FACTORS AFFECTING THE IQ OF CHILDREN – A SURVEY STUDY

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Abstract: An intelligence quotient (IQ) is a score derived from a set of standardized tests developed to measure a person’s cognitive abilities (intelligence) in relation to their age group. In Ayurveda it could be considered under the heading of “Medha” which means to have proper correlation and understanding about the knowledge of the existing objects. In present competitive world, children are always forced to get 1st rank in their class by their parents. Even many parents are ready to purchase supplements for their children to “enhance memory” or as “I.Q. Booster” to prepare them for the exams. Objectives: Actually the life style related factors, which are affecting the level of IQ are ignored many of time. So this paper is aimed to explore the factors which affect the IQ in children.

Material and Methods: Total 22 children were selected for this study. They were examined thoroughly to find out the specific factors and then IQ score were obtained with the help of “Indian Adaptation of Wechsler’s Intelligence Scale for school children-IV”.

Observations and Results: This survey shows that Upper SES (40%), Proper Appetite (80%), adequate sleep (80%), educated parents, and proper growth (100%) have relation with Superior IQ.

Conclusion: This paper is mean to know the routine factors which influence the IQ, irrespective of special supplementation. So parents can improve their children’s IQ by modifying their routine life in particular manner without any cost.

Keywords: Brain tonic, IQ in children, Life style and IQ’, Medha, Wechsler’s Intelligence Scale

1. Introduction

Intelligence is a vital essentiality in day to day life, especially in children who wants to build up their life in an appropriate manner. Intelligence Quotient (IQ) is many of time dependent on prenatal environment (like maternal nutrition and health status), natal events (like term of delivery, Birth weight etc.) or post natal environment and daily habits. Without addressing the above factors, one could not achieve the optimum IQ. Due to lack of awareness, many parents purchase supplements (I.Q. Booster) for their children to enhance memory to prepare them for the exams without considering the above facts. The scientists as well as businessmen have also come forward to take the advantage of this situation. On the other hand, this demand is being utilized by the multinational companies for fiscal benefits. Many quacks jumped in the market after knowing the demand of such supplements.1

This paper is mean to know the routine factors which influence the IQ, irrespective of special supplementation. So parents can improve their children’s IQ by modifying their routine life in particular manner without any cost.

In Ayurveda classics the word ‘Medha’ has been used mainly for Dharana Shakti (retention power) and Grahana Shakti (grasping power). Medha, Buddhi, Smriti, Dhi etc words have also been used in similar sense at many times. Examination of Medha should be done in such a way that the person’s ability of grasping, reasoning and logic, retention and recalling can be assessed at same time. IQ test provides almost all details mentioned above. Further the test must be standardised on current generation of paediatric population so that the data generated by studied sample can be applied on the population as well. Malin’s Intelligence Scale for Indian children has been used for the present study.

1-2. Assistant Professor of Kaumarbhritya, 3. Associate Professor of Swasthavritam
22 children were selected for this study and assessed by history taking and examination. This survey shows that Mandagni, Lower SES, disturbed sleep and growth retardation are the main factors which decline the IQ of children.

2. Material and Methods

Children attending the OPD of Balaroga, S G Patel Ayurveda Hospital, were selected for present study. Complete physical examination (Height, weight), detailed history taking (Kshudha, Sleep, Socio Economical Status, Father’s education, Ahara Satmya) and documentation of findings in a special proforma were done.

Indian Adaptation of Wechsler’s Intelligence Scale for Children (IAWISC-IV) is used in this study to find out the IQ score.

Type of Study : Pilot survey study
Selection Method : Random
Inclusion Criteria:
- Children between 6 to 16 years of age
- Children who are apparently healthy
Exclusion Criteria:
- Children below 6 years and above 16 years.
- Children with severe neurological disorders like Cerebral palsy, Down’s syndrome, Autism, Attention deficit Hyperactivity disorder etc.

3. Results and Discussion

Total 22 children were examined and they were divided in to three groups as per their IQ i.e. below average (<89), average (89-109) and superior (>109). All the data collected from history taking and examination were linked with present status of IQ, and tried to justify the relation with rationale.

Table 1: Out of total 22 children, 11 male and 11 female were registered. This shows equal health awareness in parents for their children irrespective of their gender.

Table 2: 2 children had IQ <89 (Below average), 15 children had IQ between 89 to 109 (Average) and 5 children had IQ >109 (Superior). This shows the good status of intelligence in regional children.

Figure 1: All below average IQ children had Madhyamagni, whereas Madhyamagni were observed in 87% and 80% of Average and Superior IQ children respectively. 20% children had Superior IQ along with Tikshnagni.

Agni works on ingested Ahara and converts it into Ahara Rasa which is the nutrient of whole body. Ayu (longevity), Upachaya (anabolic activities), Varna (complexion), Bala (strength), Swasthya (health), Utsaha (enthusiasm), Tejas (spirit), Prabha (splendor), Ojas (essence of Dhatu) all these factors are depended on Agni. Pachaka Pitta is said to be the seat of Agni. It controls the rest of the Pitta to perform their action. Sadhaka Pitta which responsible for promotion of Buddhi and Medha, also gets nourishment from it.

Thus the role of Agni in the IQ is invariable and the same has been seen in ‘Average’ and ‘superior’ IQ group. Paradoxically 100% children with ‘below average IQ’ also had Madhyamagni in present survey, which might be due to small sample size.

As per shown in figure 2, below average IQ had 50% of children with Low and Middle socio economical status each. Average IQ had 87% children with middle and 13% with Upper SES. Superior IQ had 60% children with middle and 40% children with upper SES. This data shows that average or superior IQ is difficult to achieve with low socioeconomic status. Basic needs like proper nutritive diet, medical help, environment and adequate education are essential for the betterment of intelligence. That’s why here in this study superior IQ was found in the children with middle or upper SES. Contrary to that below average IQ do not found in the child of upper SES. Thus the environmental factors play a role in determining IQ. Still its
relative importance has been the subject of much research and debate.

**Figure 3:** Love for Madhura Rasatmaka Ahara was found in 50%, 60% and 60% of children with below average, average and superior IQ respectively. Katu Rasatmaka (Spicy) Ahara was found in 50%, 33% & 40% of student with below average, average and superior IQ respectively. Amla Rasa Pradhana Ahara was found only in 7% of children having average IQ.

**Madhura Rasa** is important to maintain nourishment of the body and brain (Shadendriya Prasadanam) and Katu Rasa has quality to remove Avarana of Buddhi. Amla Rasa is mainly called to have Hradya property and don’t have any direct relation with Medha.

In this survey mix type of observation for Madhura and Katu rasa shows the non relevance of Ahara Satmya with IQ of children, if at all is taken with proper quantity and with proper digestive power. Other research also shows that children who are breastfed and eat healthy foods (irrespective of any specific Rasa) during childhood experience better physical development and IQ than children who eat poor diets.

**Figure 4:** 13% children of average IQ group were found to have illiterate father. 100%, 40% and 40% children of below average, average and superior group were found to have father’s education up to primary. 13% and 60% children of average and superior group were found to have father’s education up to higher secondary. 34% of Average IQ group children were found to have father’s education till graduation.

These data shows that, lower the father’s education, less the IQ of children. It might happen due to less exposure of children to the different variety of substances in day to day routine life.
Other research also shows the same and concludes that parental education exerts a modest shared environmental effect, in verbal intelligence.\(^5\) Parental educational level is an important predictor of children’s educational and behavioral outcomes.

Figure 5: 50% of below average IQ children had disturbed and 50% had sound sleep pattern. 7% and 93% of children with average IQ had disturbed and sound sleep respectively. 20% and 80% of children with superior IQ had disturbed and sound sleep respectively. No children found with more than normal sleep behavior.

Sound and adequate sleep helps in proper function of Medha or any Manasabhabha.\(^9\) Acharya Charaka says that Sukha, Dukha, Pushti, Karshya, Balav and Abala, Vishhata, Klibata, Gnana and Agnana are dependent upon the sleep.\(^10\) same kind of data has been found in this survey and shows the strong association of below average IQ with disturbed sleep.

Figure 6: As per shown in chart number 6, Children with below average IQ have 60% (Grade 2 malnutrition) mean weight for age. Children with average and superior IQ have 83% and 100% (no malnutrition) mean weight for age respectively.

Body weight shows the general health of the children. Developed nations have implemented several health policies regarding nutrients known to influence cognitive function. These include fortification of certain food products and laws establishing safe levels of pollutants (e.g. lead, mercury, and organochlorides). Improvements in nutrition and in public policy in general, have been linked with increase in IQ worldwide. Healthy state of Dhatu ultimately represents good quality of Medha.\(^11\)

4. Conclusions

Cognitive epidemiology is a field of research that examines the associations between intelligence test scores and health. Thus IQ can not be considered as separate antity and the factors related with close approximation with IQ should be searched out. Such factors may be of ‘n’ number but this pilot study tries to highlight some of them.

After the retrospective analysis of the data, study shows that Mandagni (anorexia), Lower SES, disturbed sleep, poor education of father and growth retardation are the main factors which decline the IQ of children. Ahara Rasa Satmya do not play essential role in IQ of children provided with proper amount of food and proper status Agni. Thus parents should try to maintain good status of digestive power, sleep and growth of baby to get proper intelligence. Moreover parents should try to provide proper environment to the child in the form of good Socio Economical Status and proper education of parents to achieve proper IQ in children.

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