●Յամառոտ հաղորդումներ ● Краткие сообщения ● Short communications ●

MULTIVARIATE COMPARISON OF CEPHALOMETRIC TRAITS IN IRANIAN AZERIS AND PERSIANS

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Turkic-speaking Azaris and Iranian-speaking Persians living in Iran were compared by cephalomentric traits. Two multivariate statistical approaches, principal component and discriminant analyses, were applied. The populations are described by almost the same average values (p>0,05) of the first two principal component variables accounting in aggregate for 73.6% of total diversity of the initial traits. The average level of correct reclassification for the objects while using the analytical recognition method is about 52%, i.e. the probability of their attribution to any of the two groups is almost equal. In whole, the two samples do not differ significantly from each other according to multivariate characteristics analysed that witnesses to the same generalized cephalomentric peculiarities in the ethnic groups considered.

Iranian Azaris – Persians – craniofacial traits – multivariate analysis

Իրանաբնակ ազերիները և պարսիկները համեմատվել են ըստ գլխի չափագրական հատկանիշների՝ օգտագործելով երկու բազմաչափ վիճակագրական մեթոդներ՝ գլխավոր կոմպոնենտների և դիսկրիմինանտ վերլուծության: Երկու պոպուլյացիաները չեն տարբերվում (p>0,05) ըստ առաջին երկու կոմպոնենտների միջին արժեքների, որոնք բացատրում են սկզբնական հատկանիշների ընդհանուր բազմազանության 73,6%-ը: Օբյեկտների ճշգրիտ վերաբաշխման միջին աստիճանը, ըստ վերլուծական ճանաչման մեթոդի, հավասար է մոտ 52%, ինչը վկայում է, որ նրանց որևէ խմբին վերագրման հավանականությունը գրեթե հավասար է: Ընդհանուր առմամբ, դիտարկվող ընտրանիները հավաստիորեն չեն տարբերվում միմյանցից ըստ վերլուծվող բազմաչափ հատկանիշների՝ արտացոլելով հետազոտված երկու էթնիկական խմբերի մոտ ընդհանրացված գլխի չափագրական առանձնահատկությունների նմանությունը:

Իրանի ազերիներ - պարսիկներ - գլխաչափական հատկանիշներ - բազմաչափ վերլուծություն

На основе кефалометрических признаков проведено сравнение проживающих в Иране тюркоязычных азербайджанцев и ираноязычных персов с использованием двух многомерных статистических подходов – метода главных компонент и дискриминантного анализа. Обе популяции характеризуются близкими средними значениями (p>0,05) двух первых главных компонент, объясняющих 73,6% общей дисперсии исходных признаков. Средний уровень правильной реклассификации объектов при использовании аналитических методов распознавания составляет около 52%, т.е. вероятность их отнесения к той или иной группе примерно одинакова. В целом сравниваемые выборки достоверно не отличаются по анализируемым многомерным характеристикам, что свидетельствует об одинаковых обобщенных кефалометрических особенностях рассматриваемых этнических групп.

Иранские азербайджанцы – персы – кефалометрические признаки – многомерный анализ

The historical background and anthropological origin of the Turkic-speaking Iranian Azeri population has been a subject of numerous research works, but so far the opinions of scholars are not unanimous concerning many of the questions posed. Some sources tend to designate them as the descendants of the Turkic people, most likely due to their Turkic language [5]. The majority of sources view the ethnic Azeris as having mixed ethnic origin tracing back to indigenous Caucasian populations and Iranians, who were influenced by Turkic languages throughout centuries of occupation under several Turkish dynasties [2, 3, 4]. According to other scholars, the Iranian roots of Azeris likely trace back to ancient Persian tribes, such as the Medes, who lived on the territory of modern Iranian Azerbaijan, and Scythian invaders, who arrived during the 8th century BC [8]. However, whether originally Caucasian or Iranian, it is fairly definite and largely supported by historical accounts that Azeris are not descendants of Turkic tribes, although they have certainly been affected by them.

The principal goal of this report is to check one of the existing, the 'Iranian', hypotheses of the Azeris' origin. We compared the Turkic-speaking Azeris (n=400) and the Iranian-speaking Persians (n=115) living in Iran using eight cephalomentric traits. The data were collected in different, predominantly rural, populations in the province of Iranian Azerbaijan.

Two multivariate statistical approaches, the principal component analysis and the discriminant analysis, were applied using SPSS software package. On the basis of the first method the integrated features, principal components (PC1 and PC2), accounting together for 73.6% of total diversity of the initial cephalomentric traits were separated. The mean values of these features did not significantly differ between the Azeris and Persians (p>0.05). The spatial relationship between the populations considered is presented on two-dimensional plot of principal component variables (Fig.1).
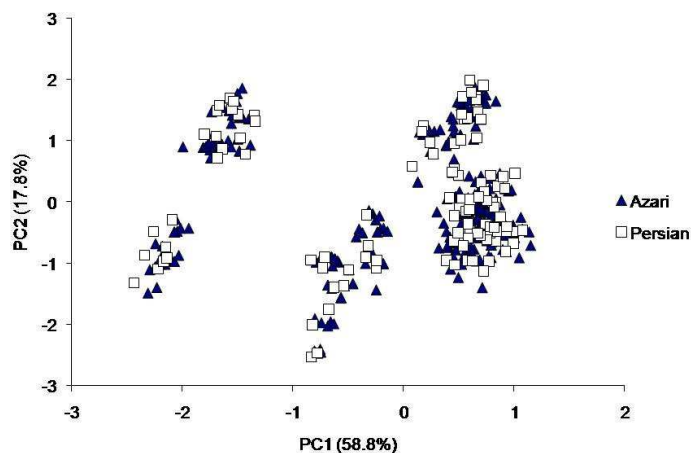

Figure 1. Spatial distribution of the objects in 2D-principal components plot
(numbers in brackets represent percentage of total variation explained by each axis).

The next statistical approach, the discriminant analysis, allowed checking the rate of multivariate analytical recognition of the objects, i.e. the probability of their belonging to the corresponding sample. It was revealed that the average level of correct reclassification for the pooled sample is about 52%, which means that the likelihood of the attribution of the objects to any of the groups is almost equal.

In whole, the results show that Iranian Azeris and Persians do not differ significantly from each other according to multivariate morphological characteristics thus witnessing to the same generalized pattern of cephalomentric peculiarities in the ethnic groups considered. These results are in good agreement with recently published data on close genetic affinity between Iranian Azeris and Persians established on the basis of Y-chromosomal markers [1]. Moreover, using multivariate genetic classification methods, it was shown that Iranian Azeris and their close neighbors (Persians, Kurds and Armenians) form a rather distinct cluster of the Middle East origin [6]. Relying on cephalomentric and genetic data we can suggest that Iranian Azeris might be considered as an indigenous population of the Middle East. Their language might be imposed by the limited number of Turkic-speaking invaders from Central Asia through 'elite dominance' model [7] and the newcomers did not leave any noticeable traces on the anthropological appearance and gene pool of the local populations of the Middle East.

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