%), Autophony (5.5%), Aural Fullness (5%), Otalgia (4.5%), Hearing loss (3.5%), Ear discharge (2%). Least common was facial weakness (0.5%). (Table 1)

**Table 2: Nasal Symptoms**

Complaints	Frequency(n=200)	Percentage (%)
Excessive sneezing	51	25.5
Nasal itch	29	14.5
Nasal congestion	64	32
Nasal discharge	70	35
Hyposmia	2	1
Postnasal drip	45	15.1
Snoring	35	22.5
Sleep apnoea (Obstructive)	17	8.5
Facial heaviness	1	0.5
Headache	101	50.5
Allergy or Atopy	20	10

Table 2 lists the Nasal Complaints, for which most common nasal complaint was Headache (50.5%) followed by Nasal discharge (35%), nasal congestion (32%), Excessive sneezing (25.5%), snoring (22.5%), Postnasal dripping (15.1%), Nasal itch (14.5%), Atopy (10%) Sleep apnoea (8.5%). Least common were Anosmia (1%) and Facial pain / heaviness (0.5%).

Complaints	Frequency(n=200)	Percentage (%)
GERD (Heart burn)	120	60
Sore throat	23	11.5
Nasal regurgitation	11	5.5
Nocturnal aspiration	1	0.5
Hoarseness of voice	13	6.5
Loss of voice	8	4
Gum aching	7	3.5
Gum oedema	10	5
Extreme salivation	35	17.5

Table lists the oral and throats complaints for which the most common complaint was Heartburn-GERD (60%) followed by Excessive salivation (17.5%), Sore throat (11.5%), Hoarseness (6.5%), Nasal regurgitation (5.5%), Gum swelling (5%), Loss of voice (4%). Least common were Gum pains (3.5%) and Nocturnal aspiration (0.5%).

#### **Discussion:**

ENT expressions of pregnancy are innumerable. Pregnancy recruits a unique set of physiologic variations in a woman's body. These changes are commonly displayed as complaints concerning the head and neck<sup>3, 5, 7</sup>. From common results such as Ear itch, Headache, lesions to more rare illnesses of the inner ear may be seen; the physician should be acquainted with these circumstances for optimal support, expectant management, or treatment of the gravid expectant women. It is particularly significant to be aware of the possible side-effects of any drugs, on the gravid mother and the growing foetus and to consult the treating obstetrician doctor before writing any drugs in prescriptions. Most of them are benevolent and self-limited. Being acquainted with it and handling it in a safe way is what is essential. Existing information suggest that ear difficulties may be amplified in pregnancy<sup>8</sup>. Our studies show maximum number of expectant pregnant women in age group of 25 -29 years (37%) which is alike to study of Ajiya et al where most females were in age of 25-29 years (31.5%)<sup>9</sup>. induced immune compromise Ear itching featured prominently among the symptoms by pregnant women in this study. This could be elucidated by increased chances of constricting otomycosis as a result of pregnancy<sup>10</sup>. Other ear symptoms that were common among the women include giddiness, aural fullness, tinnitus, otalgia and Autophony. These disorders

might be due to ETD or Meniere's disease. Symptoms when persistent treatment in the form of systemic decongestants is given. Rarely ventilation tube is needed<sup>11</sup>. Tinnitus as a common symptom in pregnancy had being reported severally by other studies<sup>12, 13</sup>. However, it usually resolves after delivery<sup>14, 15</sup>. It is important to understand that tinnitus has been risked as an early warning sign of gestational hypertension or preeclampsia and is significant for such patients to have their blood pressure carefully observed. Allergic rhinitis and rhinitis of pregnancy have been stated by several authors as the most common nasal diseases in pregnancy<sup>16, 17, 18, 19</sup>. This is seen due to the amplified cortisol and gestational immunosuppression<sup>20</sup>. Treatment consists of identifying the allergens and avoiding it. Antihistamines like chlorpheniramine, loratadine, cetirizine (category B) can be used<sup>21</sup>. These diseases have recently been associated with snoring and obstructive sleep apnoea syndrome (OSAS) in pregnancy<sup>22</sup>. The suggestive nasal symptoms: itchy nose, nasal congestion, excessive sneezing, rhinorrhoea together with snoring and OSAS were prominent nasal symptoms among the participants in this study. The secondary symptoms of snoring and OSAS with poor quality of sleep following nasal obstruction may result in gestational hypertension, preeclampsia and intrauterine growth retardation with lower Apgar scores in neonates<sup>19, 23</sup>. Obstructive sleep apnoea may be a result of a combination of factors, involving weight gain during pregnancy<sup>18</sup>. The treatment consists of giving CPAP which splints the oropharyngeal airway and removes the obstruction and the apnoea<sup>24</sup>. In this study, up to 10% of pregnant women reported atopy. A study which compared birth weight of non-atopic and atopic pregnant women suggested that atopy, by



favouring a T helper type 2 pattern of immune response, would lead to better pregnancy outcomes<sup>25, 26</sup>. The majority of our respondents reported heartburn as complaints (60%), similar to findings in other studies<sup>27, 28</sup>. In addition to heartburn, pregnant women in this study also frequently reported sore throat and hoarseness. The triad of these symptoms could suggest gastroesophageal reflux, which is seen in 50–75% of pregnant women. The aetiology of gastroesophageal reflux in pregnancy is multifactorial. Reduced lower basal gastroesophageal sphincter pressure, increased intragastric pressure, delayed intestinal transit time and duodenogastric reflux have been found in pregnant women with heartburn, all factors which dispose to increased gastroesophageal reflux<sup>27, 28</sup>. Treatment consists of small frequent meals, antacids, H<sub>2</sub> blockers like famotidine, ranitidine (category B), or proton pump inhibitors like lansoprazole, pantoprazole, rabeprazole<sup>29, 30</sup>. Hoarseness (6.5%) and loss of voice (4%) signify changes in voice, which is extremely sensitive to the endocrinological changes of pregnancy resulting into alterations in fluid content of the lamina propria just beneath the laryngeal mucosa. Distended abdomen due to pregnancy also interferes with functions of abdominal muscle, thereby altering the mechanics of phonation and creating overuse injuries. These voice changes are called laryngopathia gravidarum, often associated with pre-eclampsia<sup>31</sup>. Treatment is mainly supportive, with hydration, and singers should be advised to refrain from singing until abdominal muscle function resolves. Laryngopathia gravidarum typically resolves postpartum as endocrinological alterations return to baseline and abdominal support returns. Another prominent symptom reported by our respondents is excessive salivation (17.5%) variously referred to as ptyalism gravidarum, which is of unknown origin. These patients might have difficulty in swallowing saliva throughout all trimesters of pregnancy and may cause nocturnal waking. Using gum or ice may be temporary coping strategies; however, the patients always complain of bad taste and maintain that swallowing the excessive or thickened saliva perpetuates the sense of nausea<sup>32</sup>.

### **Conclusion:**

The shared Otorhinolaryngological complaints reported in this study showed eminence of features of likely otomycosis, rhinitis and gastroesophageal reflux disease. Most of the above-mentioned disorders are a direct consequence of the physiological variations of pregnancy. Thorough information of these conditions and their safe

handling would be beneficial both to the expectant mother and the growing foetus.

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