Genetic architecture of agreeableness in dizygotic Twins

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Abstract: This is large-scale genetics study, which has been conducted for understanding of the genetic architecture of agreeableness, complex heritable traits. The study was conducted on a pairs of 110 twins in the age group of 3-6 years in five from five cultural zones of state Haryana. The data was analyzed for agreeableness culture wise and yielded new insight into the trait. The results revealed that there was a significant cultural difference in agreeableness trait of personality in dizygotic twins. The respondents of ahirwal zone had better personality traits against their counterparts. Keywords: Genetics architecture, dizygotic twins, agreeableness.

I. Introduction
Genetic influences on agreeableness is ubiquitous, but was not well understood. Genetic architecture refers to the underlying genetic basis of a phenotypic trait and its variation properties (Hansen, 2006). By comparison, Dizygotic (DZ) twins share, on average, half of the genes that differ from person to person Robert, (2008). Dizygotic are not as optimal as identical twins for deciphering the degrees of genetic influence, but they are a very good basis for comparison for identical twins. The reason is that study of genetics of personality is fundamental to the future development of a more unified personality psychology (McAdams & Pals, 2006). Both environmental variance and gene-environment interactions, determine the phenotypic variance in personality differences (Plomin et al., 2001). The study has due advantage to explore agreeableness trait of personality, because human personality traits influence outcomes in all areas of life (Ozer & Benet-Martinez, 2006). Agreeableness in personality and subjective well-being may be correlated as agreeable people tend to be pleasant and accommodating in social (Kendler, & Pedersen, 2006, Peterson, 2003). Therefore research aimed to identify social cultural influence on the traits.

II. Objective
1) To assess the agreeableness of traits of dizygotic twins.

III. Methodology
The various methodological research procedures adopted in the study have been described along with the relevant details under following subheadings:

A. Locale of the study
The study was conducted in five cultural zones of Haryana state namely Khadar, Bagar, Nardak, Mewat and Aahirwal. A total number of -- district depending upon the availability of the twins were identified from five cultural of the state.

B. Selection of sample
A sample of 110 twins in the age group of 3-6 years identified from different villages was assessed.

C. Variables
1. Dependent variable: Agreeableness trait of twins.

D. Tools
1. A Five Factor Personality Questionnaire for preschool children will be used for assessing the personality traits of preschool twins (Cathy L. Grist (revised), 2011).

IV. Statistical analysis
Means, standard deviations and ANOVA were carried out.

V. Results
Results from current data shown the comparison of the mean levels of agreeableness in dizygotic twins. The trait agreeableness across five cultures shown systematic patterns, but significant difference. The highest mean
value on agreeableness was found in dizygotic twins of Ahirwal zone (32.9) followed by Khadar zone (31.6) then Mewat (31.2) and least mean value for the dizygotic twins of Bagar zone (30.4) as depicted through Table 1.

It is concluded that the respondents of Ahirwal zone had better agreeableness against their counterparts and dizygotic twins of Bagar zone had lowest level of agreeableness.

Table 1. Cultural zone-wise comparison of personality traits among dizygotic twins (N=220)

<table>
<thead>
<tr>
<th>Sub-scales of personality traits</th>
<th>Agreeableness</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Bagar</td>
<td>30.4</td>
<td>4.0</td>
</tr>
<tr>
<td>Nardak</td>
<td>29.6</td>
<td>4.0</td>
</tr>
<tr>
<td>Khadar</td>
<td>31.6</td>
<td>3.3</td>
</tr>
<tr>
<td>Mewat</td>
<td>31.2</td>
<td>4.3</td>
</tr>
<tr>
<td>Ahirwal</td>
<td>32.9</td>
<td>4.5</td>
</tr>
</tbody>
</table>

VI. Discussion

On culture, wise comparison it was found that the trait agreeableness across five cultures had systematic patterns, but significant difference had been observed in mean values on the trait in dizygotic twins of five cultures. The findings of the study supported by McCrae and Terracciano (2005a) they had supported the views that there are comparable patterns of personality across cultures. Similarly observation recorded by Ebeling, Porkka, et. al (2003) as development of twins never on the same pattern because some twins concentrating on motor skills, while the other aspects of personality such as social or communication skills. The difference in trait agreeableness across five cultures was also supported through research conducted by Allik & McCrae (2004) as they observed that gene pools may affect only the levels of personality, but not the structure of personality.

On contrast the finding about cultural influence on agreeable some more evidence regarding biological bases for agreeableness reported (Nettle, 2006). Agreeableness seems likely to be supported by brain systems that are involved in social information processing Seitz & Azari (2006).

References


