Verbal Cognitive Abilities and Emotional and Behavioral Problems of Secondary School Children

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The present study was aimed at examining the role of verbal cognitive abilities in predicting emotional and behavioral problems among secondary school children. Sajjad Urdu Verbal Intelligence Test (Hussain, 2001) and School Children Problems Scale (Saleem & Mehmood, 2011) were administered on a sample of 300 (151 girls & 149 boys) secondary school children; aged 11-16 years (M =14.83, SD = 1.16) taken from model schools of Islamabad. Finding revealed that low level of verbal cognitive abilities showed greater levels of emotional and behavioral problems; particularly anxiousness, academic problems, and aggression were significantly higher among the students. All four types of verbal abilities (i.e., Word-Meaning, Verbal-Reasoning, Numerical-Abilities, and General-Knowledge) jointly accounted for up to 59% of variance in predicting emotional and behavioral problems. Gender differences were also significant indicating that girls demonstrated significantly greater degree of emotional problems (p<.001) than those of boys whereas boys elicited higher level of aggressive tendencies (p<.001) and all four types of verbal cognitive abilities (p<.001, .01) as compared to girls. No significant gender differences emerged on academic problems. Results have been discussed in the light of literature and cultural contexts.

Keywords. Verbal Cognitive Ability, Emotional and behavioral Problems, School Children

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Cognitive or intellectual skills have been theorized and explicated under various perspectives; however little attention has been paid to understand their function in adolescent psychopathology. At the same time, literature of developmental psychopathology has always put a question mark on the variability of reactions to life events that why some children are more resilient, better withstand to life adversities, and turn into more healthy and adjusted people than those who become emotionally disturbed (Luthar&Zigler 1991; Masten, 2001).Explaining such queries, studies have documented a link between intelligence and emotional and behavioral problems (Corapci, Smith, &Lozoff, 2006; Flouri, Mavroveli, &Tzavidis, 2012; Koenen, Nugent, &Amstadter, 2008) among school children.These problems include school truancy, academic failure, aggressive behaviors, and drug abuseaffecting the individual as well as lasting detrimental impacts on the society as a whole (Lane, Carter, Pierson, &Glaeser, 2006; Trout, Nordness, Pierce, & Epstein, 2003). Such researches manifest that children with lower intellectual abilities tend to have greater number of behavioral difficulties including both internalizing and externalizing problems (Halonen, Aunola, Ahonen, &Nurmi, 2006; Lynam, Moffitt, & Stouthamer-Loeber, 1993; Miles & Stipek, 2006; (Jami & Kamal 2017; Kalsoom, Masood & Jami 2017)
as compared to those with higher intelligence scores (Rutter, 1971).

With regard to particular domains of intellectual abilities, students having emotional and behavioral problems have consistently shown poor performance in numerical ability, vocabulary, verbal reasoning, reading comprehension and written expression (Anderson & Sommerfelt, 2001; Lane, et al., 2006; Nelson, Benner, Lane, & Smith, 2004). Similar findings were reported by Mattison, Hooper and Glassberg (2002) who studied a sample of secondary school children. Their findings revealed that about 60% of the students with emotional and behavioral problems showed verbal deficits particularly in reading, writing, and mathematical abilities.

Earlier studies (i.e., Farrington & Hawkins, 1991; Moffitt, 1990; Schonfeld, Shaffer, O'Connor, & Portnoy, 1988; Warr-Leeper, Wright, & Mack, 1994; White, Moffitt, & Silva, 1989) have also established a linear relationship between cognitive deficits andproblem behaviors. These studies found that poor reasoning skills in early adolescence may lead to conduct behaviors in later years. Stipek and Mac Iver (1989) further explained this cognitive mechanism by concluding that the inability of a child to perform well on an intelligence test develops the feelings of inefficiency and lower self-

efficacy which resultantly may lead to feelings of rejection, withdrawn and depression. Evans, Rubin, and Asendorpf (1993) also found a negative association between shyness and verbal intelligence particularly vocabulary and verbal fluency in language assessment test.

Congruent with these findings, some studies have been conducted in a vice versa directions such as some researchers have identified the factors that may serve a positive function in the face of life pressure as well as emotional and behavioral problems. These factors may include intrapersonal qualities (higher level of cognitive functioning), family characteristics, as well as ecological factors (Greenberg, 2006; Luthar, Cicchetti, & Becker, 2000; Maddi, 2005; Masten, 2001; Werner, 2000). At the intrapersonal level, intellectual competence (i.e., verbal and nonverbal cognitive skills) serves a key role in cushioning the negative impact of life adversities and subsequent problem behaviors among children and adolescents (Pine & Freedman, 2009).

Cognitive abilities, either verbal or nonverbal, may play a crucial role in buffering the effect of life pressures as these are the skills to process information and solving problem. These abilities are directly linked to how a threat is assessed and processed, resources are accessed or healthier environments or relationships are sought (Masten et al., 1999) to cope with stress and better adjustment in life. Despite being that important, cognitive abilities have continuously been ignored in the research of adolescent psychopathology particularly in the context of Pakistan. Owing to the lack of research, the education system has been outdated and inconsistent with the societal needs. Moreover, learning and teaching methods are not synchronized with developmental demands and psychosocial needs of the children. No or little attention is paid on emotional or behavioral problems of the students or to train them solve their problems using their intrapersonal as well as interpersonal resources. The present study is therefore an effort to explore the role of cognitive resources (verbal cognitive abilities)in explaining emotional and behavioral problems of secondary school children.

Method

Sample

A sample of 300 secondary school children (of whom 151 were girls and 149 were boys), with age ranged from 12 to 16 years (M =14.83, SD = 1.16), was collected from the model schools of Islamabad. Data was obtained from 7th, 8th, 9th, and 10th grades students of the secondary schools of Islamabad through a convenient sampling technique. Of the total sample 67% belonged to joint family system

Instruments

Following instruments were used for the following study:

Sajjad Verbal Intelligence Test Urdu (SVITU). Sajjad Verbal Intelligence Test Urdu (SVITU) was used to measure the verbal cognitive ability of adolescents. The test was developed, validated, and standardized by Hussain (2001). The test comprises 128 multiple choice items with four subscales (vocabulary = 42 items, numerical ability = 36 items, verbal reasoning = 20 items, and general knowledge = 30 items). All the items are designed on the basis on general recommended textbooks of school children. True answer is given a score of '1'and false answer is given a score of '0.' Total scores range between 0-128. The original study (Hussain, 2001) has reported good concurrent and construct validity and highly acceptable reliabilities i. e., KR-20 = .92, test-retest = .86 and split-half = .86 for SVITU.

School Children's Problems Scale (SCPS). SCPS, developed by Saleem and Mehmood (2011),was used in the present study to measure emotional and behavioral problems of secondary school children. SCPS is a self-rating measure comprisingof 44 items on a four-point rating scale ranging from 1= *not at all to*4 = *extremely common*. SCPS was found to be a reliable (test-retest reliability = 0.79 and split half reliability = 0.89) and a valid scale with acceptable psychometric properties (Saleem&Mehmood, 2011).

Procedure

Students were approached after seeking a formal approval of data collection from Federal Directorate of Education and concerned authorities of school. Informed consent was also obtained from the subjects and they were assured of their ethical research rights. They were given the full right to quit their participation at any stage and withdraw from research. Participants were also assured of their right of privacy and confidentiality and were assured that their information will be kept quite confidential and will be used for

particularly this research only. After taking the data necessary statistical analyses were computed for the results.

Results

Table 1 shows inter-scale correlations, alpha coefficients, and descriptive statistics for the study variables. As illustrated by the values of the table, significant negative relationship ($p < .001$) was observed between different types of verbal cognitive abilities and school children's emotional and behavioral problems. Furthermore the table depicts good alpha coefficients for all the study scales indicating that the scales were internally consistent and reliable to use in the study. Values of skewness and kurtosis in Table 1 demonstrate a normal distribution of the data as the values lie in acceptable range(±2;George&Mallery,2010).

Table 1

Reliability estimates and descriptive statistics of Sajjad Verbal Intelligence Test Urdu and its subscales and School Children Problem Scale (N=300)

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. WM	-	.89**	.82**	.72**	.94**	-.61**	-.45**	-.60**	-.56**	-.53**	-.66**	-.71**
2. VR	-	-	.86**	.80**	.94**	-.65**	-.58**	-.68**	-.58**	-.57**	-.69**	-.75**
3. NA	-	-	-	.81**	.94**	-.73**	-.46**	-.72**	-.65**	-.65**	-.69**	-.77**
4. GK	-	-	-	-	.88**	-.68**	-.56**	-.73**	-.63**	-.70**	-.74**	-.79**
5. VA	-	-	-	-	-	-.71**	-.59**	-.73**	-.65**	-.65**	-.74**	-.81**
6. ANX	-	-	-	-	-	-	-.89**	.81**	.67**	.58**	.34**	.61**
7. AGG	-	-	-	-	-	-	-	-.76**	-.60**	-.47**	.22**	-.49**
8. SW	-	-	-	-	-	-	-	-	.65**	.52**	.27**	.58**
9. SC	-	-	-	-	-	-	-	-	-	.62**	.53**	.81**
10. REJ	-	-	-	-	-	-	-	-	-	-	.63**	.85**

11. AP	-	-	-	-	-	-	-	-	-	-	-	.75**
12. SCPS	-	-	-	-	-	-	-	-	-	-	-	-
α	.89	.74	.85	.76	.95	.92	.92	.88	.85	.74	.78	.80
M(SD)	22.52 (9.03)	10.29 (4.11)	21.58 (7.01)	17.56 (5.17)	71.95 (23.5)	30.41 (10.1)	114.46 (25.8)	44.95 (12.3)	34.42 (10.5)	33.69 (8.53)	37.08 (8.68)	37.28 (8.96)
Skewness	.04	-.06	.13	.05	.15	-.024	-.34	-.58	-.003	.08	-.30	-.05
Kurtosis	-1.4	-.89	-1.4	-1.05	-1.49	-1.26	-.87	-.79	-1.12	-.82	-.63	-.86

**$p<.01$

Note: WM=Word Meanings, VR=Verbal Reasoning, NA=Numerical Ability, GK=General Knowledge, VA=Verbal Ability Total, ANX=Anxiety, AGG=Aggression, SW=Social Withdrawal, SC=Somatic Complaints, FR=Feelings of Rejection, AP=Academic Problems.

Table 2

Multiple Regression Analysis on Emotional and Behavioral Problems by Verbal Cognitive Abilities (N=300)

	Anxiousness					Aggression					Social Withdrawal				
				95% CI					95% CI					95% CI	
V-A	*B*	*SE B*	*β*	*LL*	*UL*	*B*	*SE B*	*β*	*LL*	*UL*	*B*	*SE B*	*β*	*LL*	*UL*
WM	-.04	.18	-.037	-.32	.41	-.33	.17	-.42*	.67	.004	-.10	.09	-.16	-.08	.28
VR	-.03	.47	-.01	-.95	.90	-.49	.43	-.28	-1.34	.37	-.26	.23	-.20	-.72	.19
NA	-.86	.23	-.56**	-1.32	-.40	-.80	.21	-.78**	.37	1.22	-.29	.11	-.37*	-.51	-.06
GK	-.52	.26	-.25*	-1.04	-.002	-.03	.24	-.02	-.51	.44	-.42	.13	-.39**	-.67	-.16
	R = .75, R^2= .56, ΔR^2= .54 (F = 30.40**)					R = .39, R^2= 16, ΔR^2=.12 (F=4.36**)					R = .77, R^2= 59, ΔR^2=.58 (F=34.76**)				
	Somatic Complaints					Rejection					Academic Problems				
WM	-.03	.06	-.07	-.15	.10	-.02	.09	-.03	-.16	.19	-.15	.11	-.20*	-.38	.08
VR	-.05	.16	-.06	-.26	.37	-.13	.22	-.11	-.30	.57	-.11	.29	-.07	-.69	.46
NA	-.18	.08	-.39*	-.34	-.03	-.22	.11	-.31*	-.43	.000	-.07	.14	-.07	-.36	.22
GK	-.20	.09	-.32*	-.38	-.03	-.52	.12	-.56**	-.77	-.28	-.67	.16	-.49**	-.99	-.35
	R = .68, R^2= .46, ΔR^2= .44 (F = 20.06**)					R=.72, R^2= 52, ΔR^2=.49 (F=25.18**)					R = .77, R^2=.59, ΔR^2=.58 (F=34.43**)				

**p<.01, *p<.05

Note: V-A= Verbal Ability Scale, WM= Word Meanings, VR=Verbal Reasoning, NA=Numerical Ability, GK=General Knowledge, ANX=Anxiety, AGG=Aggression, SW=Social Withdrawal, SC=Somatic Complaints, FR=Feelings of Rejection, AP=Academic Problems

Multiple regression analysis was computed (Table 2) to study the impacts of verbal cognitive abilities on each of the emotional and behavioral problems of school children. Findings indicate that verbal cognitive abilities jointly accounted for 54% of variance in the anxiousness 12 % in aggression, 59% in social withdrawal, 44% in somatic complaints, 49% in feelings of rejection and 58 % of variance in academic problems among secondary school children. Findings further showed numerical ability and general knowledge were the stronger negative predictorsof problem behaviors among school children. Results also show that the ability of verbal reasoning did not account for significant variance ($p > .05$) in any of the adolescents' problems. Overall findings indicate that all the verbal abilities showed negative associations with each of the emotional and behavioral problems of adolescents suggesting that poor verbal cognitive skills may lead to the development of emotional or behavioral problems among secondary school children.

Table 3

Gender Differences on Emotional and Behavioral Problems and Verbal Cognitive Abilities (N=300)

	Boys (n = 149)		Girls (n = 151)					95%CI		
Variables	M	SD	M	SD	*t*	*df*	*p*	*LL*	*UL*	*Cohen's d*
ANX	23.21	6.35	43.05	7.59	-24.42	301	.000	-21.45	-18.25	2.83
AGG	30.27	3.16	17.66	5.36	24.37	301	.000	11.59	13.63	2.86
SW	15.04	3.78	25.14	3.62	-23.71	301	.000	-10.94	-9.26	2.73
SC	11.41	2.04	14.05	2.21	-10.74	301	.000	-3.12	-2.16	1.24
FR	14.71	3.45	17.74	3.43	-7.74	301	.000	-3.79	-2.26	.88
AP	28.73	2.98	28.98	4.48	-.57	301	.57	-1.13	.62	.06
WM	25.45	8.06	19.71	9.03	3.34	301	.001	2.34	9.14	.67
VR	12.16	3.82	8.49	3.54	4.98	301	.000	.73	2.21	.99
NA	25.84	6.35	17.49	4.88	7.38	301	.000	1.13	6.10	1.47
GK	20.06	4.50	15.16	4.63	5.36	301	.000	.91	3.09	1.07

**p <.001

Note: ANX=Anxiety, AGG=Aggression, SW=Social Withdrawal, SC=Somatic Complaints, FR=Feelings of Rejection, AP=Academic Problems, WM=Word Meanings, VR=Verbal Reasoning, NA=Numerical Ability, GK=General Knowledge

T-test analysis was computed to examine gender differences (Table 3) on verbal abilities and emotional and behavioral problems. Results in the table reveal that girls scored significantly higher (p<.001) on anxiousness, social withdrawal, somatic complaints and feelings of rejection while boys demonstrated significantly greater level of aggressive behaviors (p<.001) and verbal cognitive abilities (p<.001; p<.01). However no significant differences emerged on academic problems.

Discussion

The present study examined the association between verbal cognitive abilities and emotional and behavioral problems among secondary school children. Results showed a strong negative correlation between verbal competence and problem behaviors indicating that verbal abilities negatively predicted emotional and behavioral problems among school children. Particularly lower level of numerical ability and general knowledge were the stronger predictor of problem behaviors. These findings are congruent with the previous researches (i.e., Corapci et al., 2006; Halonenet al., 2006; Miles & Stipek, 2006; Morgan, Farkas, Tufis, & Sperling, 2008; Trzesniewski, Moffitt, Caspi, Taylor &Maughan, 2006) reported a negative association between verbal intelligence and emotional and behavioral difficulties documenting that lower level of verbal cognitive ability put children at greater risk for developing problems behaviors particularly internalizing behavioral problems. Similar findings were reported by (Hodges & Plow, 1990; Sato et al., 2016; Ahmed, Ahmed, Aqeel, Akhtar, & Salim, 2017; Cisheng, Jamala, Aqeel , Shah , Ahmed, & Gul, 2017; Khan, Amanat, Aqeel, Sulehri, Amanat, Sana, & Amin, 2017) who reported more verbal deficits in children with anxiety than non-anxious children. The present study also found that boys scored significantly higher in all types of verbal abilities as compared to girls. These findings get support from Colom, Contreras, Arend, García-Leal and Santacreu (2004) who studied gender differences on verbal and spatial ability tests. Their findings revealed that male students performed significantly better than female students on both spatial ability and verbal intelligence including mathematical ability, vocabulary and general knowledge. Regarding emotional problem behaviors, the present study found that female subjects with verbal deficits showed higher level of anxiety, social withdrawal, feelings of rejection and somatic complaints than boys whereas boys scored significantly higher on aggression. Previous researches have also supported this notion revealing that girls are prone to develop more emotional problems i.e., anxiety, depression and withdrawn while boys tend to have greater number of behavioral problems e.g., aggression, conduct and antisocial behavior (Bongers,Koot, &Verhulst, 2003; Mesman, Bongers, &Koot, 2001; Singh & Sharma, 2012; Suresh, Ayyappan, Nandini, & Ismail, 2015). Culture also provides justification for such differences as in cultures like Pakistan girls are trained and expected to show more patience, controlled behaviors and are desired to be less expressive whereas boys having greater exposure of the external environment tend to be more expressive and show outward behaviors.

Overall study concluded a negative pattern of association between verbal cognitive abilities and school children's emotional and behavioral

problem. The study found that lower level of verbal intellectual skills may result in problem behaviors.

Limitations, Suggestions, and Implications

No research is without limitations so as is the current study. First of all the present research followed a cross-sectional design. In future, longitudinal design would help understand the trajectories of psychopathology such as identifying the true nature of cognitive skills as risk or protective factors in the path of psychopathology. Secondly, present study rested upon self-report measure/ single informant approach whereas a multi-informant approach would give an in-depth exploration of the problems and would also help minimizing respondent biases which may hamper the generalizability of the study findings.Another limitation is that current study focused on a unidirectional relationship between cognitive verbal skills and problems whereas a reciprocal relationship will be more informative to identify and gain a detailed insight of the causal relationship between the two constructs.

Despite carrying aforementioned limitations, the study significantly contributed in the indigenous literature of educational psychology. Moreover, the study holds implications for teachers, school psychologists and related policy maker to pay special attention to the intellectual abilities and growth of school children in order to provide proper counseling to intellectually deficits children so that their emotional and behavioral problems can be addressed and managed at the appropriate stage.

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