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Anatomy

Anthropological Survey of Dimple among the Idoma & Other Indigenous Tribes of Benue State, Nigeria

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Abstract **Original Research Article**

Introduction: Dimple is a major marking on the face when present. A dimple, also called a gelasin (from Latin gelasinus) is a small natural indentation in the skin on a part of the human body, most notably in the cheek. Cheek dimples when present, show up when a person makes a facial expression, such as smiling, whereas a chin dimple is a small line on the chin that stays on the chin without making any specific facial expressions. The presence or absence of dimple is an important anthropological feature of the human face that can be used as a means of identification on the living, for a family, group of people, and tribes. The paucity of literature on the prevalence /distribution of dimple among the Idoma people and the other tribes in Benue State informed this study. ***Results and discussions*:** The survey showed that 60.3% of the indigenous tribes had dimple. Again, the distribution of the dimple among the population showed that 59.9% had cheek dimple, while 40.1% had chin dimple. The most dominant age group was 33-47 years, the most common religion was Christianity, participants who had tertiary education were more predominant, for marital status, the dominant group were married/cohabiting. The comparison of dimple distribution and the sociodemographic characteristics showed that only level of education significantly (p=0.04) associated with dimple distribution. ***Conclusion*:** The survey showed that 60.3% of the indigenous tribes had dimple. The distribution of the dimple among the population showed that 59.9% had cheek dimple, while 40.1% had chin dimple. The survey shows that three in five persons had dimple in the population, one in four persons had chin dimple, and three in eight persons had cheek dimple. The result of this study could be used as a baseline data for the Idoma people.

Keywords: Anthropological survey, Dimple, Cheek, Chin, Idoma, Benue State.

INTRODUCTION

The anthropological features of a people gives an impression of what the people looks like facially, body physique, and other features that are easily seen and notable at a glance [6-8]. These features can be useful in differentiating such tribes or race from the others [9]. To a reasonable extent, anthropological features can be used as a means of identification for a group of people [10].

Dimple also called gelasin (from latin gelasinus) is a major marking on the face when present [1]. It is a small natural indentation on the skin on a part of the human body, most notably in the cheek. Cheek dimples when present, becomes visible when a person makes a facial expression, such as smiling, whereas a chin dimple is a small line on the chin that remains on the chin without making any specific facial expressions [2]. The cheek dimple effect has been attributed to the variations in the structure of the zygomaticus major muscle, a muscle of the face [2].

Anatomical description of this muscle shows that this bifid variation of the muscle initially originates as a single structure from the zygomatic bone. As it

travels anteriorly, it then divides with a superior bundle that inserts in the typical position above the corner of the mouth [3]. An inferior bundle inserts below the corner of the mouth. Anatomically, presence of double or bifid zygomaticus major muscle is associated with the formation of cheek "dimples" [3, 4]. The inferior bundle has been reported to be attached to the skin along its mid-portion, which binds the overlying skin. When an individual with this unique morphology smiles, there is a resultant pulling on the skin which eventually creates an indentation (dimple) due to this skin fastened effect [4]. Cheek dimple as it were as been reported as morphogenetic trait [5] and indicated to be most common in females than males [5].

Reports from previous studies have shown the prevalence and pattern of facial dimples among some tribes in Nigeria. According to Anibor *et al*., [6] the prevalence of facial dimples among the Ndokwa people in Delta State Nigeria was 68.8% with most of the dimple located in the cheek followed by the chin, the study also revealed a higher prevalence among females than males. Omotoso *et al*., [7] studied the prevalence of facial dimple among 500 Yoruba population who are residents of Illorin, Kwara State Nigeria and found that 7.2% of the study population had both cheek and chin dimple with a higher incidence in females than males. The incidence rate of cheek and chin dimples in southern Nigeria have been put as 29.4%, 37% and 37.7% in the South -West, South-South and South -Eastern Nigerian respectively [7, 8]. Currently, there is paucity of data on the prevalence of dimples among the residents of Benue state Nigeria. It is therefore necessary to document the incident of cheek/chin dimples amongst the Idoma and Tiv tribes of Benue State, Nigeria.

There are also existing works on dimples by other authors who have worked on its dimensions, and surgical creation. [6-8, 11-13]

MATERIALS AND METHODS

Study design: The study was community based, descriptive and cross-sectional.

Study Area: Otukpo is a town in Benue State, Nigeria located in the Middle Belt Region of Nigeria. It is also the eponymous name of a subgroup of the Idoma people. Otukpo is the headquarters of the Otukpo Local Government Area [14]. It was the headquarters of the former Idoma Province, and remains an important town in Idoma land, an area mainly populated by the Idoma speaking people, though with numerous local dialects spoken in the diverse reaches of Idoma land. Otukpo Idoma language is the umbrella lingua. Otukpo is the seat of the Och' Idoma [14]. The Paramount Ruler Idoma of the Idoma Nation. The people are predominantly Christians, and farming the major occupation. It has a population of 266, 411 people according to the National Population Commission [15]

Sample Size determination

The sample size will be calculated using Goddien formula.

$$n = \frac{Z^2P(1-P)}{M^2}$$

Where:

Z = Statistic to be used at 5% level of significance at two tail test = 1.96

M = Allowable sampling error taken at 5% = 0.05

P = Assuming the population of 50% = 0.5

n = Sample size for infinite population

$$n = \frac{1.96^2 \times 0.5(1-0.5)}{0.05^2} = \frac{3.8416 \times 0.5 \times 0.5}{0.0025} = \frac{0.9604}{0.0025} = 384.16 \approx 384$$

Although the calculated sample size was at least 384, the sample size of 404 was considered adequate for the study as it would ensure a normal distribution.

Sampling technique

The sampling technique for the study was multistage sampling. This was done in two stages: simple random sampling, at stage 1- A list of all communities in Otukpo LGA was compiled and numbered serially, which served as the sampling frame for random sampling, the numbers corresponding to the names were written on small pieces of papers, and the papers folded to conceal the number. The folded papers were then picked randomly and blindly using a table of random numbers. In each community, the research assistants located the centre of the community and spanned a ball pen, following the direction of the pen to know the street/compound to begin the sampling. In the street/compound, the houses were numbered serially, and the table of random numbers was used to select the first house to be sampled. At stage 2, consecutive sampling was employed to select every odd numbered house for sampling till the sample size was achieved.

Study Instrumentation

Study Questionnaire

The research instrument was a self-made close-ended questionnaire that was adapted for use following information from previous literatures on similar studies. Section A: explored socio-demographic factors such as age, educational level, marital status, religion, tribe, and place of residence. Section B: examined the presence or absence of dimples. The questionnaire was pre-tested among 40 volunteers who share similar characteristics with the study population. The number 40 corresponds with 10% of the desired minimum sample size. Modifications and adjustments were made on the procedure and the study instruments sequel to the pre-test.

Procedure for Data Collection

Data for the entire study was collected over a period of two months. Two research assistants (males) were trained to assist with the collection of data and a data collection plan drawn to serve as a guide. All

participants in the study were assured of strict confidentiality and were not required to provide their names.

Data Analysis

The information obtained from the structured questionnaire were entered and analysed using Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics was carried out on socio-demographic data. Frequencies generated were presented using tables and charts. Chi square test was used to test for association between variables. A p-value of less than 0.05 was considered significant, 95% confidence intervals was used as measures to determine the strength of association.

Ethical Approval

Ethical approval was sought from the Research and Ethics committee of the Federal University of Health Sciences, Otukpo before the commencement of the study. Written permission to conduct the study was obtained from respective community CDCs and the gate keepers. A consent form was given to all participants which were signed after reading the information provided about the nature of the study. The content of the consent form was clearly read out to participants who could not read in a lauguage best understood by them. Participants were free to opt out of the study without penalty and assured of strict confidentiality.

RESULTS AND DISCUSSIONS

Table 1: The distribution of dimple among the Idoma and other tribes in Otukpo LGA, Benue State

Dimple	Frequency	Per cent
Present	242	60.3
Absent	159	39.7
Total	**401**	**100.0**

The survey showed that 60.3% of the indigenous tribes had dimple.

Table 2: The distribution of Cheek and chin dimples among the indigenous tribes resident in Otukpo LGA, Benue State

Dimple	Frequency	Per cent
Cheek	145	59.9
Chin	97	40.1
Total	**401**	**100.0**

The distribution of the dimple among the population showed that 59.9% had cheek dimple, while 40.1% had chin dimple.

Table 3: Comparison of dimple distribution with socio-demographics of participants

Socio-demographics	**Dimple**		
	Present	Absent	X^2(p-value)
Gender			
Male	137(34.2)	86(21.4)	
Female	103(25.7)	71(17.7)	0.386(0.825)
I don't wish to disclose	2(0.5)	2(0.5)	
Total	242(60.3)	159(39.7)	
Age category			
18 – 32	79(19.7)	46(11.5)	
33 – 47	119(29.7)	94(23.4)	4.631(0.201)
48 – 62	41(10.2)	18(4.5)	
63 – 77	3(0.7)	1(0.2)	
Total	242(60.3)	159(39.7)	
Religion			
Christianity	165(41.1)	121(30.2)	
Islam	46(11.5)	27(6.7)	
Traditionalist	28(7.0)	11(2.7)	5.166(0.160)
Others	3(0.7)	0(0.0)	
Total	242(60.3)	159(39.7)	
Education			
No formal education	58(14.5)	23(5.7)	
Primary	1(0.2)	2(0.5)	17.870(**0.049**)
Secondary	50(12.5)	28(7.0)	
Tertiary	133(33.2)	106(26.4)	
Total	242(60.3)	159(39.7)	
Marital status			
Single/Never married	103(25.7)	61(15.2)	
Married/Cohabiting	131(32.7)	89(22.2)	1.728(0.422)
Divorced/separated	8(2.0)	9(2.2)	
Total	242(60.3)	159(39.7)	

Tribe			
Tiv	22(5.5)	14(3.5)	
Idoma	179(44.6)	111(27.7)	
Igede	29(7.2)	24(6.0)	
Others (Akpa, Hausa, Igbo, & Ufia)	12(2.9)	10(2.3)	3.893(0.691)
Total	242(60.3)	159(39.7)	

P<0.05

The comparison of dimple distribution and the sociodemographic characteristics showed that only level of education significantly (p=0.04) associated with dimple distribution.

DISCUSSIONS

Summary of Results

The survey showed that 60.3% of the indigenous tribes had dimple. Again, the distribution of the dimple among the population showed that 59.9% had cheek dimple, while 40.1% had chin dimple. The most dominant age group was 33-47 years, the most common religion was Christianity, participants who had tertiary education were more predominant, for marital status the dominant group was married/cohabiting. The comparison of dimple distribution and the sociodemographic characteristics showed that only level of education significantly (p=0.04) associated with dimple distribution.

Implications

The survey shows that three in five persons had dimple in the population, one in four persons had chin dimple, and three in eight persons had cheek dimple. The present study has shown a higher proportion of persons with dimple as compared with the report of Omotoso *et al*., [7] who mentioned that they recorded only 7.2% in a sample size of 500, and Anibor *et al*., [6] that also reported a dimple prevalence of 31.8%. Again, this current study did not show increase in dimples with age as reported by Pentose *et al*., [13] as such differed from the reports of Pentose. In addition, this present differed from the report of Kisof *et al*., [12] who showed in their study that a great proportion of the population did not have dimples.

This current study again, showed that cheek dimple was more frequently distributed than the chin dimple. This study agrees with the findings reported by Anibor *et al*., [6] that cheek dimple was more prevalent compared to chin dimple. The plausible explanation to the high distribution of dimples among the Idoma people and the other indigenous tribes could be attributed to their genetic make-up. This is because the underlining factor responsible for the formation of the dimple is the splitting of zygomaticus major muscle and insertion as two separate heads, which is considered to be genetically influenced; dimples that have a similar appearance have also been reported to occur in successive generations of a family [17].

CONCLUSIONS

The survey showed that 60.3% of the indigenous tribes had dimple. The distribution of the dimple among the population showed that 59.9% had cheek dimple, while 40.1% had chin dimple. The most dominant age group was 33-47 years. The comparison of dimple distribution and the sociodemographic characteristics showed that only level of education significantly (p=0.04) associated with dimple distribution. We recommend that the result of this study be used as a baseline data for future works and similar studies be done on other ethnic groups to see the pattern of distribution of dimple in such ethnic group/tribe.

Conflict of Interest: The authors declares that there is no conflict of interest.

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