

## A genetic correlation among young adults and their respective FDRs in temperament, aggression orientation and family environment

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### ABSTRACT

Every family is a system -- a complex whole made up of intercalated and interacting parts. Socialization between parent and child is not one-way process. Parents do socialize children, but socialization in families is reciprocal. The present study aims to find out the presence of genetical correlation among young adults with their FDR's (biological father) in personality characteristics like temperament, aggression orientation and the influence of family environment on their behaviour. 15 young adults male and 15 young adult female and their respective First-degree relatives were assessed on Temperament Character Inventory, Aggression Orientation Scale and Family Environment scale to fulfil the aims of the study. The study reveals that Harm avoidance of male adults with their respective FDRs is positively associated and a significant difference in novelty seeking and buffers towards aggression among male adults with their respective FDRs has been found. A positive correlation has been found in novelty seeking, harm avoidance, self-directedness, cooperativeness, predisposed aggression, internalize tendency, physical aggression, buffer towards aggression, expressiveness, conflict and active recreational orientation of female adult with their FDRs, there is a significant difference between Female adult with their respective FDRs group in Cooperativeness, Active Recreational Orientation, Independence, Organization and Control.

**Keywords:** *Temperament, Aggression Orientation, Family Environment, First Degree Relative, Genetic Correlation*

Every family is a system -- a complex whole made up of intercalated and interacting parts. Socialization between parent and child is not one-way process. Parents do socialize children, but socialization in families is reciprocal. Reciprocal socialization is socialization that is bidirectional: children socialize parent just as parent socialize children (Crouter & Booth, 2003; Karraker & Coleman, 2005; Patterson & fisher, 2002). Most experts agree that temperament and aggressive behaviour has a genetic and biological basis, although environmental factors and maturation modify the ways a child's personality is

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expressed. There are many works suggest that there are individual differences exists in perceiving the same atmosphere due to temperamental and characteristic factors. The model of Cloninger is one recently adopted model for classifying in psychiatric research. This model includes four genetically homogeneous and largely independent profile of temperament - Novelty seeking, Harm avoidance, Reward dependence and Persistence. The characteristic profile are Self directedness, Cooperativeness and Self transcendence (Cloninger, 1987; Cloninger et.al, 1994). There is evidence that temperament (as a precursor to personality traits), influences the behaviour of both child and caregiver in their mutual interaction ( Betes and Mcfadyen- Ketchum, 2000) The child temperament influence whether the child reacts to adult anger with displays of negative emotions( Davies and Cummings, 1995) , and how complaints the child is to maternal instruction( Kochanska et.al, 2001). So, as a whole it has found that the parental behaviour as well as child contribution to that behaviour predicts parent child relationship. Bandura, 1986 support a theory which suggests parents of the same sex as their children are stronger models for aggressive behaviour. A study suggest that interventions aimed at developing and enhancing parent communication skills can help prevent or reduce the risk of young adult children becoming involved in violent relationships, as well as reducing risk factors for other adverse health problems (Palazzolo KE, Roberto AJ, Babin EA, Hugh Downs School of Human Communication Arizona state University, USA).\_As a step-in learning more about aggressive communication in families, a study by Matthew M. Martin, Carolyn M. Aderson, 2009 investigated the similarities between three aggressive communication traits (argumentativeness, assertiveness, and verbal aggressiveness) of young adults and their parents. The result showed that similarities existed between mothers and their daughters and sons in all three traits; however, no significant relationships between fathers and their daughters and sons for the traits were found. Therefore, need was felt to undertake a research work that would study the genetical similarities in temperament and aggressive behaviour of young adults with their biological fathers.

The influence of genetic factors on behaviour and development has been increasingly emphasised in recent years and there is a growing body of evidence on the importance of different types of gene-environment correlations and gene-environment interactions. The literature provides convincing evidence that physical aggression runs in families (Baillargeon, Tremblay & Willms, 2002). Physical aggression of boys at two years of age was found by Keenan and Shaw (1995) to be predicted by a history of familial criminality. Youths who engage in high levels of antisocial behaviour are much more likely than other youths to have a biological parent who also engages in chronic antisocial behaviour (Farrington, 1995; Lahey, Hartdagen, Frick, McBurnett, Conner & Hynd, 1988). There are evidence which underlines the truth of the statement that ‘young children with the highest degree of temperamental and cognitive predisposition [to aggression and antisocial behaviour generally] are usually raised in families that are ill-prepared to provide rearing that could prevent the child- development of antisocial behaviour’ (Lahey, Waldman McBurnett, 1999:678.).\_Many results underline the need to investigate the reactive and active organism–environment transactional processes by which genotypes become phenotypes. (PsycINFO Database Record (c) 2012 APA).

Hence “instead of being a readymade source of friends, the family is too often becoming a readymade source of victims and enemies, the place where the cruellest words are spoken....”

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Thus, this study aims to determine the genetic correlation between young male and female adult with their respective FDR's (biological father) in temperament, aggression orientation and influence of family environment on their personality.

### **METHODOLOGY**

#### ***Sample and study design***

The study was a cross sectional comparative study based on purposive sampling. There were four groups of participants: - young male adult (n=15) with their respective FDR (n=15) and young female adult (n=15) with their respective FDR (n=15). The young adult Sample age ranges from 18 to 25 years were included in this study with a minimum educational level of high school pass and living with both parents. Participants with severe or moderate physical handicap, currently suffering from a severe medical illness, any psychiatric illness reported, or any history of psychiatric consultation or parental discord or divorce were excluded from the study.

The participant responded to General Health Questionnaire (GHQ-28), Temperament and Character Inventory (TCI), Aggression Orientation Scale (AOS), Family Environment Scale (FES). After describing the purpose of the study to the subjects, informed consent was obtained and socio demographic data sheet were filled by the participants. All measures were individually administered and the order of administration was kept constant.

#### ***Measures***

- 1. Socio demographic Data Sheet:** It included different relevant information regarding the present study namely age, educational qualification, income, occupation, type of family, any history of illness, and numbers of family members, religion, marital status, and number of siblings.
- 2. General Health Questionnaire (GHQ-28):** Developed by Goldberg and Miller 1979, a self-administered screening test aimed at detecting psychiatric disorders among respondents. Primarily used to rule out psychiatric morbidity while selecting the control group in the present study.
- 3. Temperament and Character Inventory (TCI):** A battery of tests designed to assess differences between in several basic dimensions of temperament and character. It is a self-report Questionnaire, in which the subject answers true or false to a series of 240 questions about their likes and dislikes, emotional reactions, interest, attitudes, goals and values.
- 4. Aggression Orientation Scale (AOS):** Developed by DR Jayanti Basu (2001), a self-administering test mainly used to measure the Cognitive and affective predisposition for aggressive acts, the habitual externalizing and internalizing tendency and the directness of aggressive behavior and its qualitative variations.
- 5. Family Environment Scale (FES):** Used to measure the social-environmental characteristics of family, a self-administering test. The scale is a 90-item inventory.

#### ***Statistical analysis***

Descriptive statistic like mean and standard deviation were computed for the entire variable. Parametric statistic like Paired t- test was done for assessing group differences. Association between the variables was computed using Bivariate Correlation. Regression is used for assessing the influence of one variable on other variables among different groups. Statistical Package for Social Sciences (SPSS) version 13.0 was used for analyses.

## **RESULTS AND DISCUSSION**

### ***Comparison of male young participants with their respective FDRs***

A study by Kimberky J. Saudino (2005), states the importance of environmental influences on temperament, genetic continuity and environmental change during development to link between temperament and behaviour problems, and harnessing the power of molecular genetics to identify specific genes responsible for genetic influence on early temperament. In this study the result reveals that harm avoidance of male adult is positively correlated with their respective FDR. Harm avoidance is a higher order temperament trait which describes high scores as worrying, pessimistic, doubtful, shy and fatigable. But like genetic disposition, familial diathesis is also an important factor to consider. The similarity between offspring and biological father also may be due to the fact that the father with similar temperamental disposition also shows behavioural manifestation according to the temperament that reinforces the child's temperamental disposition. According to Bandura's Social learning theory (1997), it can be predicted that behaviour mostly exhibited by the parents influence the behaviour of the children, he defined it as a process of modelling which indicate that the adult will react to any particular situation in a same manner as their parent or FDRs does. In addition to this, in this study the male participants are compared with their respective father, gender can be an important factor behind the positive correlation of temperamental characteristic between two groups, the male adults develop a greater identification with their fathers and thus acquire the qualities of their father's personality and incorporate them as their own characteristics as they grow up. A significant difference is also revealed in temperament, aggression orientation and family environment, in novelty seeking and buffers towards aggression among male adult with their respective FDRs. High scores in novelty seeking and buffer towards aggression among the young male adult in comparison to their respective FDRs points towards certain main factors which might be the reason behind this. One of them may be age; being older the FDRs are more matured and adjusting to any life situation than the young male adult.

### ***Comparison of female adult participants with their respective FDRs:***

Here the results reveal that 'novelty seeking', 'harm avoidance', 'self-directedness', 'cooperativeness', 'predisposed aggression', 'internalize tendency', 'physical aggression', 'buffer towards aggression', 'expressiveness', 'conflict' and 'active recreational orientation' of female adult with their FDRs is directly correlated. Following the same trend, the qualities of FDRs like exploring and accepting new environment, utilizing the energy in new possible activities and dependence on the society and societal approval will both genetically and socially influence the offspring to be more controlled in showing aggressive behaviour and became automatically socially dependent and manifest their behaviour according to their FDRs and society. Similarly, the result also reveals a positive correlation in predisposed aggression, internalize tendency, physical aggression, and buffer towards aggression between the female adults with their FDRs, indicating the possibility of greater similarity of female offspring with their FDR in comparison to male. The founder of behaviourism John B. Watson argued that the conditioned response was viewed as the smallest unit of behaviour, from which more complicated behaviour could be created. Evidence supporting aggression as a learned behaviour comes from studies of behaviour in experimental and natural settings, social learning theory and the effect of cultural and social variables. Biological theories propose that aggression may have a chemical, hormonal or genetic component. Some of the most compelling evidences come from genetics, serotonin research and the influence of hormones on aggression. Thus the aggressive orientation in the female adult develops by the interaction of genetic influence from her FDR and influence of family

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environment and society, thus a positive correlation in expressiveness, conflict and active recreational orientation of female adult with their FDRs point out a major influence of their family environment in the development of some characteristic in the adult, because both the adult and their FDRs perceive the same family environment.

The result also reveals that, there is a significant difference between Female adult with their respective FDRs group in Cooperativeness, Active Recreational Orientation, Independence, Organization and Control. Since appraisal of family environment is the manifestation of one's temperament and character, homogenous temperament between father and offspring could be the basis of similarity in appraisal of family environment between the female offspring and the fathers. As the fathers of the female adults are the authority figure, this might be one of the reasons for the scores in independence, organization and control is higher in case of FDRs than their offspring. According to Freud, human beings channelize their aggressive instinct into socially accepted form of behavior by using the defense of sublimation. Today's youth is exposed to a variety of recreational activities and with the changing time, young females are also encouraged to get associated with a number of creative recreational activities. This might give the reason why the active recreational orientation score is higher in young female adult than their respective FDRs. The FDRs being older, with more responsibilities, get less time to be associated with recreational activity.

### **CONCLUSION**

It can be concluded that the females are more correlated with their FDRs than the male adults. Both the groups are genetically correlated, but apart from the genetical correlation the shared environment and society is important in the development of personality of the child. It is expected that the females are more likely to attach with their parents and with their family and expected to be more responsible towards their family duties. And according to the cultural norm of gender differences, the girls are expected to be more dependent on their parents and family in comparison to the males which may be responsible for more similarities in females with their FDRs than the males which points out to the importance of shared environment in the development of temperament, aggression and other personality characteristics among the adults.

### ***Limitations***

The study would have been more fruitful if larger sample could be used so as to able to generalize the results obtained in the study. In this study only biological fathers are taken as the first-degree relatives of the adult instead of both the parents. Use of both parents could have given more insight. A comparison of both first-degree relatives and a group of non-relative person will give more information on the genetical and shared environment influence on the development of personality in adults.

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### ***Conflict of Interest***

The author declared no conflict of interest.

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