

## Occurrence of Bettman's Figure among the Oraon and Kissan of Odisha

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### **ABSTRACT**

*Bettman's figure, an unusual configuration in palm is discussed between two tribal populations namely, the Oraon and Kissan males of Odisha. Incidence of this figure is found to be high in the studied populations (Oraon: 41.82%; Kissan: 39.21%) than that of the Tibetan (3.52%) and Vadabalija (25.39%).*

Patterns like whorls, loops, vestiges and open fields are frequently found on the eminence of palm. However, very often this thenar area is covered by an unusual configuration in which two loops lie opposite each other, being open on different sides. Such patterns occurring exclusively on the thenar area are termed the Bettman's figure (Bettman 1931; Fig. 1). Studies on Bettman's figure are not many. Patel (1971) examined inheritance of Bettman's figure among the Tibetan refugees of Chandragiri, Ganjam district, Odisha, while Babu (1981) studied this among the Vadabalijas of Visakhapatnam coast of Andhra Pradesh. This study attempts to find out the frequency of Bettman's figure among the Oraon and Kissan of Odisha.

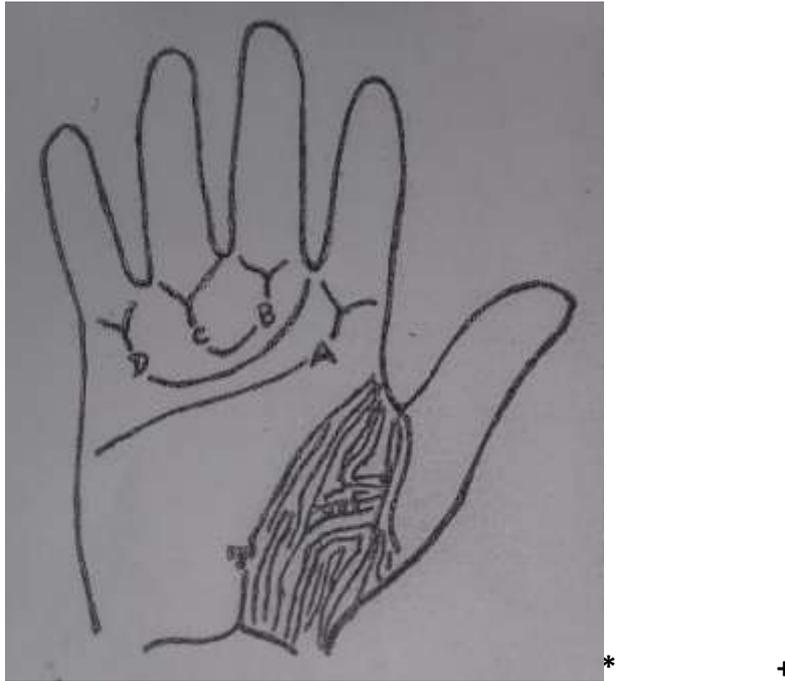


Fig. 1: Bettman's figure (after Patel 1971)

Bilateral palmar prints of 110 males Oraon and 102 males Kissan were collected from Arba-Jhorabahal and its neighbouring areas of Sundargarh district, Odisha. To collect the accurate data care was taken not to include close relatives in it. The subjects were selected without any age limitation. Finger and palm prints were taken according to the method introduced by Cummins and Midlo (1943).

The asymmetry or unilateral occurrence of Bettman's figure is 29.09% and symmetry or bilateral occurrence is 12.73%, found out of 110 male members among the Oraon, whereas, among the Kissan asymmetry and symmetry value found with 30.39% and 8.82% respectively out of 102 male members (Table 1). The Bettman's figure shows very common occurrence among the Oraon than the Kissan. It is observed that 41.82% Bettman's figure present among the Oraon and 39.21% among the Kissan (Table 2).

Table 1: Asymmetry and symmetry in Bettman's figure

Sl. No.	Population	No. of Observation	Asymmetry (unilateral)		Symmetry (bilateral)	
			No.	%	No.	%
1.	Oraon	110	32	29.09	14	12.73
2.	Kissan	102	31	30.39	9	8.82

Table 2: distribution of Bettman's figure

Sl. No.	Population	Present		Absent	
		No.	%	No.	%
1.	Oraon	46	41.82	64	58.18
2.	Kissan	40	39.21	62	60.78

The bimanual differences between the Oraon and Kissan are shown in Table 3. It reveals that bimanual differences in regard to the occurrence of this figure in both the tribes is 16.36% on the right and 25.45% on the left found out of 110 Oraon males and 13.72% on the right and 25.49% on the left found out of 102 Kissan male members.

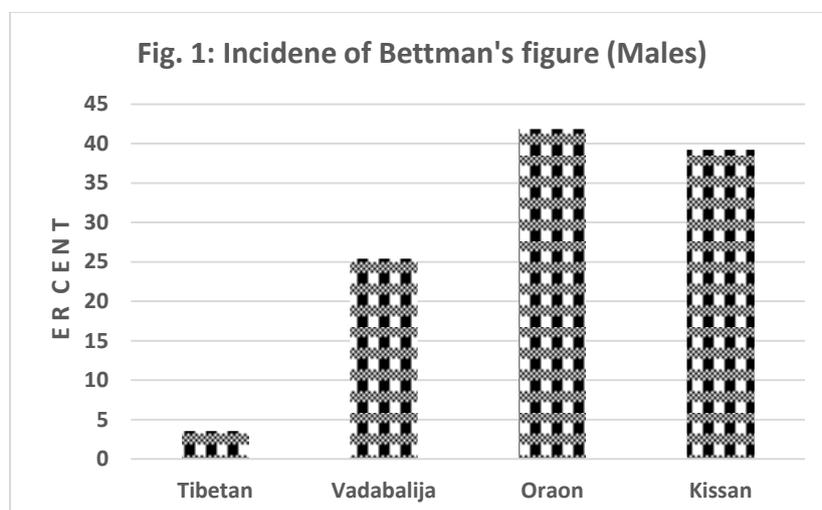
Table 3: Bimanual differences in occurrence of Bettman's figure

Sl. No.	No. of observation	Right		Left	
		No.	%	No.	%
1.	110 (Oraon)	18	16.36	28	25.45
2.	102 (Kissan)	14	13.72	26	25.49

In application of test of significance of the difference between two independent proportions it appears that the Kissan males differ significantly (0.02 level of probability) in terms of bimanual difference (df= 202, t=2.75), but the Oraon do not differ significantly (df= 218, t=1.80) in this respect.

Table 4: Population-wise comparison of Bettman's figure

Sl. No.	Population (Males)	No. of observation	Present		Source
			No.	%	
1.	Tibetan	369	13	3.52	Babu 1981
2.	Vadabalija	130	33	25.39	Patel 1971
3.	Oraon	110	46	41.82	Present study
4.	Kissan	102	40	39.21	Present study



Incidence of Bettman's figure is compared between studied and other populations (Table 4). The same is shown in Figure 1. It reveals that there exists marked difference among the four populations in terms of this figure. Both the Oraon and Kissan show higher incidence than the Tibetan and Vadabalija. However, incidence of Bettman's figure is very low (3.52%) among the Tibetan.

However, In application of test of significance of the difference between two independent proportions it appears that the Oraon and Kissan males do not differ significantly in terms of occurrence of Bettman's figure ( df=210, t=0.43), but the Oraon differ significantly with the Tibetan ( df=477, t=7.80) and the Vadabalija ( df=238, t=2.83).

Whereas, the Kissan differ significantly with the Tibetan ( $df=469$ ,  $t=3.27$ ) and the Vadabaliya ( $df=230$ ,  $t= 2.80$ ).

**Author's contribution:** R.Th.V. collected field data. The idea behind the article was given by R.Th.V., who has analysed the data and drafted manuscript. DKA edited and prepared final manuscript.

**Conflict of interest:** The authors declare that there is no conflict of interest.

## REFERENCES

Babu MS. 1981. Incidence of Bettman's figure among Vadabalijas. *Man in India*, 61(1):83-85.

Bettman S. 1931. Uber Papillarleistenzeichnungen am menschlichen Daumenballen. *Z. F. Anat. U. Entwicklungsgesche*, 96:427-452.

Cummins H and Midlo C. 1943. *Finger Prints, Palms and Soles*. The Blackistan Co., Philadelphia.

Patel S. 1971. Inheritane of Bettman's Figure among Tibetan Refugees. *Man in India*, 51(1):67-70.