



A STUDY OF WIDOW'S PEAK HAIRLINE PATTERN AMONG THE URHOB0 ETHNIC GROUP OF NIGERIA

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ABSTRACT

Background: Hair morphology is one of the distinctive traits with human variations. The shape of the hairline may be curved or straight. The curved hairline has a presentation of a V shape, descending from middle of the head just above the forehead. This presentation can also be called a widow's peak. **Objectives:** To determine the prevalence of widow's peak among the Urhobo people, to investigate if there is a significant association between sex, age and the presentation of widow's peak among the Urhobo People. **Methods:** The sample size for the study was made up of 400 subjects of Urhobo origin, comprising of 200 parents and 200 offspring (100 fathers, 100 mothers, 100 first offspring and 100 second offspring). Data was collected by means of a well detailed data sheet. P values lesser than 0.05 was considered to be statistically significant. **Results:** Results showed higher frequencies of subjects having straight hairline in both the parents, the first and the second offspring (71% versus 29% in fathers, 79% versus 21% in mothers, 66% versus 34% in first offspring, and 75% versus 25% in second offspring). There was no significant association between sex, age, and type of hairline presented ($p > 0.05$). **Conclusion:** The straight hairline showed more prevalence among the Urhobo people. There was also no significant association between the age group of subjects and type of hairline. Furthermore, no significant association occurred between type of hairline in offspring and type of hairline presented in parents among the Urhobo people.

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INTRODUCTION

The human species shows several forms of diversity in its population, which is reflected in the several morphological and physiological variations seen. Sometimes, some of these variations may be exclusively unique to, more prevalent or more expressed in a particular ethnic group or sex (Duray, 1999). This makes it possible for some of these variations to be successfully exploited in fields of Human Anthropology and Forensics, in the identification of race and sex in situations where normally it would not have been possible (Duray, 1999). Hence it is pertinent for more studies and more data to be available on the different types of human variations. Hair morphology is one of the distinctive traits where variations can be found aside skin colour and facial features (Fujimoto, 2008). Morphology traits are special structural features in an organism that are genetically inherited from parents to offspring (Ebeye, 2014). The Hairline is the line demarcating the hair of scalp from the forehead. The shape of hairline may be curved or straight. The curved hairline has a presentation of a V shape, descending from middle of head just above

Genetically, the widow's peak is a dominant trait and individuals who do not have it are said to have the recessive genes for the trait (McDonald, 2011). Several studies have been conducted on widow's peak as a morphologic trait among males and females in various regions and ethnic groups. Nwaopara et al. (Nwaopara, 2008) in their study using subjects from Expoma region of Nigeria, showed the straight hairline to be more prevalent (111, 57.5%) compared to subjects having the widow's peak (82, 42.49%). This agrees with the results from Odion-Obomhense et al.'s study (Odion-Obomhense, 2008) using subjects from the Niger delta region of Nigeria, Patil and Bachute (Patil, 2018) using subjects from Sholapur, India, and Ebeye et al. using 400 subjects (176 males, 224 females) of Esan origin in Nigeria. Also, Ebeye et al.'s work (Ebeye, 2014) further reports that there was no significant association between gender and type of hairline ($p > 0.05$). However, Nusbaum and Fuentesfria's study (Nusbaum, 2009), reveals the widow's peak to be more prevalent (81% of 365 subjects), but subjects used comprised only of females. On extensive literature search, we discovered that no study on the prevalence of widow's peak among Urhobo people has been previously conducted. The general objective of our research was to evaluate the prevalence of

widow's peak among the Urhobo people of Nigeria. The specific objectives were to investigate if there is a significant association between sex and age, and the occurrence of widow's peak among the Urhobo people. This study focused on both male and female Urhobo people within the age range of 18 and 50 years. Human identification is one of the key applications of anthropological studies, therefore this study would be of great relevance in describing the origin of an individual using widow's peak as a marker. Also, the findings of this research will serve useful to the scientists, researchers, and forensic anthropologists. It would also provide data on the prevalence of widow's peak among Urhobo people of Delta State in Nigeria, serving as source of baseline data for future studies.

MATERIALS AND METHODS

This study location was in Warri city, Delta State, Nigeria, a home to the Urhobo and Ijaw people. Delta State is an oil and agricultural producing state in Nigeria. It is located in the South-South geo-political zone of Nigeria. Delta State has a population of 4,112,445 with 2,069,309 males and 2,043,136 females, with Asaba as the Capital City positioned at the northern area of the state (Delta, ?). The city of Warri is described as the "economic nerve centre of the state" due to its robust economic activities. It is also the most populated area of the state, and in contrast to the state's capital, it is located at the southern region. The study adopted an observational cross-sectional study design. The sample size for the study was made up of 400 subjects, comprising 200 parents and 200 offspring (100 fathers, 100 mothers, 100 first offspring and 100 second offspring). The cluster sampling method was used. The study population consisted of both male and female subjects of Urhobo origin. Data was collected via a well detailed data sheet. The data sheet included the following headings: age, gender, type of hairline (widow's peak or straight), type of hairline in father, and type of hairline in mother. Inclusion criteria included: males and females who are from the Urhobo ethnic group willing to take part, and males and females within the age range of 18-50 years willing to participate. Exclusion criteria included: Individuals who did not fall within the study age (18-50 years), males and females who refused to participate, males and females having obstructive hair styles like carving of the front hairline in males and hairstyles that covers the hairline in females. Ethical clearance/approval was obtained from the Ethical Committee of the Anatomy Department in the Faculty of Basic Medical Sciences, Delta State University, Abraka, Nigeria. Prior to data collection, the subjects were informed of the nature and purpose of the study and only those who gave their consent participated. Data obtained was analysed using the Statistical Package for the Social Sciences (SPSS version 23) software. The Chi-square test was used for inferential statistics. P values lesser than 0.05 were considered to be statistically significant.

RESULTS

Results showed that the straight hairline was the most prevalent type of hairline among both parents ($n=71$, 71% and $n=79$, 79% respectively) (Figure 1). Also, 61 (61%) of the first children were males, while 39 (39%) were females, and 58 (58%) of the second children were males, while 42 (42%) were females (Figure 2). The straight hairline was more prevalent among the first and second children ($n=66$, 66% and $n=75$, 75% respectively) (Figure 3). Ages of the subjects' fathers ranged from 36 -54 years with a mean

age of 46.03 ± 4.28 years, while that of the subjects' mothers ranged from 32 - 52 years with a mean age of 41.92 ± 4.24 years (Table 1). In the first children, the widow's peak presentation was more prevalent in males (64.7%), while 12 (35.3%) females had widow's peak and there was no significant association with regards to sex ($P=0.586$) (Table 2). In the second children, the widow's peak presentation was more prevalent in females (52.0%), while 12 (48%) males had widow's peak (Table 3). There was no significant association with regards to sex ($P = 0.242$). When straight hairline was common in the father, it was also common in the first child (Table 4). However, when the widow's peak hairline was common in the father, it was not common in the first child (Table 4). No significant association was found between the father's hairline and that of the first child ($P = 0.373$) (Table 4). When straight hairline was common in the father, it was also common in the second child. However, when the widow's peak hairline was common in the father it was not common in the second child (Table 5).

Table 1. Descriptive Statistics of the Subjects' Ages

Age	Minimum	Maximum	Mean \pm S.D
Father	36.00	54.00	46.03 \pm 4.28
Mother	32.00	52.00	41.92 \pm 4.24
1st Child	12.00	27.00	18.91 \pm 3.56
2nd Child	10.00	25.00	16.62 \pm 3.37

Table 2. Hairline Type in the First Child According to Gender

Gender	Hairline	
	Straight	Widow's Peak
Male	39 (59.1%)	22 (64.7%)
Female	27 (40.9%)	12 (35.3%)

$P = 0.586$

Table 3. Hairline Type in the Second Child According to Gender

Gender	Hairline	
	Straight	Widow's Peak
Male	46 (61.3%)	12 (48.0%)
Female	29 (38.7%)	13 (52.0%)

$P = 0.242$

Table 4. Association between Fathers' Hairline and 1st Child's Hairline

Father	1st Child	
	Straight	Widow's Peak
Straight	46 (69.7%)	25 (73.5%)
Widow's peak	20 (30.3%)	9 (26.5%)

$P = 0.373$

Table 5. Association between Fathers' Hairline and 2nd Child's Hairline

Father	2nd Child	
	Straight	Widow's Peak
Straight	55 (73.3%)	16 (64.0%)
Widow's peak	20 (26.7%)	9 (36.0%)

$P = 0.689$

No significant association was found between the father's hairline and that of the second child ($P = 0.689$) (Table 5). Also, no significant association was found between the mother's hairline and that of the first child ($P = 0.335$) (Table 6). When the straight hairline was common in the mother, it was also common in the first child. However, when the widow's peak hairline was common in the mother it was not common in the first child (Table 6). No significant association was found between the mother's hairline and that of second

child ($P = 0.321$) (Table 7). When the straight hairline was common in the mother it was also common in the second child. But when the widow's peak hairline was common in the mother, it was not common in the second child (Table 7). Widow's peak was more prevalent within age range of 43-49 years compared to the other age groups (Table 8). This variation was however not statistically significant ($P = 0.905$) (Table 8). The prevalence of widow's peak across all age groups in mothers was low. But no statistically significant association was found with regards to age ($P = 0.227$) (Table 9). In the first Child, widow's peak had a low prevalence rate and no statistically significant association occurred between age and hairline outline ($P = 0.083$) (Table 10). In the second child, straight hairlines were more prevalent compared to the widow's peak hairline. No significant association occurred between age and hairline outline ($P = 0.641$) (Table 11).

Table 6. Association between Mothers' Hairline and 1st Child's Hairline

Father	1st Child	
	Straight	Widow's Peak
Straight	54 (81.8%)	25 (73.5%)
Widow's peak	12 (18.2%)	9 (26.5%)

$P = 0.335$

Table 7. Association between Mothers' Hairline and 2nd Child's Hairline

Father	2nd Child	
	Straight	Widow's Peak
Straight	61 (81.3%)	18 (72.0%)
Widow's peak	14 (18.7%)	7 (28.0%)

$P = 0.321$

Table 8. Association between Fathers' Age and Prevalence of Hairline

Age (years)	Hairline	
	Straight	Widow's Peak
36-42	19 (26.8%)	8 (27.6%)
43-49	35 (49.3%)	13 (44.8%)
50-56	17 (23.9%)	8 (27.6%)

$P = 0.905$

Table 8. Association between Fathers' Age and Prevalence of Hairline

Age (years)	Hairline	
	Straight	Widow's Peak
36-42	19 (26.8%)	8 (27.6%)
43-49	35 (49.3%)	13 (44.8%)
50-56	17 (23.9%)	8 (27.6%)

$P = 0.905$

Table 10. Association between Age of 1st Child and Prevalence of Hairline

Age (years)	Hairline	
	Straight	Widow's Peak
12-17	32 (48.5%)	9 (26.5%)
18-23	27 (40.9%)	18 (52.9%)
24-29	10 (10.6%)	7 (20.6%)

$P = 0.083$

Table 11. Association between Age of 2nd Child and Prevalence of Hairline

Age (years)	Hairline	
	Straight	Widow's Peak
10-15	34 (45.3%)	9 (36.0%)
16-21	33 (44.0%)	12 (48.0%)
22-27	8 (10.7%)	4 (16.0%)

$P = 0.641$

DISCUSSION

Results from this work showed the straight hairline to have more prevalence compared to widow's peak among the Urhobo people. The sample population distribution revealed higher frequencies of subjects having straight hairline in both the parents as well as the first and second offspring (Tables 2-11). This is in line with results from the work of Nwaopara et al. (5) who observed 57.51% of their study population possessing straight hairline shape. But results from this study disagree with that of Nusbaum and Fuentesfria (8) which reports more frequencies of individuals having widow's peak (81%). Also, Ceballos et al., (10) in their work reported a higher frequency of widow's peak hairlines present in 94% of Caucasian women used as subjects. These dissimilarities could be due to differences in ethnicities. Results also revealed that the straight hairline was the most common type of hairline among fathers and mothers (Figure 1). This is in agreement with the results of Ordu and Agi (11). Findings also revealed that straight hairline was more common in male than in female offspring (Tables 2 and 3). Nonetheless, there was no significant association between gender and hairline type present in the first and second children ($P = 0.586$ and $P = 0.242$) (Tables 2 and 3 respectively). This contradicts the results from a study conducted by Ordu and Agi (10) on a Nigerian population and also the findings of Patil and Bachute (7), both showing the straight hairline was more prevalent in females than males. However, results from this study are in line with that gotten from the findings of Usha et al. (12) and Ebeye et al. (3) where no significant association was found between type of hairline and gender ($P > 0.05$). We recommended that more similar studies be carried out in other ethnic groups yet to be studied.

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Key Points

- ⌋ The straight hairline showed more prevalence among the Urhobo people.
- ⌋ There was no significant association between the age group of subjects and type of hairline.
- ⌋ There was no significant association occurred between type of hairline in offspring and type of hairline presented in parents among the Urhobo people.

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