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Distribution of the ABO Blood Groups and Rh (D) Factor Among the Chamars of Punjab

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ABSTRACT The distributions of the ABO blood groups and the Rh (D) factor have been studied among the Chamars - the most dominant group of the scheduled caste population of Punjab. The percentage frequencies of the O,A,B and AB groups was found to be 27.67, 25.33, 38.00 and 9.00, respectively. The Rh negative incidence was recorded as 4.0%. The results were compared with other scheduled caste populations of India.

INTRODUCTION

The word Chamar is derived from *Charmkar*, meaning a worker in leather, hide and skin. Chamars – the most dominant group of the Scheduled Caste population of Punjab-occupy a lower level in the hierarchy among scheduled castes as well as in relation to other castes in general. Their status in the occupational structure as leather workers and their food habits *e.g.* eating pork, chicken and beef have pushed them to a lower status. As a result, they live in their hamlets set apart from the upper castes.

The Chamars studied in the present study are Hindus but they do not intermarry with other high caste Hindus. Thus, they constitute a separate endogamous group. The aim of the present study is to report the frequency distributions of the ABO blood groups and Rh (D) factor among the Chamars of Punjab since no such data are available on this population of Punjab.

MATERIAL AND METHODS

Blood samples from a total of 300 unrelated individuals were drawn at random from two settlements situated near Moga, in Faridkot district of Punjab and typed for the ABO and Rh (D) blood groups using standard antisera, with proper controls. The gene frequencies were calculated after Mourant et al. (1976). In order to check the internal consistency of the data, the expected phenotypic frequencies of the ABO blood groups were calculated form the observed gene frequencies. The chi-square test showed that the difference between observed and expected phenotypic numbers is statistically nonsignificant ($\chi^2 = 0.268$; d.f. 3; $p > 0.95$). Therefore, the sample may be considered as a representative of the population.

RESULTS AND DISCUSSION

ABO Blood Group System

The percentile frequencies of the ABO blood groups and the allele frequencies are presented in table 1. In the Chamars community, most frequently blood group is B (38.0%) followed by O (27.67%), A (25.33%) and AB (9.00%). The incidence of the *A* and *B* alleles in the present Chamars (a scheduled caste) has been found to be 0.193 and 0.277, respectively. Similar frequency distribution of the ABO alleles have been reported in several other scheduled caste populations of India such as Harijans of Punjab (Sehgal, 1979), Meghwal and Salvi of Rajasthan (Thukral and Bhasin, 1990) and Scheduled Castes of Uttar Pradesh (Mandal, 1992), albeit among the Valmikis of Andhra Pradesh the frequency of the *B* allele was found to be less than that of the *A* allele (Yasmin and Devi, 1990).

Table 1 : **Phenotype and allele frequencies of the ABO and Rh (D) blood groups among the Chamars of Punjab**

System/ Phenotype	*Number observed*	*Percentage observed*	*Allele frequencies*
ABO			
O	83	27.67	$A = 0.193$
A	76	25.33	$B = 0.277$
B	114	38.00	$O = 0.530$
AB	27	9.00	
Total	300	100.00	1.000
Rh (D)			
Positives	288	96.00	$D = 0.800$
Negatives	12	4.00	$d = 0.200$
Total	300	100.00	1.000

Rh Factor

Out of the 300 subjects tested, 288 were found to be Rh positive and 12 Rh negative giving a frequency of 0.800 and 0.200, respectively for the *D* and *d* alleles.

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