

AN OBSERVATIONAL STUDY TO ASSESS THE PARENTAL *DOSHA PRAKRITI* OF AUTISTIC CHILDREN

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ABSTRACT

Prakriti refers to the genetically determined physical and mental constitution of an individual. Autism is a lifelong disability identified by impaired communication, social interaction and repetitive behaviours. The genetic, environmental and immunological factors play an important role in generating autism. Genetic factors are more predominant in autism pathogenesis than the environmental factors that would modulate the phenotype. Until now, no interventions have proven widely effective in providing complete relief to autism. Therefore, the prevention of autism needs supreme attention. To a greater extent, *prakriti* of an individual can determine proneness to particular diseases. To assess the *prakriti* of both parents of 30 diagnosed cases of autistic children attending the OPD and IPD of Govt. Ayurveda College, Kannur were randomly selected. They are subjected to detailed history taking based on specially prepared proforma and assessments were recorded. Their *prakriti* assessment was done using a validated computer-assisted questionnaire software Ayusoft developed by C-DAC Pune. The data was statistically analysed. In this study, *Vata pitta prakriti* was significantly seen in mothers of autistic children.

Keywords: *Prakriti*, Autism

INTRODUCTION

Classifying individuals according to *prakriti* is one of the unique features of Ayurveda. No two individuals are alike in this world. Personal variation is seen in physical, physiological and psychological aspects. Acharya Charaka mentioned *prakriti pareeksha* as first among *dasavidha rogi pareeksha*¹. *Prakriti* is of two types *sareera* and *manasa prakriti*. The *dosha* dominant during the union of sperm and ovum determines *prakriti*². It not only depends on it but also the diet and behaviour of the mother during pregnancy, time, intrauterine environment and mahabhutas³. *Prakriti* once formed remains constant throughout the life⁴. Knowing one's *Prakriti* helps to understand one's liking, disease proneness and prognosis, selection of medicines, drug response, diet and regimens making it one of the earliest known concepts of preventive and personalized medicine. Autism is a behavioural syndrome present from early life and is defined by deficient social interaction, language and communication, and play⁵. Till 1980, autism spectrum disorders were uncommon disorders but in recent times the numbers are increasing significantly, which may be due to the adoption of western lifestyle, prenatal stress, maternal complications, faulty diet and daily regimen. The exact cause of autism is unknown. Some studies attribute that the cause of autism is some gene abnormalities, prenatal factors, perinatal factors, & some neurodevelopmental abnormalities⁶. Genetic factors are predominant in autism pathogenesis, in contrast with the environmental factors that would modulate the phenotype. Genetic research on families with multiple affected children and biochemical mechanism studies represent the sources for identifying the susceptibility of genes in autism. Environmental factors are also likely to interact with the genetic profile and cause an aberrant change in brain growth, neuronal development and functional connectivity⁷. According to WHO fact-sheet 2017, 1 in 160 children were affected with autism spectrum disorder⁸. The prevalence of autism in the United States is 1 in 59 now which was 1 in 68 two years back⁹. The principle of *Prakriti* in *Ayurveda* is based on heredity and genetics. Many studies to

prove the role of genomes in the development of autism are still under process. *Ayurvedic* principles also emphasize the role of genetics in many developmental disorders. The link between parental events and the development of autism is speculative. Until now, no interventions have proven widely effective in providing complete relief to autism. Therefore, the prevention of autism needs supreme attention. Prevention of autism-like developmental disorders can be better attained by adopting measures to meet individual demands rather than adopting a generalised strategy. This individualised management can be well accomplished through *the ayurvedic* concept of *prakriti*. To a greater extent, *prakriti* of an individual can determine proneness to particular diseases. This study is intended to find out if parental *prakriti* influence autism. If the predominance of any of *doshaprakriti* among parents of autistic children was identified, proper preconception, prenatal, natal care can be advised with a suitable diet, regimen and lifestyle particular to that *prakriti*

Methodology

- Type of study - Observational study
- Study setting - GAVC, Kannur
- Study population - Parents of diagnosed cases of autistic children
- Sample size - 30
- Sampling technique - Random sampling

INCLUSION CRITERIA

- Parents of diagnosed autistic children who are willing to participate.

EXCLUSION CRITERIA

- Parents with intellectual disability
- Single parent

Materials and methods

1. Research proforma
2. *Prakriti* assessment tool - Ayusoft software¹⁰.

Research proforma contains questions containing demographic data, questionnaires containing preconception, prenatal, and natal and postnatal factors were assessed.

Doshaprakriti of the subjects was assessed using validated computer-assisted questionnaire software Ayusoft, developed by C-DAC Pune.

The collected data were tabulated using SPSS 16.0 and analysed using appropriate statistical tests. Demographic data and other relevant information were analysed with descriptive statistics. *Dosha Prakriti* of the parents of autistic children was analysed using chi-square for the goodness of fit to evaluate the difference in the distribution of different types of *Prakriti* among parents of autistic children.

STUDY TOOL

Prakriti assessment of the participants was done with the help of validated computer-assisted questionnaire software. Questions are based on the classical guidelines regarding *prakriti* assessment. The software enables *prakriti* assessment with the help of a total of 83 questions that are age and gender-specific. *Prakriti* analysis in the software is performed using weightage configuration. Weightage ranging from 1-20 is provided for every question to predict the *dosha*. Characteristics that are exclusive for particular *prakriti*, and questions related to physique are given more weightage.

Prakriti is reported in software as a combination of predominant *doshas* based on % score obtained for characteristics of each *dosha*

The resultant output from software displays individuals *prakriti* as a combination of *doshas* based on the percentage score obtained for each *dosha* characteristic. The software also provides supportive questions to reassess *prakriti* if the investigator is not satisfied with system detected *prakriti*

OBSERVATIONS AND ANALYSIS

Both the parents of 30 diagnosed cases of autistic children attending the OPD and IPD of Govt. Ayurveda College who fulfilled the inclusion criteria were selected for the study.

Demographic Data: Out of the 30 autistic children 22 were males and 8 were females. 17 parents out of 30 belonged to the middle class and 13 belonged to the lower class. 21 were from a rural area and 9 were urban areas. Among the 30 parents, 90.0% did not belong to consanguineous marriage and 10.0% belonged to consanguineous marriage. The majority of the fathers belonged to the 31-35 age group (44.5%) and mothers belonged to 25-30 years (41.1%). Out of the 30 mothers, 53.3% had prenatal illness. 56% of the mothers experienced prenatal stress. 82.7 % followed a mixed diet during pregnancy, 46.6% had a caesarean delivery. 16.6% of the autistic children had low birth weight. 53.3% of the autistic children had neonatal jaundice. 20% of the mothers stopped exclusive breastfeeding before 3 months.

Chart 1: Distribution according to the gender of the child

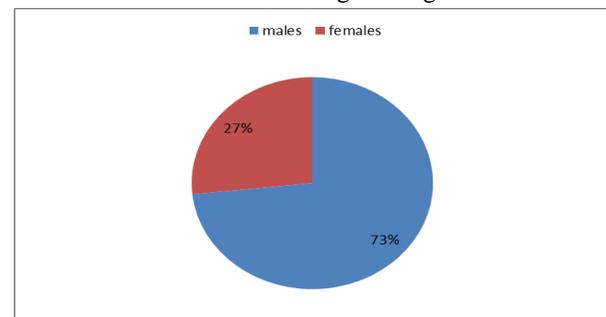


Chart 2: Distribution according to the socio-economic status of parents

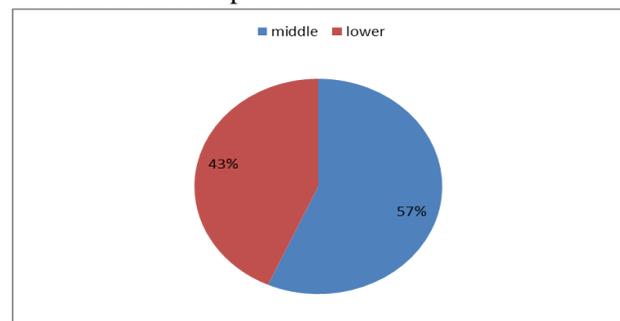


Table 1: Distribution according to consanguineous marriage

Consanguineous marriage	Frequency	Percent
Yes	3	10.0
No	27	90.0
Total	30	100.0

Table 2: Distribution according to paternal age at the time of conception

Age	Frequency	Percent
25-30 years	12	40.0
31-35 years	13	43.3
36-40 years	5	16.6
Total	30	100.0

Table 3: Distribution according to maternal age at the time of conception

Age	Frequency	Percent
25-30 years	12	40.0
31-35 years	11	36.6
36-40 years	7	23.3
Total	30	100.0

Table 4: Distribution according to prenatal stress

Prenatal stress	Frequency	Percent
Present	17	56.6
Absent	13	43.3
Total	30	100.0

Table 5: Distribution according to prenatal illness

Prenatal illness	Frequency	Percent
Present	16	53.3
Absent	14	46.6
Total	30	100.0

Table 6: Distribution according to Diet during pregnancy

Diet during pregnancy	Frequency	Percent
Vegetarian	5	16.6
Mixed	25	83.3
Total	30	100.0

Table 7: Distribution according to Mode of labour

Mode of labour	Frequency	Percent
Normal vaginal	12	40.0
Assisted	5	16.6
LSCS	13	43.3
Total	30	100.0

Table 8: Distribution according to Low birth weight

Birth weight (g)	Frequency	Percent
Normal (2500 to 4500)	25	83.3
Low birth weight (<2500)	5	16.6
Total	30	100.0

Table 9: Distribution according to Exclusive breastfeeding

Exclusive breastfeeding	Frequency	Percent
<3 months	6	20.0
3-6 months	22	73.3
>6 months	2	6.6
Total	30	100.0

RESULT

Prakriti analysis of fathers of autistic children using chi-square test goodness of fit for the testing difference in the distribution of different types of *doshaprakriti* showed a p-value of 0.392 which is >0.005 which is not statistically significant. This shows that there is no significant difference between the types of *doshaprakriti* of fathers of autistic children. Among fathers *Vatapitta*, *Pittakapha*, *Vatakapha prakriti*'s were more and the variation was not statistically significant. *Prakriti* analysis of mothers of autistic children using chi-square test goodness of fit for the testing difference in the distribution of different types of *doshaprakriti* showed a p-value of 0.000 which is <0.005 which is statistically significant. This shows that there is a significant difference between the types of *doshaprakriti* of mothers of autistic children with *VP prakriti* were seen more among mothers of autistic children.

DISCUSSION

Vata pitta prakriti was seen more among mothers of autistic children. *Prakriti* of a person is quite capable of providing a fair hint of physiological strengths and weaknesses, mental tendencies and susceptibility to illnesses of various types. The susceptibility to different diseases is influenced by the type of *prakriti* constitution in an individual. The dominant *dosha* has more impact on the physical and psychological qualities of a person. An individual is more affected by a disease that is influenced by the *doshas* which are predominant in the innate constitution. Autism is a

neurodevelopmental disorder that has a strong genetic basis. In Ayurveda, all the psychosocial anomalies come together under the spectrum of *unmada*. *Vata-dosha* is a prime factor responsible for the neurological as well as physiological functions of the body. The factors which lead to *dushti* of *vata* which is the most important reason in developing the features of autism. Diet and regimen during pregnancy and mental stress experienced by the mother had a direct effect on the psychological axis of the child. Regarding the psychological disorders of a child, Acharya has indicated to prevent this type of disorder not only from birth but also before birth considering the physical and psychological health of the mother. Most of the features seen in autism have similarities with *Vatapitta vridhi lakshanas* described in classics. Although *Vatapitta prakriti* is a normal condition, *Aharavihara* which can vitiate *Vatapitta* can cause autism condition. In this study, the gender-wise distribution shows that the majority of the children were boys (73 %) and 27% were girls. This study is consistent with the data analysis on gender by Rachel Loomes et al. came out with a male to female ratio of 3:1. As observed in the study, diagnosis ASD falls more in mothers between the age of 25-30 (40.0%) and fathers between the ages of 31-35 (43.3%) when compared to other age groups. There is numerous research conducted to find out the relation between parental age at the time of delivery and the prevalence of ASD since the possibility that autism is more common in offspring of older parents has significant importance in the prevention of diseases like autism.

56% of mothers experienced psychological stress during the time of pregnancy. *Sattva*, the psychological endowment of the child, is determined by the psychological state of mother and father during pregnancy, the behaviour of mother during pregnancy and *Purva janmakrita karma*. A community-based cross-sectional study conducted in Kerala has come up with a caesarean section rate of 37.7%. The rate of LSCS in the present study is much more (43.3%) than the expected level. This study confirms previous findings that children born by LSCS are more likely to be diagnosed as having ASD. In this study, it was observed that 22% of the mother stopped exclusive breastfeeding before 3 months because of lack of milk production, due to occupation etc. This finding is in accordance with the meta-analysis reports stating that exclusive breastfeeding may protect against the risk of developing ASD.

CONCLUSION

Principles of *prakriti* in Ayurveda are based on heredity and genetics. An individual's constitution has a significant role in the susceptibility to particular diseases. Through various research was done to find out parental risk factors on autism. No studies have yet done to assess whether parental *prakriti* influence autism. The present study was conducted in both parents of 30 diagnosed cases of autistic children. This study shows that *Vatapitta prakriti* were more among the mothers of autistic children. *Vatapitta prakriti* shows a significant role in autism. So proper care can be taken before conception to avoid this type of condition.

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