Research article

Familial traits of attached and unattached earlobe in human population of different age groups- A case study of district Nawabshah, Pakistan

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DOI: 10.38106/LMRJ.2021.3.04-06

Received: 20.09.2021
Accepted: 15. 12.2021
Published: 30. 12.2021

ABSTRACT
This study aimed to evaluate frequency of attached earlobes (dominant) and unattached earlobes (recessive) traits in humans of different age groups. This study was conducted in the Department of Molecular Biology and Genetics of Shaheed Benazir Bhutto University, Shaheed Benazir Abad from September to October 2020. A total of 200 families with attached and unattached earlobes were included by using non-probability convenient sampling. Data was collected regarding attached and unattached earlobes of different people. The data was collected and analysed by using SPSS version 21.0. Results of the study suggested that unattached earlobes were dominant feature, and the attached earlobe feature appears to be recessive among all 200 families. We observed that the dominant feature of the unattached earlobe was more common in the 1 to 20 years' age group, while the recessive feature of the attached earlobe was common in 31 to 45 years old age group. The study concluded that unattached earlobes can be observed in people of every age group and associated with family traits.

Key Words: Earlobe; Trait; Frequency; Unattached Earlobes; Attached Earlobes

INTRODUCTION

Human ear is one of the key organ which lacks hardness and elasticity in nature. Some people have attached earlobes, because earlobe lacks any kind of bone (1). Although human ear is connected with head and receives enormous blood that makes ears cosy. Earlobes do not have any important biological functions in the human body (2). The zoologist Deamond Morris said in his book "The Naked Monkey" (1967) that the earlobes plays an additional sexual region for the couples (3). The earlobe is stretched out in length and width with the age (4). According to Mendelian law of inheritance attached and unattached/free earlobe trait is due to the "one gene-alleles" function, this function is not acceptable currently, because genetic influences are unpredictable (5, 6, 7). The earlobe is smooth in nature and hard earlobes are wrinkled. Wrinkled earlobes is the cause of genetic illnesses in children, such as Beck with Wiedemann syndrome (8). Folded earlobes increase the chances of coronary artery diseases according to the new research. According to the modern research the earlobe become more wrinkled with age, the increase in coronary heart disease risks more than younger age. This clearly shows the link of coronary heart disease and earlobe (8). The wrinkled earlobe is called Frank's sign. Mostly unattached/free earlobes are found in the peoples. The kind of unattached/free earlobes is mostly bigger in size and hang below the attachment point to the head. This is due to the influence of dominant alleles. If the gene of

dominant alleles expressed the child is born with unattached earlobes and if recessive allele is expressed the child is born with attached earlobes.

Mostly unattached/free earlobes are found than the attached earlobes. Mother and father with unattached/free earlobes may deliver the children with attached earlobes according to the genetic of alleles. This is due the presence of both dominant and recessive allele (9). Attached earlobes are not commonly found. The attached earlobes are smaller in size and attached to the attachment point to the head. Attached earlobes do not have any hangs, this type of earlobes are formed due to the absence of dominant alleles. Recessive alleles are responsible for the attached earlobes. It is not necessary that the parents with attached earlobes give birth to the attached earlobes children or vice versa. Appearance of a person depend on the traits in the shared pair of chromosomes. The strongest allele is responsible for the ruling on a trait. According to the scientists dominant alleles present in the parent body. If the dominant allele does not show its presence then recessive allele shows its presence. Those expressed characteristics is called recessive characteristics (9). There is limited literature available to comment on the pattern of earlobes in Pakistani population. Thus this study was designed to explore the pattern in local families.

METHODOLOGY

This research was conducted at the Department of Molecular Biology and Genetics, Shaheed Benazir Bhutto University, Shaheed Benazir Abad from September 2020 to October 2020. The attachment and non-attachment of the ear lobe of 200 families were assessed. The families were included by using non-probability convenient sampling technique. Including data for people between the ages of 1 to 20, 21 to 30, and 31 to 45. Among 200 families, 107 families had both types of people (with and without attachment of earlobes). The pattern of earlobes was assessed by inspection and recorded on a pre-designed proforma. Data was collected by using SPSS version 21.0 and presented as frequency distribution.

RESULTS

A total of 200 families were observed, with 940 members from which 576 members had unattached/free earlobes and 364 members has attached earlobes. Out of these 64% of males and 57% of females had unattached earlobes. 116 fathers had unattached earlobes and 64 fathers have attached earlobes, while 118 mothers had unattached earlobes, and 80 mothers had attached earlobes (Figure 1). Among children 98 sons had attached earlobes and 180 sons with unattached earlobes. Among girls 122 had attached earlobes, and 162 daughters were observed to have unattached earlobes(Figure 2). Familial trait was observed but there was no association with the age was seen.

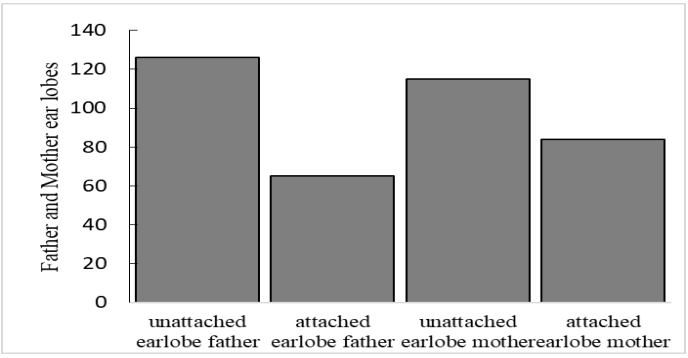

Figure 1. Father and mother attached and unattached ear lobe

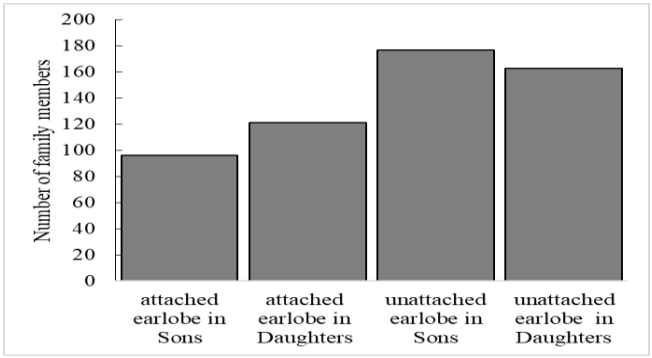

Figure 2. Daughters and sons attached and unattached ear lobe

DISCUSSION

Our study suggested familial and gender pattern of the earlobe traits. Other forms of earlobes were also discovered in both genders, along with conjoined and enjoined unfastened earlobes (10, 11, 12). Regarding the form of the ear, there may be a bilateral asymmetry. The length and form of the tragus additionally range relying at the left and proper facets and gender.

The earlobes display exclusive traits in individuals. In nearly 1/2 of the cases, each males and females discovered the earlobe connected to the face; in lots of cases, it's far free, and a few are partly closed (13, 14, 15). Therefore, the dimensions and form of the earlobe additionally adjustments with the perimeters and gender. The form of the helix varies from individual to individual, displaying positive traits inclusive of concave, coiled, flat and huge scuba covering (16, 17, 18). Darwin's nodules display numerous systems and proper aspects of each gender. The huge variability of the human ear may be attributed to the precise shape and traits of the ear (19, 20, 21, 22). Previous studies has additionally proven that the variety of person outside ears is enough to permit individualization in forensic examinations and can assist solve the difficulty of whether or not a selected suspect may be diagnosed as a criminal. All those variable functions and personalization/unique functions of the ear additionally assist to customise the individual with inside the CCTV photograph of the crime scene (21, 22). There are a few studies available on the morphological traits of ears in the literature. These research have progressed the anthropological and forensic expertise of ears and their variability in unique populations.

CONCLUSION

It has been concluded that shape of the earlobes and its attachment with the head is a familial trait without any association with the age. Clinical correlation and further genetic testing for its association with the transfer of genetic diseases are required to be studied.

Ethical Consideration: The data was collected anonymized after informed consent. No identity was noted or disclosed in the database at any time.

Conflict of Interest: There is no conflict of interest.
Funding: No funding source declared

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