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Differences of Emotional Intelligence, Aggression, and Academic Achievement among Students with Different Levels of Intellectual Ability

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The study was aimed to determine the differences in emotional intelligence, aggression, and academic achievement of adolescents with below average, average, and high average intellectual ability. Quantitative comparative study design was utilized and between groups comparison was made with 500 adolescent students, with equal male and female representation from different private secondary schools and colleges of Karachi. The participants completed Draw-A-Person Intellectual Ability Test for children, adolescents, and adults (DAP-IQ); Wong and Law Emotional Intelligence Scale (WLEIS); and Aggression Questionnaire-Short Form (AQ-12). Their academic achievement was assessed through their percentage of most recent examination and One-way ANOVA was utilized to examine the results. The results revealed significant differences in emotional intelligence and academic achievement of students with below average, average, and high average intellectual ability; however, an insignificant difference was found in their level of aggression. Hence, it can be concluded that, intellectual ability is an important factor in determining emotional intelligence and academic achievement of adolescent students.

Keywords: Emotional intelligence, aggression, academic achievement, intellectual ability, adolescents

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Literature based on intelligence has suggested that a variety of research is available showing relationship of intelligence with other variables such as emotional intelligence, academic achievement, and aggression (Mursaleen & Munaf, 2016). Others also found link of emotional intelligence with intellectual quotient (Aminabadi et al., 2011; Pardeller, Frajo-Apor, Kemmler, & Hofer, 2017). The importance of intellectual quotient (IQ) was also emphasized for the performance of emotionally disturbed students (Tramontana, Hooper, Curley, & Nardolillo, 1990). Low intelligence level has been found to be related with behavioral and emotional problems of children (Maliepaard, Mathijssen, Oosterlaan, & Okkerse, 2014). Further, IQ and childhood disruptive behavior were related to future academic performance (Fergusson, & Horwood, 1995).

Literature also focuses on the variables influenced by the levels of intelligence. For example, factors having an impact on academic achievement of students with different intellectual levels were studied (Heinrich, 1979). Moreover, fewer investigations have demonstrated comparisons based on IQ groupings, such as five IQ levels measured through Wechsler's Adult Intelligence Scale (WAIS-R) were compared with academic achievement measured through Wide Range Achievement Test (WRAT). Findings indicate that IQ level was related to level of achievement and the years of education (Warner, Ernst, Townes, Peel, & Preston, 1987). In a study, research sample was divided into average, below average, and high average IQ ranges and it was found that participants with high average IQ performed better on neuropsychological, achievement, and memory tests compared with participants with average IQ who performed better than participants with below average IQ participants (Tremont, Hoffman, Scott, & Adams, 1998). Differences between aggressive behavior of average and intellectually deficient individuals was also studied (Csorba, Radvanyi, Barthel, & Dinya, 2013). In a study, severe delinquents with high IQ showed comparatively better academic achievements than severe delinquents with low IQ (Koolhof, Loeber, Wei, Pardini, & D'Escury, 2007). It was also reported that boys with low level of IQ were involved in more

fights and aggressive acts than boys with high level of IQ (Meeks Gardner, Powell, & Grantham-McGregor, 2007).

Above mentioned literature is quite informative but indicates that there is a dearth of researches on the differences in the emotional intelligence, achievement, and aggression of adolescents based on their levels of IQ. Therefore, this study aimed to study the differences in emotional intelligence, aggression, and academic achievement of adolescents with below average, average, and high average intellectual ability. The findings of the present study would have positive implications as it would be of great help for teachers and counselors in dealing with adolescent students with different levels of intellectual ability. Hence, it is being hypothesized that there would be a difference in emotional intelligence, aggression, and academic achievement of adolescents with below average, average, and high average intellectual ability.

Method

Research Design

To test the hypothesis, quantitative comparative between groups design was utilized for this study. For between-group comparisons, the student sample was categorized into three groups of intellectual ability that are below average, average, and high average IQs.

Participants

The participants of this study consisted of 500 adolescent students (Male n=250; Female n= 250). The sample was recruited through purposive sampling with age ranges from 14 to 18 years. All of them were from English medium private sector schools and colleges of Karachi, located in 6 districts that are Malir, Central, South, West, East and Korangi between the 8^{th} to 12^{th} grades. The list of registered schools under board of higher secondary education was obtained through Karachi Metropolitan Corporation official website (KMC, 2014), and the list of private colleges was

obtained through official website of Board of Intermediate Education Karachi (BIEK, 2014). Financial status of the participants was calculated according to the average monthly income parameters provided by Pakistan Bureau of Statistics for the year 2013-2014 (PBSI, 2015). The average monthly income range as estimated by participants, was taken as not less than 16583/= Pakistani rupees and not more than 53000/= Pakistani rupeesand having below average, average, and high average IQ ranges were included in the sample. Those students falling in below 14 or above 18 years of age, from below or above grades 8th to 12th grades, belonging to upper or lower financial status, and having superior or intellectually deficient IQ range were excluded from the sample.

Table 1

Descriptive Statistics of Demographic Variables of the Participants (N=500)

Groups	*f*	%
Gender		
Girls	250	50
Boys	250	50
Family Structure		
Nuclear	306	61.2
Joint	194	38.8
Birth Order		
First	181	36.2
Middle	195	39
Last	124	24.8

The above-mentioned table describes the basic demographic details of the participants.

Measures

Three variable measures of each IQ, emotional intelligence, and aggression were applied. These variables were described as what the authors measures from these tests, scales and questionnaires, whereas participants' academic achievement was measured through

result records from their school and colleges. The details of these measures are provided below:

Draw-A-Person Intellectual Ability Test (DAP-IQ) for Children, Adolescents, and Adults

This test utilizes a human figure drawing to measure individual's intellectual ability. The age range for this test is 4 years to 89 years and it can be individually, or group administered within an estimated time of 8 to 15 minutes. Examinees are instructed to draw themselves in a complete figure from front side. The scoring comprised of 23 features such as, eyes, nose, arms, clothing etc. Item number 7 is rated from 0 to 4. Items 1, 2, 3, 6, 10, 14, 21 and 22 are rated on 0 to 3, items 8,9,11,12,15,18 and 23 are rated on 0 to 2 whereas item numbers 4, 5, 13, 16, 17, 19 and 20 are rated on 0 to 1. Its maximum score is 49. Scores are calculated through adding the individual score on each feature. The scores are converted into a single standard score which provides IQ score by considering chronological age of the individual. The IQ levels provided by DAP describe a range of 80-89 as below average, 90-109 as average, and 110-119 as high average range. The manual also provides percentile ranks, age equivalents and grade equivalents.

The DAP has been found to have good psychometric properties for clinical and non-clinical samples from a wide range of populations. Its test-retest reliability was found to be .84 over a stable estimate of 1-week period. The inter-scorer reliability was .91 and .95 and the internal consistency coefficients of .82 have been found. The correlations of DAP with scoring systems of Koppitz and Goodenough-Harris range from .85-.86 (Reynolds & Hickman, 2004). It has also been utilized in research conducted on Pakistani sample (Mursaleen & Munaf, 2016). The calculated Cronbach's alpha is .58 for present study.

Wong and Law Emotional Intelligence Scale (WLEIS)

It is a self-report measure of emotional intelligence based on people's opinion regarding their own emotional capabilities. This instrument consists of total 16 items and 4 items in each of its four subscales. It measures emotional intelligence on four dimensions. The first is Self-Emotional Appraisal (SEA) that measures understanding and expression of person's own emotions. Second is Others' Emotional Appraisal (OEA) that measures understanding and perception of a person regarding other's emotions. The third dimension is Use of Emotion (UOE) that measures person's ability to direct emotions in a way that it can be used constructively and effectively and the fourth dimension is Regulation of Emotion (ROE) that measures person's capability to monitor and deal with their emotions. The responses are rated on a seven-point rating scale denoting 1 as *Strongly Disagree* to 7 as *Strongly Agree*. The scores of all four sub-domains are added to acquire a total score of emotional intelligence. Its minimum score is 16 and maximum score is 112. The higher score indicates individual's higher level of emotional intelligence.

The psychometric properties of WLEIS suggest that it is a sound measure of emotional intelligence (Wong & Law, 2002). A study reported, Cronbach's alpha of WLEIS was .82 for self emotional appraisal, .81 for others emotional appraisal, .87 for emotional regulation and .89 for utilization of emotion (Law, Wong, Huang & Li, 2008). Likewise other researchers also studied the psychometric properties of WLEIS (Libbrecht, Lievens, & Schollaert, 2010). This scale was also utilized on Pakistani sample to measure emotional intelligence of participants (Mursaleen & Munaf, 2016). In present study the Cronbach alpha for the scale is found to be .82.

Aggression Questionnaire-Short Form (AQ-12)

AQ-12 is a shorter adaptation of original Buss-Perry Aggression Questionnaire (Buss & Perry, 1992). Its short form comprises of 12-items each rated on a 6-point rating scale, where 1 = *extremely uncharacteristic of me* and 6= *extremely characteristic*

of me. It measures aggression upon four dimensions that are Physical Aggression (PA- item 3, 8, 11), Verbal Aggression (VA- item 1, 6, 9), Anger (ANG- item 5, 7, 12) and Hostility (HO- item 2, 4, 10). To obtain subscale score, items included in the domain are added which ranges from 3-18. The aggression total score is obtained by adding score of all four domains; therefore, the score range is 7-12. AQ-12 has good psychometric properties. In one of the samples, for refined factors the reliability coefficient on physical aggression, verbal aggression, anger and hostility was found to be .79, .83, .76, .76 respectively (Bryant & Smith, 2001). This questionnaire has been utilized in a study conducted in Pakistan determining relationship of emotional intelligence with aggression (Mursaleen & Munaf, 2016; Shahzad, Begum, & Khan, 2013). The Cronbach's alpha for the scale in the present study is found to be .72.

Procedure

The consent for data collection was taken from the heads of selected schools and colleges and a time for administration of questionnaires was set. Firstly, the students were introduced with the research and their verbal and written consent was taken for their voluntary participation. Post their verbal consent they were instructed to fill the respondent profile form including age, gender, level of education, financial status, family structure, birth order, and percentage obtained in last most recent examination (See table-1 in method section for detailed information about the participants). Students were requested to complete the Draw-A-Person test according to the standard instructions as mentioned in DAP examiner manual. Subsequently, they completed emotional intelligence scale and aggression questionnaire. The booklet of questionnaires was then collected, and participants were thanked for their participation in the study. Their marks were checked through official records of their educational institutes.

After data collection, the research forms were scored according to the standard scoring criteria provided by developers

of DAP-IQ, WLEIS, and AQ-12. The sample of adolescent students was divided into three categories of intellectual ability (average, below average, & high average IQ) for between group comparison and the data was analyzed. Research principles and ethical guidelines were followed throughout the process of data collection, statistical analysis, result interpretation and the writing of research paper.

Results

Statistical Package for Social Sciences (SPSS) was applied to analyze the results through Analysis of variance (ANOVA). Post Hoc Bonferroni method was run to examine the differences between the groups studied.

Table 2

Difference in Emotional Intelligence, Aggression, & Academic Achievement based on Levels of Intellectual Ability through ANOVA (N=500)

Variables	Below Average N=43		Average N=376		High Average N=81		*F*	*p*
	M	*SD*	*M*	*SD*	*M*	*SD*		
EI	78.40	15.83	85.61	14.27	92.44	10.21	15.39	.00
AG	42.09	10.03	41.95	10.59	38.80	11.11	02.87	.06
AA	70.23	12.76	76.52	10.27	77.12	12.18	06.95	.00

Note. EI = Emotional Intelligence, AG. = Aggression, AA = Academic Achievement

Table 2 shows significant difference of emotional intelligence among students with below average, average, and high average intellectual abilities. Further, there is an insignificant difference in aggression level among students with below average, average, and high average intellectual ability, however, significant difference was noted on academic achievement of students with below average, average and high average intellectual ability.

Table 3

Post Hoc Analysis Showing the Effect of Level of Intellectual Ability on the Emotional Intelligence, Aggression & Academic Achievement among Adolescents (N=500)

Dependent Variables	Intellectual ability (I)	Intellectual ability (J)	*MD*	*p*
EI	Below Average	Average	-7.21**	.00
		High Average	-14.04**	.00
	Average	High Average	-6.83**	.00
AG	Below Average	Average	0.13	1.00
		High Average	3.21	.32
	Average	High Average	3.07	.06
AA	Below Average	Average	-6.28**	.00
		High Average	-6.89**	.00
	Average	High Average	-.605	1.00

Note. EI = Emotional Intelligence, AG = Aggression, AA = Academic Achievement

Table 3, shows significant mean differences in emotional intelligence between below average and average (*MD*=-7.21, *p*<.01), below average and high average (*MD*=-14.04, *p*<.01), as well as between average and high average (*MD*=-6.83, *p*<.01) intellectual ability. There was insignificant mean difference of scores of aggression between below average and average (*MD*=.13, *p*>.05), between below average and high average (*MD*=3.21, *p*>.05), and between average and high average intellectual ability of adolescents (*MD*=3.07, *p*>.05). Furthermore, there were significant mean differences in scores of academic achievement between below average and average (*MD*=-6.28, *p*<.01) and between below average and high average (*MD*=-6.89, *p*<.01), except difference between average and high average that was insignificant (*MD*=-.60, *p*>. 05).

Discussion

In accordance with the first part of the hypothesis, a significant difference in the scores of emotional intelligences of students with below average, average and high average intellectual ability was found. Emotional intelligence of students with high average intellectual ability was more than those with average and below average intellectual ability. Further emotional Intelligence of those with average intellectual ability was better than those with below average intellectual ability. These comparisons further affirm the previous findings that a higher level of intellectual ability suggests a higher degree of emotional intelligence (Mursaleen & Munaf, 2016).

Moreover, the group differences between average, high average, and below average students may explain their varying degree of emotional intelligence (Chapman & Boersma, 1986). Research based on the categorizations of IQ shows that high average students develop neurological, linguistic, and motor skills earlier (Vaivre-Douret, 2011). Further, less intelligent adolescents show abnormal response to emotional inputs (Bate, Boduszek, Dhingra, & Bale, 2014). In a study, children with high degree of ability exhibited more accurate perception of acceptance than students of regular classes (Boor-Klip, Cillessen, & Hell, 2014).

With reference to the second part of the hypothesis, the findings of the present study suggest an insignificant difference in the aggression level of students with below average, average, and high average intellectual ability. It indicates that aggression does not depend on the levels of IQ and those with below average IQ, average IQ or high average IQ express their aggression in identical ways. These findings contradict the outcome of a study indicating that intelligence predicts aggression (Huesrnann & Eron, 1984). However, in a study by Meeks Gardner and associates (2007) conducted on schoolboys, a low verbal IQ and low achievement on reading spelling was found in aggressive boys. It can be considered that children with lower intellectual ability may resort to aggression because they have fewer verbal skills to achieve their

goals. This may especially be true in boys even though no effect was apparent from the analysis in this study. Other factors that Gardner et al. (2007) noted in these aggressive boys were that they belonged to financially weak families, their parental supervision and affection was low, they had more family conflicts and were given fewer religious teachings. Further, they were frequently punished as children at home and in school, and they observed violent behaviors in their neighbors. Their parents also had low professional ranks. this was not the case with the participants selected in the present study. The results obtained could be due to various factors other than IQ that may have contributed to the insignificant difference, such as individual characteristics, social and family background, parental education, economical status and variety of other demographic variables that have not been studied.

In conformity with third part of the hypothesis, the current study found significant differences among scores of academic achievements of students with below average, average, and high average intellectual ability. It was noted that students having average and high average intelligence scored higher on academic achievement than those with below average intelligence. Similarly, it was found that IQ effects on achievement scores (Watkins, Lei, & Canivez, 2007). It was previously depicted from scores of WAIS and WAIS-R of neuropsychiatric subjects that their IQ and levels of academic achievement were highly related with each other (Warner, Ernst, Townes, Peel, & Preston, 1987). Fluid intelligence can also contribute in a different way in academic performance prediction (Ren, Karl, Wang, & Xu, 2015). It was further suggested that problems faced by individuals depend on their intellectual functioning (Nouwens, Lucas, Smulders, Embregts, & Van Nieuwenhuizen, 2017).

In the present study, an insignificant difference in educational achievement scores of students having average and high average intellectual ability was observed. The findings of a previous study confirm that it’s not essential that students with high intellectual ability score high on academic achievement

(Munaf & Appoo, 2011). Therefore, it can be concluded that it is not necessary that students with high average intellectual ability will always score high in their academics and students with average intellectual ability will score less than the above-mentioned group of students. Thus, their academic achievement can be similar. Identical results may be attributed to variety of other variables that were not studied as part of this research such as nature of schooling, teaching style, dedication of teachers and students, enthusiasm for studies, interest in going to school, residential surroundings, friends and numerous added factors. Likewise, countless factors play important role in the intellectual performance of students.

Conclusion

This research focused on difference in emotional intelligence, aggression, and academic achievement of students with below average, average, and high average intellectual ability. It is obvious from the findings that there is a significant difference in emotional intelligence and academic achievement of adolescents having different levels of IQ. Emotional intelligence of students with average and high average intellectual ability was more than those having below average intellectual ability and emotional intelligence of those having high average intellectual ability was more than those having average intellectual ability. It was evident that students having average and high average intellectual ability scored higher on academic achievement than those having below average intellectual ability however, all the IQ groups seem to be similar with reference to their level of aggression. Hence, it can be inferred from the findings that emotional intelligence and academic achievement of adolescent students is affected by their level of IQ whereas their level of aggression is not dependent on IQ level.

Limitations of the study and future recommendations

The sample size for the present study was limited and therefore it is recommended that future researches study the differences between a larger groups of students and draw comparisons using additional demographic variables such as age, gender, socioeconomic status, parental education, as well as any other variable of theoretical significance.

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