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Prevalence of Facial Dimples amongst South-western Nigerians: A case study of Ilorin, Kwara State of Nigeria

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ABSTRACT : The presence of dimples on the face have been appreciated by many, and in different cultures. They are examples of genetic dominant traits, with anatomic components. The study aimed at determining the incidence of facial dimples (cheek and chin dimples) in the Yoruba population of South-western Nigeria. Five hundred southwestern Nigerians, comprising 250 females and 250 males were observed for the presence of co-existing cheek and chin dimples, by means of physical examination and structured questionnaires. Only 36 (7.2%) of the 500 respondents had both cheek and chin dimples co-existing in the same individual, out of which 22 (4.4%) were females and the remaining 14 people (2.8%) were males. Most people with facial dimples had bilateral cheek dimples. More than one-fifth of the population had only cheek dimple(s), while eighteen (18) respondents had only the chin dimple trait. One-quarter of the population with co-existing cheek and chin dimples inherited the two facial dimples from either one or both parent(s). The incidence of facial dimples differ from population to population, and it is possible for an individual to express more than one dominant traits resulting from the genotypes inherited from parents in a simple dominant-recessive pattern.

Keywords: facial dimples, inheritance, variations, southwest Nigeria.

Introduction

Dimples are small visible indentations on the surface of the skin. They may appear on various parts of the body like the abdomen, back, shoulder or the limbs. When they occur on the face, dimples are highly prized because the face is highly visible, and it is an important outlet for expressing thoughts and emotion beyond words. Dimples tend to accentuate a smile, thus increasing the perception of attractiveness, sociability and facial beauty (1). However, some people see dimples as disgusting, and would rather have their dimples removed than have them created, this aversion is more for chin dimples (2).

Dimples could be transient or permanent, depending on the cause or factor responsible for their occurrence. The process of growth and development could contribute to this. Excessive fat deposition, which disappears with the aging process, causes transient dimples, so also is the stretching or lengthening of muscles during growth, leading to gradual obliteration of the defect (2). This explains while some dimples are commoner and more conspicuous in the younger age groups.

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Dimples on the face are commonly situated on the cheeks and chin. The latter occurs less frequently (3). Culturally amongst southwestern Nigerians, it is believed that poking a finger against the cheek of a newborn helps in, or is responsible for, the creation of dimples. Structurally, cheek dimples occur due to a defect created by muscles on the face, while chin dimple is a result of an underlying bony defect. Cheek dimples occur lateral to the angle of the mouth, and it is caused by the presence of double or bifid *zygomaticus major* muscle. Smiling makes the overlying skin draw inwards and the defect becomes bigger, thereby making the dimples more visible. Either or both of the cheeks could present with one or more dimples, but it is more common to have dimples occurring on both cheeks (bilateral) than only one cheek (unilateral). Incomplete fusion of the two halves of the mandibular bone *in utero* is responsible for a cleft chin, resulting in a Y-shaped fissure at the centre of the lower jaw-bone (3).

The inheritance of facial dimples follows the basic principles of the law of segregation and the law of independent assortment. Facial dimples are inherited as autosomal dominant traits (4), and people having the homozygous recessive genotype lack the ability to express the facial dimples. Chin dimple is an example of variable penetrance, and other factors such as the environment and other modifier genes, operate to affect the phenotypic expression of the actual genotype (4). When one of the two parents expresses the trait, there is 25-50% likelihood of passing it to any of the children; but if both parents have it, the probability doubles (50-100%) (5). Other traits inherited in an autosomal dominant pattern include free earlobe, early onset myopia, bent little finger, Achoo syndrome, tongue rolling, eye colour, mid-digital hair and hand clasping (6).

Regardless of cultural background, there is an increase demand for the creation of facial dimples, and many seek the expertise of cosmetic surgeons to achieve their desire (7). The presence of both cheek and chin dimples were studied in each of the subjects that participated in this survey, in order to document data on co-existing dominant traits.

Materials and Methods

Five hundred (500) subjects of age range 16-30 comprising 250 males and 250 females were included in this survey. The subjects, who were residents in Ilorin, Kwara State, Nigeria, at the time of study, were randomly selected and recruited to participate in the study. The parents and grandparents of the subjects were from the Yoruba-speaking south-western States of Nigeria. They were observed for the presence or absence of facial dimples, and were also served structured questionnaires by hand, to which they all responded to. Participants were required to provide information on: the presence or absence of cheek and chin dimples, and the presence or absence of such dimples in their parents and grandparents. The questionnaires were returned by hand. The incidence and percentage of dimples were determined by simple percentage method.

Results and Discussion

All the 500 people who participated in the study responded to the structured questionnaires, giving a response rate of 100%. Only 7.2% (n= 36) of the 500 respondents presented with both cheek and chin dimples, out of which 4.4% (n=22) were females and 2.8% (n=14) were males (Table 1). The people who exhibited only the cheek dimple traits were 111 of the 500 respondents (22.2%), while 18 (3.6%) showed only the chin dimple phenotype. More than a half (n=20; 55.6%) of people with co-existing cheek and chin dimples had bilateral cheek dimples, while the remaining had left unilateral cheek dimple (n=9; 25%) and right unilateral cheek dimple (n=7; 19.4%); Table 2. Twenty-five percent (n=9; 7 females and 2 males) of the respondents with both cheek and chin dimples inherited the two traits from either or both of their parents; 22.2% (n=8; 5 females and 3 males) had a parent with the chin dimple trait, and the other parent with cheek dimples; 30.6% (n=11; 5 females and 6 males) had parents with only the cheek dimple trait, and 22.2% (n=8; 6 females and 2 males) had parents who exhibited only the chin dimple trait (Table 3).

It is common to find more than one dominant trait occurring in the same individual. In this survey, 7.2% of the population studied had both cheek dimples and chin dimple, as it was found to be present in a total of 36 out of 500 south-western Nigerians. The incidence was higher in females (n=22; 4.4%) than males (n=14; 2.8%). In addition, of these two forms of facial dimples, cheek dimples occurred more commonly than chin dimple amongst southwest Nigerians. More than one-fifth (22.2%; n=111) of the target population expressed only the cheek dimple trait. Chin

dimple is a less common form of facial dimple especially when it is occurring without a co-existing cheek dimple. A very few proportion (3.6%; n=18) were observed in this study to have only the chin dimple phenotype, with an incidence rate slightly higher in the females than the males. Previous studies had also observed that both cheek and chin dimples occur more commonly in females than males, although some studies found chin dimple commoner in men than women (3,8).

Table 1: Occurrence of facial dimples in Southwest Nigeria.

Type of Dimple	Sex		Total (%)
	F (%)	M (%)	
Cheek dimple only	66 (13.2)	45 (9.0)	111 (22.2)
Chin dimple only	10 (2.0)	8 (1.6)	18 (3.6)
Co-existing Cheek and Chin dimple	22 (4.4)	14 (2.8)	36 (7.2)
Total	98 (19.6)	67 (13.4)	165 (33.0)*

* Total number of all dimple cases (165 out of 500; 33%)

Table 2: Type of Cheek dimples in Respondents with co-existing cheek and chin dimples.

Sex	Bilateral	Unilateral		Total (%)
		Left cheek	Right cheek	
Female	12	5	5	22 (61.1)
Male	8	4	2	14 (38.9)
Total (%)	20 (55.6)	9 (25.0)	7 (19.4)	36 (100.0)

Table 3: Heredity of Facial Dimples.

Type of dimple present in both parents	Sex		Total (%)*
	F (%)	M (%)	
Cheek dimple only	5 (13.9)	6 (16.7)	11 (30.6)
Chin dimple only	6 (16.7)	2 (5.6)	8 (22.2)
Co-existing Cheek and Chin dimple	7 (19.4)	2 (5.6)	9 (25.0)
Total	18 (50.0)	10 (27.8)	28 (77.8)

*The remaining 22.2% (n=8) had only one of the parent with cheek dimples and the other parent with chin dimple.

Regardless of co-existence of chin dimple, the incidence rates of cheek dimples in Southern Nigeria have been put as 29.4%, 37% and 37.7% in the South-West, South-South and South-East respectively (9,8).

The incidence of bilateral and unilateral types of cheek dimples occurred more frequently in females than males, and a male is more likely to have a unilateral left cheek dimple than a right cheek dimple, while a female is more likely to have a unilateral right cheek dimple than a left dimple (9,8).

The dominant genes responsible for the inheritance of facial dimples have been suggested to be located on chromosome 5 for cheek dimple gene and chromosome 16 for chin dimple gene (4). It could therefore be inferred that both dominant genes reside in people who express these dominant traits. From this survey, it was observed that 25% of the subjects inherited the two forms of facial dimples from either one or both of their parents who also expressed both phenotypes; a rate higher in females than males.

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