

## Incidences of Handedness and Footedness in Hindu and Muslim Community

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### ABSTRACT :

*The present research aimed to study incidences of handedness and footedness among Hindu and Muslim community. A sample consisted of 180 Hindu and 180 Muslim i.e. a total of 360 subjects with mean age of 26.98 years and S.D 4.99 years were used for this purpose. A self-made questionnaire was used to collect the data. Results showed that there is 7.2% left handers and 6.7% left footer in general population. In Hindu community, here are 2.8% left-handers and 2.8% left footer while in Muslim community, there are 4.4% left-handers and 3.9% left footer. Chi-square analysis of data showed that there are no significant difference between religion and handedness and footedness. Correlation analysis of data shows a highly positive correlation ( $r=0.958$ ) between writing hand and kicking leg i.e. handedness and footedness.*

### Key Words:

Handedness: - The hand used by the subject or person for writing, eating and throwing.

Footedness: - The leg used by the subject or person for kicking.

Hindu community: - The general term used for the follower of Hindu religion.

Muslim community: - The general term used for the follower of Muslim religion.

### INTRODUCTION :

Handedness is one example of many forms of behavioural lateralization seen in humans. Left-handedness has existed in a small subset of the human population, approximately 8%, since the origin of man. The incidence of left-handedness is usually reported to be consistent among human populations. Sinistrality is more common in males than in females. A vast range of testing techniques has been used to assess handedness. There are preference and performance tests. Writing hand and self-reported handedness are two of the most popular techniques. (Reiss et. al., 1999).

In a study two forms (hand-preference and hand-approval) of an 87-item handedness questionnaire were administered to eighty subjects including both Hindus and Muslims. For hand preference scores there were minimal differences between Hindus and Muslims.

However, female subjects (more in the case of Hindus) showed higher preference for right hand use than their male counterparts. The analyses of hand approval scores, on the other hand, indicated that Muslims were more insistent upon using the right hand, especially activities related to eating behavior than Hindus. (Singh et al, 1994).

In another study 400 schoolchildren from India, aged 6 to 18 years, were examined for handedness, footedness, eyedness, use of hand in space, absolute and relative hand skill assessed by a peg-moving task and a dot-filling task. Prevalence of left-handedness was 4.2%. A sex difference was observed for handedness, footedness, use of hand in space and relative hand skill, with higher proportions of right preferences and higher degree of lateralization (i.e., relative between hands asymmetry) in females. The degree of hand skill asymmetry increased with age. These results are discussed in relation to findings from previous studies in other countries using similar procedures. (Singh et. al, 2001).

Age, sex, and handedness effects in foot and eye preferences were studied by questionnaire in large samples of normal adult populations from five different countries (total sample, n = 5064). Foot and eye preference were significantly associated with handedness category (right or left) in all the 10 sex by country samples for foot, and in 9/10 samples for eye. The overall frequencies of crossed preferences were 5% between hand and foot and 19.5% between hand and eye. In right-handers, a gradual shift toward the "right" with increasing age was systematically observed, both for footedness and eyedness. The proportion of crossed hand-foot preference was higher in men than women (7.4% vs. 2.5%), and higher in left-handers than right-handers (16.3% vs. 4.1%). Sex differences in the proportion of crossed hand-eye preference were variable from one country to the other. (Dargent-Pare et. Al., 1992)

On the basis of the different studies the basic pattern of human laterality may be summarized as follows-

- 9 out of 10 people are right-handed.
- 8 out of 10 people are right-footed.
- 7 out of 10 people are right-eyed.
- 6 out of 10 people are right-eared.

However, there are sex-differences in laterality with women tending to be more right-sided than men, thus about 90% of women are right-handed and 86% right-footed, but only 86% of men are right-handed and 77% right-footed. With respect to the strength or consistency of laterality, women also seem to be more strongly biased to the right and more consistent overall than males.

**OBJECTIVES: -**

The present study is designed with the following objectives:-

1. To study the handedness and footedness of Hindus and Muslims.
2. To compare the incidences of handedness and footedness of Hindu and Muslim subjects.

**HYPOTHESES: -**

In order to study the objectives, the following hypotheses have been framed-

1. There is no significant difference between the handedness of Hindus and Muslims community.
2. There is no significant difference between the footedness of Hindus and Muslims community.
3. There is no significant relationship between handedness and footedness.

**METHOD**

**Sample: -**

The sample collected for this study contained a total of 360 subjects. In which there are 180 Hindus and 180 Muslims. The mean age of the subjects was 26.98 years and S.D. 4.99 years. Primarily questionnaire was administered on 400 subjects but 360 subjects were finally selected.

**Tool used: -**

A self-made questionnaire was used to collect the data. The questionnaire contains the general information like age, sex, religion, education qualification, area etc. Writing Hand and Kicking Leg was considered as a measure of handedness and footedness.

**Procedure: -**

As per objectives and purpose of the study, the subjects were selected randomly from Hindu and Muslim community. The subjects were tested individually. Primarily, questionnaire was administered on 400 subjects but finally 360 subjects were selected for the purpose. All respondents were assured that the information collected from them would be utilized only for academic and research purpose. For writing hand and kicking leg right response was scored "1" and left response was scored "2". The scores were treated statistically with the help of the SPSS programme

## RESULTS AND DISCUSSION

Table –1 showed that there are 7.2% (26) left-handers and 6.7% (24) left footer subjects in total sample. In Hindu community, there are 2.8% left-handers, while in Muslim community there are 4.4% left-handers. Similarly, there are 2.8% left–footers in Hindu community but there are 3.9% left footer in Muslim community (Table-2). Chi-square value showed a non-significant relationship between handedness, footedness and religion (1.414 & 0.714), respectively (Table - 3).

**Table: - 1**

**Shows the frequency and percentage of subjects across writing hand and kicking leg**

	Right	Left	Total
<b>Writing Hand</b>	334 (92.8%)	26 (7.2%)	360 (100.0%)
<b>Kicking Leg</b>	336 (93.3%)	24 (6.79%)	360 (100.0%)

**Table: - 2**

**Shows the frequency and Percentage of handedness across community**

		Writing Hand		Kicking Leg		Total
		Right	Left	Right	Left	
<b>Community</b>	<b>Hindu</b>	170 (47.2%)	10 (2.8%)	170 (47.2%)	10 (2.8%)	180 each
	<b>Muslim</b>	164 (45.6%)	16 (4.4%)	166 (46.1%)	14 (3.9%)	180 each
		334 (92.8%)	26 (7.2%)	336 (93.3%)	24 (6.7%)	360 (100%)

**Table: - 3**  
**Showing Chi-square value between religion and handedness, footedness**

Variables	df	Chi-square value
Religion and handedness	1	1.492*
Religion and footedness	1	0.714*

Table –4 shows that there are 92.8% right-handers and 7.2% left handers and 93.3% right footer and 6.7% left footer in total sample. No right handers subject use their left leg for kicking while 0.6% left handers used their right leg for kicking due to which the percentage of right footer is much to right handers and percentage of left footer is less than the left handers. There is a significant correlation ( $r = 0.958$ ) between handedness and footedness.

**Table: - 4**  
**Frequency, % and Chi-square analysis of writing hand and kicking leg**

		Kicking Leg		Total
		Right	Left	
Writing hand	Right	334 (92.8%)	0 (0.0%)	334 (92.8%)
	Left	2 (0.6%)	24 (6.7%)	26 (7.2%)
Total		336 (93.3%)	24 (6.7%)	360 (100.0%)
Correlation Value				<b>0.958**</b>

\*\* Value is significant at 0.01 level.

On the basis of the result, it can be concluded that there are 7.2% left handers and 6.7% left footer in general population. This percentage is high than the percentage (5.4%) said by the Singh, and Bryden, (1994), Singh & Manjary, (1995). But this percentage is nearer to the world percentage 8.75%, (Seddon & Mc Manus, 1993) and percentage of left-hander (6.5%) in rural population. (Singh, 2004). The percentage of left handed (4.4%) and left footed (3.9%) persons are more in Muslim

community than that of Hindu community (2.8% each respectively) but this difference is not significant. So, it can be concluded that religion has no impact on handedness and footedness. Results also showed that there is highly positive correlation between handedness and footedness i.e. in writing hand and kicking leg. So, footedness can also be used as a variable to measure the sidedness or asymmetry. It is very clear that no right handed person use their left leg for kicking but 0.6% left-handers used their right leg for kicking. Due to which the percentage of right-footed person is more than the right-handed person. It can be concluded that if a person is right handed, he shall also be right footed but if a person is left handed it is not necessary that he will use his left foot for kicking. These findings are incongruence with other studies. (Kang & Harris, 2000).

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