



ELSEVIER

Contents lists available at ScienceDirect

HOMO - Journal of Comparative Human Biology

journal homepage: www.elsevier.com/locate/jchb

Dermatoglyphic variation among the Limboo of Sikkim, India

B. Dorjee^a, S. Das^a, N. Mondal^b, J. Sen^{a,*}

^a Department of Anthropology, University of North Bengal, P.O. NBU, Raja Rammohunpur, Darjeeling, West Bengal 734013, India

^b Department of Anthropology, Assam University, Diphu Campus, Karbi Anglong, Assam 782 462, India

ARTICLE INFO

Article history:

Received 24 July 2014

Accepted 15 February 2015

ABSTRACT

Variations in finger and palmar dermatoglyphic patterns are investigated among the Limboo (18–60 years, 150 males and 150 females), a little known population of Sikkim. The results for Limboo were compared with other North-East Indian populations. The most commonly occurring pattern was loop (males: 64.33%; females: 75.00%) followed by whorl (males: 31.00%; females: 21.33%) and finally arch (males: 4.67%; females: 3.66%). There were no significant differences between sexes in pattern types. The overall values of pattern intensity (P.I.I.), Dankmeijer's (D.I.) and Furuhata's (F.I.) indices were 14.08, 12.60 and 96.06 respectively. The P.I.I. was within the range for East Asian populations of North-East India. The D.I. was similar to those reported for Rajbanshi, Kalita, Rabha and Newar populations, while F.I. was higher than in other populations of Eastern Himalaya and North-East India. The most frequently occurring mainline formulae in all palm prints (left and right combined) were 7.5'.5.- followed by 9.7.5.- and finally 11.9.7.- ($p > 0.05$) and these were similar to the reported values for other North-eastern populations of India. The mean values of total finger ridge count (TFRC) and absolute finger ridge count (AFRC) were greater among males (138.03; $s = 42.26$ and 198.78; $s = 77.4$) than females (137.91; $s = 44.15$ and 194.47; $s = 86.71$). The a-b ridge count was greater among females than males. Sex differences in AFRC and a-b ridge count were both statistically significant ($p < 0.05$). The mean TFRC values were within ranges for populations of North-East India.

* Corresponding author. Tel.: +91 353 2776322; fax: +91 353 2699001.

E-mail address: jaydipsen@rediffmail.com (J. Sen).

Cluster analysis based on P.I.I., D.I. and F.I. shows affinity of the Limbo to some of the populations of Assam and North-East India.

© 2015 Published by Elsevier GmbH.

Introduction

Dermatoglyphic traits play a significant role in establishing affinities of human populations for the simple reason that they remain under genetic control (Holt, 1952; Reed et al., 2006; Schaumann and Alter, 1976; Sengupta and Karmakar, 2004). Over the years, a large number of studies have documented variations among human populations using them (Arquimbau et al., 1993; Arrieta et al., 2003; Demarchi et al., 1997; Esteban and Moral, 1993; Scheil et al., 2005; Sivakova et al., 1995; Woolley et al., 1984). Significant studies have also been published in the field of personal identification using dermatoglyphics (Buchner, 1985; Caplan, 1990; Leadbetter, 2005; Polimeni and Saravo, 2004; Polimeni et al., 2004; Tahtouh et al., 2005). India as a country exhibits large ethnic and genetic diversity which is primarily due to the presence of a large number of indigenous populations (Indian Genome Variation Consortium, 2008; Majumder, 1998). For decades, researchers have used dermatoglyphic variables to document variations among different Indian populations (Balgir and Sharma, 1986; Bhasin and Walter, 2001; Jantz and Chopra, 1983; Karmakar et al., 2005; Kshatriya et al., 1980; Narahari et al., 2008; Reddy et al., 2000, 2001).

North-East India is composed of the states of Sikkim, Assam, Meghalaya, Mizoram, Nagaland, Tripura, Arunachal Pradesh and Manipur. Most of populations residing there show an East Asian ancestry. Sikkim, along with the district of Darjeeling in West Bengal is located in the region known as Eastern Himalaya. A limited number of studies on dermatoglyphics have been conducted among different populations of North-East India and Eastern Himalaya. Majority of these studies are related to the typological description of dermatoglyphic variables so as to understand the ethnic affinities of the concerned populations. Studies have been done among Assamese Hindu Caste populations (Das, 1979; Das and Bhagbati, 1967; Das et al., 1980), and Boro Kachari, Meche, Rabha, Garo, Hajong, Moran, Chutiya, Mikir, Lalung and Deuri populations (Chakravarti and Mukharjee, 1961; Das et al., 1980, 1985; Deb, 1979; Deka and Bora, 1973). In the district of Darjeeling, initial studies were conducted by Sarkar (1969, 1971) and Sarkar and Biswas (1972) on the Meche, Oraon, Munda, Rajbanshi, Brahmin, Kayastha, Vaida, Namasudra and Muslim populations. There were hardly any significant dermatoglyphic studies among the populations of this district published during the next 40 years. Only recently, studies were conducted on dermatoglyphic patterns among the Rajbanshi and Meche (Sen and Mondal, 2008; Sen et al., 2011), and among the Dhimal (Biswas, 2011). Also, studies on dermatoglyphics among the populations of Sikkim appear to be almost non-existent and a detailed literature search documented only three studies (Miki et al., 1960, 1961; Miki and Hasekura, 1961). Given the paucity of literature on the dermatoglyphic patterns of the various populations of Sikkim, there is a need for initiating studies in this field.

The present study has, therefore, been designed to document finger and palmar dermatoglyphic variables among individuals belonging to the Limboo population of the state. It also tries to investigate the affiliation of this population with other neighboring North-East populations because of possible common or shared remote ancestry in the recent past.

Materials and methods

Study area and nature of the participants

The present study was carried out among adult unrelated Limboo individuals aged between 18 and 60 years and residing in three villages (Lingchom, Tikjek and Langang) located in Yangthang Block, Gyalshing, Sikkim, India. These villages are located within 9 km from the district town of Gyalshing, West Sikkim (Fig. 1). Morphological features and surnames were used to identify individuals belonging to the Limboo population, which were subsequently verified from the official records. Initially, a total

Download English Version:

<https://daneshyari.com/en/article/100063>

Download Persian Version:

<https://daneshyari.com/article/100063>

[Daneshyari.com](https://daneshyari.com)