

Genetic and environmental factors in the determination of general cognitive abilities: a twin study

■ Annu and Bimla Dhanda

Received: 13.08.2020; Revised: 01.10.2020; Accepted: 15.10.2020

■ **ABSTRACT** : The present investigation of twin study elucidated the contribution of genetic and environment to a wide range of general cognitive abilities. To conduct twin study 100 pairs of twins from two districts, namely: Bhiwani (n = 90) and Hisar (n = 110) of Haryana State, genetic and environmental influences were assessed in twin study design. The cognitive abilities of twins were measured using the Wechsler Intelligence Scale for Children (WISC-R). Home Observation for Measurement of the Environment (HOME) Inventory was taken to examine the home environment of twins. Heritability estimate was used to analyze the genes contributing to shape the cognitive abilities of twins. The result of heritability estimates revealed that the heritability estimates of general cognitive abilities namely: information (62%), similarities (57%), vocabulary (60%) and comprehension (55%) in Bhiwani district and in Hisar district, the heritability estimates were 58 per cent, 55 per cent, 56 per cent and 51 per cent for information, similarities, vocabulary and comprehension general cognitive abilities, respectively. The findings clearly elucidated that the general cognitive abilities were more influenced by genetic background than the environmental factors. The paternal involvement and physical environment were strongly associated with general cognitive abilities of twins. The monozygotic twins were more correlated in their general cognitive abilities than the dizygotic twins.

■ **KEY WORDS**: Genetic, Heredity, Environment, Monozygotic twins, Dizygotic twins

■ **HOW TO CITE THIS PAPER** : Annu and Dhanda, Bimla (2020). Genetic and environmental factors in the determination of general cognitive abilities: a twin study. *Asian J. Home Sci.*, **15** (2) : 171-176, DOI: 10.15740/HAS/AJHS/15.2/171-176. Copyright © 2020: Hind Agri-Horticultural Society.

See end of the paper for authors' affiliations →

Annu

Department of Human
Development and Family Studies
I.C. College of Home Science,
Chaudhary Charan Singh Haryana
Agricultural University, Hisar
(Haryana) India
Email : annupanghal1997@
gmail.com