

MORPHOGENETIC EXPRESSION, STUDY IN MUSLIMS POPULATION.

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ABSTRACT:

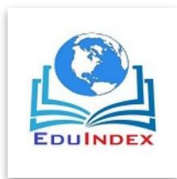
Physical characters of an individual and the pattern of inheritance of these traits is autosomal dominant as well as autosomal recessive which is referred as morphogenetic characters. The present study was conducted to screen four subcaste in muslim population for four different morphogenetic traits i.e. ear lobe attachment, Cerumentype, Hypertrichosis, and Tongue rolling to find out the frequency of expression in individuals, which is dominant or recessive. A total of 100 (25 of each subcaste) individuals were subjected to this study. The prevalence of these morphogenetic traits was observed as; dominant traits such as free ear lobe in sheikh, shah, khan (Pathan) and saudagar (68%, 64%, 76% and 60%), able to tongue rolling (76%, 64%, 72% and 68%), Cerumentype dry (80%, 68%, 76% and 44%) respectively, Hypertrichosis was absent in all four population, etc. are expressed more frequently in the population. We analysed whether a trait is dominant or recessive. The survey result shows a variation of this argument, it shows that some typical dominant character was not expressed but the expression of recessive character was prevalent as in Cerumentype dry.

Key Words: Morphogenetics, muslims, frequency and traits.

INTRODUCTION:

Genetic variability is a common feature of many organisms. The existence of genetic variation in man is caused by many factors along with selection, migration, gene flow and genetic drift. Human genetics are known as hereditary traits, these hereditary traits include the dominant and recessive traits in humans. Most of the genes are transmitted in the Mendelian pattern and a few are transmitted through the non-Mendelian pattern.

The population diversity could provide an opportunity to study the morphogenetic variation and similarities among different population inhabiting the regions since they have cohabited for a long time and presumably there might have been gene flow between



them, since the existence of genetic variation in man is caused by many factor among which selection, migration, gene flow and genetic drift are the most important. (Bhasin *et al.*,1992).

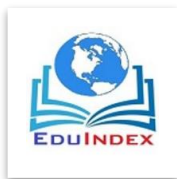
Amravati district is a district of Maharashtra state in central India. Amravati is the administrative headquarters of the district. The district is situated between 20°32'and 21°46'north latitudes and 76°37' and 78°27' east longitudes. The district occupy an area of 12,235km².The district is bounded by Betul district of Madhya pradesh state to north , and by the Maharashtra districts of Nagpur to the northeast ,Wardha to the east Yavatmal to the south and Akola and Buldhana districts to the westThe Muslims of comprise more than 13%of the population ,and they belong to various castes based on linguistics and ethnic groups beside, having few tribes.Muslims are grouped in different major groups like Shaikh, Saudagar, Shah, Pathan (khan) etc. The main objective of the study to find out the dominant and ressecvie traint pattern in Muslim population,hence very negligible study is done in this area hence the study will focus the traint study from amravati region among sub caste in muslims.

MATERIALS &METHODS:-

Population:-The Muslims comprise of more than 13%of the population ,and they belong to various castes based on linguistics and ethnic groups beside, having few tribes.Muslims are grouped in different major groups like Shaikh, Saudagar, Shah, Pathan (khan) etc. The survey was conduct among healthy individuals during 2016 . Households were selected through door to door contact and investigation.

In addition to understand morphogenetic status of Muslims population of Amravati district survey was conducted in different villages (including Ghatladki, Chandurbazar , Achalpur , Brahmanvada , Amravati) .Each individual was interviewed before screening. His\her general particulars (address, age, sex, and ethnic group) 100 individuals' data was recorded on the bases of physical examination. The gene frequency was calculated and percentage was also calculated by using standard stastical analysis for attached ear lobe, tounge rolling, ,Cerumentype and Hypertrichosis.

RESULT AND DISCUSSION:- This study was directed to investigate the distribution of Morphogenetic traits among the Muslims through visual inspection and examination.100 of muslim individuals of different subcase were examine for the different morphogenetic caracteris ation. Table 1 shows the resluts in gene frequency among different morphogenetic traints.

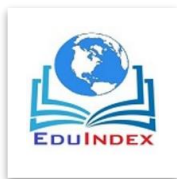


Rolling of Tongue: There are a large number of morphological traits, in the behavior of human species living under different ecological areas. This morphological variation has ethnic and genetic significance. The human tongue of digestive system is one of the organs which show variation in its behavior. The rolling of tongue is an example of autosomal inheritance. Tongue rolling ability is found to be less frequent among the Naga tribes Singh, I.R.(2002) also reported absence of tongue rollers in Kom tribes of Manipur. In present investigation the tongue rolling frequency in Sheikh is found to be 76% while the non-rolling tongue frequency is 24%. In Shah the frequency of rolling tongue is 64% while non-rolling tongue frequency is 36%. In Khan tongue rolling frequency is 72%, however non-rolling tongue frequency is found to be 28%. In Saudagars the frequency of rolling tongue is 68% and non-rolling tongue frequency is 32%.

Tongue folding:- Tongue folding ability is due to dominant gene expression. In present investigation the frequency of tongue folding ability in Sheikhs is found to be 64% and non-folding tongue frequency 36%. In Shah the frequency of tongue folding frequency is 44% and non-folding tongue frequency is 56%. In Khan the frequency of tongue folding is 76% and non-folding tongue frequency is 24%. In Saudagar the frequency of tongue folding frequency is 64% and non-folding tongue frequency is 36%.

Earlobe-The lower soft part of ear is called as earlobe. The variation in the size and form of ear is indicated by multiple recessive genes. Earlobes are of two types attached and free. Attached or fused earlobe is recessive character while free earlobe is a dominant character. The frequency of earlobe attachment are characteristics for mongoloid-Japanese 67.1%, Tibetans: 50.4% (Tiwari and Bhasin, 1969). Muslims on the other hands are of Caucasoid origin, in which the frequency of attached earlobes is generally much lower. In Muslims of Amravati district frequencies of attached and free earlobes are as follows. From the survey it is found that the frequency of attached earlobe in Sheikh population is 32% and free earlobe is 68%. The frequency of attached earlobe in Shah population is 36%, while the frequency of free earlobe is found to be 64%. In the investigation of Khan (Pathan) population the frequency of attached earlobe is 24% while that of free earlobe is 76%. The frequency of attached earlobe in Saudagar population is 40%, however 60% is free earlobe frequency. Kalia and Gupta (1978), had observed higher incidence of free earlobes (73.84%) among Punjabis. In the 5 endogamous groups of Haryana the frequency of free earlobes was found to be in the range of 56%-74% (Yadav et al., 2000). Frequency of free earlobes is 63.66% is reported by Chadha and Sandhu in 2013, also Mahasha and Bhagat of Jammu and Kashmir reported 53.33% of free earlobes.

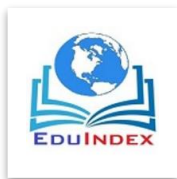
CERUMEN:-



In human beings ear wax (cerumen) occurs in two forms. Wet and Dry types. Ear wax type is a simple Mendelian way: there are two alleles, the one producing sticky type being dominant over that for dry type (Matsunaga, 1962). The two types of ear wax manifested soon after birth. The dry allele reaches high frequencies among indigenous populations of Asia and Americans. The wet allele has a high frequency in European populations (Petrakis 1971). Migration is one of the most definite factor responsible for distribution of ear wax, however natural selection also influencing the distribution of ear wax types. High frequency of dry type ear wax in caste group (Brahmins, Kalita, Kayastha) from India has been reported by Das in 1977. In present investigation the frequency of dry ear wax in Sheikhs is found to be 80% and that of wet ear wax type is 20%. In Shah it is 68% and 32% respectively. Among Khans the dry ear wax frequency is 76% and wet ear wax frequency is 24%, however among Saudagars the frequency of dry ear wax type is 44%, while that of wet ear wax type is 56%.

HYPERTRICHOSIS: Hypertrichosis is a Y-linked character (Gates, 1960; Dronamraju, 1960). Hypertrichosis is seen rather frequently in India, but also occurs in Caucasians, Australians, Aborigines and Japanese. For showing the genetics and variability in different populations for this trait a large number of studies have been carried out. Regarding to this trait little information is available among populations of Negroid and Mongoloid origins. Chakravati (1964) reported two individuals having hairy rims among the Totos, a tribe with Mongoloid affinities of Jalpaiguri (West Bengal). However Gates and Vella (1962) studied Mongoloid groups (Lepchas, Bhotias, Tibetan, Refugees, Khasis and Totos) not found any individual with hypertrichosis. In the present survey also hypertrichosis is absent in all the 4 Muslims groups.

TABLE 1:- Morphological traits among Muslims of Amravati district.



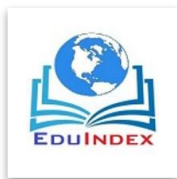
Sr. No	Population No.of individuals	Attached Earlobe (%)	Free Earlobe (%)	Tongue Rolling (%)	Non-rolling tongue (%)	Dry Cerumen (%)	Wet Cerumen (%)	Hypertrichosis(%)
1	Sheikh (25)	32%	68%	76%	24%	80%	20%	Absent
2	Shah (25)	36%	64%	64%	36%	68%	32%	Absent
3	Khan (pathan) (25)	24%	76%	72%	28%	76%	24%	Absent
4	Saudagar (25)	40%	60%	68%	32%	44%	56%	Absent

This study differs from the report of Bulliyya (2003) that the distribution of tongue rollers and tongue folders is lower than non-rollers and non-folders. Also from this study, the frequency of free or unattached earlobe is higher than attached earlobe. This agrees with the work carried out by Singh and Sengupta (2004) and Nwaopara et al. (2008).
Conclusion: The results of this study will be of great importance in many areas such as forensic medicine, emergency cases, clinical practice and anthropology to address future health challenges. And it will serve as a basis in further anthropological researches.

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