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A study on intelligence difference between APL and BPL category belonging school children

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Abstract
Background
Human Intelligence refers to a set of cognitive abilities, such as thinking, remembering, reading, learning, problem solving and using language. But human Intelligence depends not only one reason, but also many factor's like Genetics, Environment, Delivery mode, parental education are also significance for the children Intelligence. But property level can effect children Intelligence! The purpose of the present study is to find out the difference in IQ level between above poverty line and below poverty line belonging school aged children.
Materials & Method
The researcher selected 72 APL category belonging school aged children and 72 BPL category belonging school aged children according to their family income level, total 144(N-144) class X-level school children as the subject from 4 different school of Jalpaiguri distric, West Bengal, India. This study conducted by used of 'G.C. Ahuja Intelligence questionnaire'. This questionnaire composed of total 135 question and eight different types of test (classification, analogies, reasoning, vocabulary, comprehension, series and best answer). The collecting data were calculated by using descriptive statistics and "t" test and level of significance was set on 0.05 level.
Result
There were a significance difference exist on IQ level between Above poverty line and Below poverty line belonging school aged children as because cal "t" value (14.63) are higher than tab "t" 0.05(142) value(1.960). The Mean and Standard deviation of above poverty line and below poverty line belonging school aged children IQ level has been found 106.43± 15.73 and 68.37± 14.41
Conclusion
The finding demonstrated that above poverty line belonging children possess higher IQ level then below poverty line belonging school aged children.

Keywords: Intelligence, APL, BPL, Environment, Questionnaire,

1. Introduction

Human intelligence refers to a set of cognitive abilities, such as thinking, remembering, reading, learning, problem solving and using language. The high genetic heterogeneity of intelligence poses an enormous challenge for understanding molecular mechanisms for cognition. Intelligence quotient (IQ) is the most widely used phenotype for characterizing human intelligence in psychometric studies. It is not surprising that IQ score is consistently associated with a number of mental disorders such as schizophrenia, autism, depression and anxiety [9]. Although genetic epidemiology of the relationship between IQ score and the risk of related mental disorders becomes increasingly clear with various lines of studies, there are no substantial achievements to contribute to understanding the molecular mechanisms underlying human intelligence and relevant mental disorders [2].

IQ scores have been shown to be associated with such factors as morbidity and mortality, parental social status, and, to a substantial degree, parental IQ. While the heritability of IQ has been investigated for nearly a century, controversy remains regarding the significance of Heritability estimates, and the mechanisms of inheritance are still a matter of some debate. IQ scores are used in many contexts: as predictors of educational achievement or special needs, by social scientists who study the distribution of IQ scores in populations and the relationships between IQ score and other variables, and as predictors of job performance and income [10].

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Environmental factors play a role in determining IQ. Proper childhood nutrition appears critical for cognitive development; malnutrition can lower IQ. For example, iodine deficiency causes a fall, in average, of 12 IQ points. It is expected that average IQ in third world countries will increase dramatically if the deficiencies of iodine and other micronutrients are eradicated.

Musical training in childhood may also increase IQ. Recent studies have shown that training in using one's working memory may increase IQ.

Children Intelligence depends many factors, like genetics, parental education, occupation of the parents, environment etc. But how can effect family income level the children and their Intelligenc.

Based on the Economic Status, students are grouped under two categories:

i) APL (Above poverty line) & ii) BPL (Below poverty line).
In its Ninth Five-Year Plan (1995–2002), BPL for rural areas was set at annual family income less than Rs. 20,000, less than two hectares land, and no television or refrigerator
New poverty estimates by the Planning Commission in 2004-05 and 2011-12 Ministry of Rural

Development7 Comes out with criteria for inclusion and exclusion from BPL list as part of its BPL Census Criteria for classification of BPL families, as per BPL Census 2002, include parameters like size of land holding, clothing owned, food security, means of livelihood etc [13]

II. Methodology
In order to find out the difference in IQ level between APL and BPL category belonging children, The researcher selected 72 APL category student and 72 BPL category student according to their family income level, total hundred forty four (N-144) class X-level school children were considered as the subject from 4 different schools of Jalpaiguri district, West Bengal, India. To find out the level of IQ of the subjects, Dr. G.C. Ahuja IQ questionnaire were used. The test contains eight sub-tests. For each sub-test, one page is devoted to instructions and practice examples. It serves the purpose of building morale with the subjects. It enables them to develop confidence and hence, they get adjusted with the nature of work.

Table 1: Number of Items and Time-Limits for each Sub-Test

Sub- Test	Number of Items	Time – Limit
1. Following Direction	9	4 Minutes
2. Classification	20	4 Minutes
3. Analogies	20	4 Minutes
4. Arithmetic Reasoning	6	4 Minutes
5. Vocabulary	40	4 Minutes
6. Comprehension	8	4 Minutes
7. Series	12	4 Minutes
8. Best Answers	20	4 Minutes
Total	135	32 Minutes

Scoring
Scoring of response sheets was done by the investigator himself according to the scoring keys given in the manuals of four tests. A brief description of the scoring procedure for each test is given below:

The scoring of response sheet for Ahuja's group test of intelligence was done with the help of scoring stencil keys. The relevant stencil key was put on each page of the answer sheet. It was so adjusted that the page number was visible through the holes of the scoring stencil. Then the correctly marked answers visible through the holes were counted and written on the left margin of the answer sheet. The same procedure was followed for all the sub-tests except for the test-VII. In that case, the correct answers were affirmative that correspond with the numbers given on the stencil key. The question numbers that were answered wrong or were left un-attempted were marked with a red colored pencil. Both wrong as well as the un-attempted questions were deducted from the total number of items contained in the sub-test VII and the balance score was obtained. Then, the scores from the different pages of were written in the table given at the top of the front page of the answer sheet. The sum total of all the eight sub-tests were considered as the total score obtained by a subject, which was considered as his general mental ability score [1].

To find out the difference in mental ability level between APL and BPL category belonging school children, the collecting data were calculated by using descriptive statistics and "t" test and level of significance was set on 0.05 level.

III. Analysis of Data
To find out the difference in mental ability level between APL and BPL category belonging school children, descriptive statistics and "t" test were applied at 0.05 level of significance and it is presented in the table.

Table 3: Significance differences of Mean, standard deviation and t- ratio of IQ level APL and BPL category belonging school children.

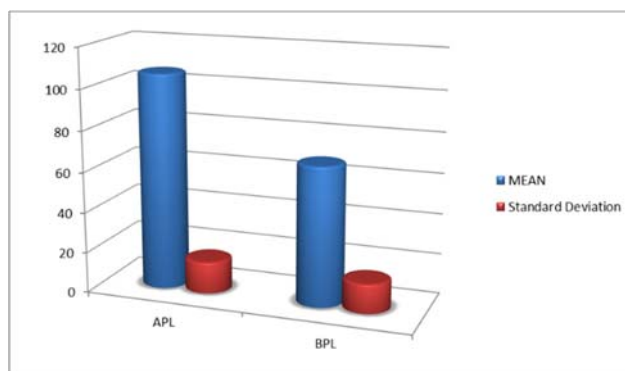| Category	Mean	Standard deviation	t- ratio
APL	106.43	15.73	14.63*
BPL	68.37	14.41	

Table value–t 0.05(142)=1.960*=Significance

Fig-1: Graphical representation of Mean and Std-Deviation of IQ of APL and BPL category belonging Children.

IV. Findings
It is evident from Table-2 and Figure -1shows that the mean and standard deviation and t- ratio of APL category belonging children has been found 106.43±15.73 and BPL category belonging children has been found 68.37±14.41. In the table -2 clearly reviled that, there were significant difference exist on APL and BPL category belonging children as because cal –"t" value(14.63) are higher than Tab-"t" 0.05(142)value (1.960).

From the above findings the researcher want to attribute that the existence of significance difference may be due to the reason that the BPL category student were the first or second generation educated student, their life style and also the nature and quality of intake of food.

On the other hand the APL students have third fourth generation of education and their lifestyle are entirely difference in this present study. That may be the causes of significance differences on IQ level APL and BPL category student.

V. Conclusions

Within the limitation of the present study the following Conclusions were drawn on the basis of obtaining results. There was a significant difference exist on IQ between APL and BPL students. The finding demonstrated that APL category student possess higher IQ level than BPL student.

The scholar is greatly satisfied to mention that the findings have accomplished the purpose for which the study was initially conceptualized. A Study published on 2015, Columbia University by Kinberly G. Noble. This study provide evidence that higher income was associated with better performance in certain cognitive skills, Cognitive differences that could be accounted for, in part, by greater brain surface area [6].

A research done by Ken B, Banscobne, 2012, in titled "POLS ONE: Socioeconomic Status(SES) and children's Intelligence(IQ): in a UK Representative Sample SES Moderates the Environmental, Not Genetic, Effect on IQ". They have been found that Children from average and high SES families received adequate educational resources, parent-child interaction, and orderly homes within safe neighbourhoods. However, below a certain thresholds of environmental quality, children's experiences could begin to have a negative impact on their cognitive abilities [8].

Another study published on April 04, 2015 in 'Information processing', by Stephen Hsu, in titled "Income, wealth, and IQ". This study provide evidence that Children from low – income families have smaller brain and lower cognitive abilities [4].

The present study shows the similar result which the other researcher had discussed.

Recommendations

On the basis of the findings of the present study, the following recommendations are made: a) similar study may be conducted on larger subjects with same or other variables. B) Similar study may be conducted on the basis of socio-economic condition, rural and urban areas student. c) The present study will helpful for farther research in the field of Physical Education and sports psychology.

Acknowledgement

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