

## Dimensions of Problem Behavior in Deaf Children<sup>1</sup>

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*The Behavior Problem Checklist was completed by the teachers of 192 deaf students who attended a special day school for the deaf. Three separate factor analyses were performed. Four factors that correspond to the dimensions found in earlier research and previously labeled conduct disorder, personality problems, immaturity-inadequacy, and socialized delinquency were found. An additional factor labeled passive inferiority was also extracted.*

That deaf children as a group have a high percentage of secondary behavioral/emotional problems has been well established (Freeman, Malkin, & Hastings, 1975; Jensema & Trybus, 1975; Schlesinger & Meadow, 1972; Vernon, 1967). According to Levine (1974), the most often reported instruments used to assess behavior problems in deaf children are projective and of questionable value in the assessment of exceptional children (Salvia & Ysseldyke, 1978).

A more objective approach to the assessment of behavior problems in children is through the use of a rating scale or checklist. Among psychological instruments of this type, the Behavior Problem Checklist (BPC) (Quay & Peterson, 1975) seems to have potential for use with deaf children. The BPC was derived through extensive factor-analytic studies of problem behavior in institutionalized juvenile delinquents (Quay, 1964, 1966), emotionally disturbed public school children (Quay, Morse, & Cutler, 1966), and public school children in kindergarten through the eighth grade (Peterson, 1961; Quay & Quay, 1965; Quay &

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Peterson, 1975). Satisfactory ratings have been obtained from teachers, parents, correctional personnel, psychiatric aides, nurses, and other clinical professionals.

Three aspects of disordered behavior have appeared rather consistently throughout these studies: (1) conduct disorder that is characterized by overt aggression, (2) personality disorder involving anxious-withdrawn behavior, and (3) inadequacy-immaturity involving a short attention span or preoccupation. A fourth dimension, subcultural (socialized) delinquency, has also emerged in some studies.

Reivich and Rothrock (1972) used the BPC for rating the behavior of 327 students between 6 and 20 years of age who attended a state residential school for the deaf. Five factors, three of which were very similar to those found by Quay and Peterson (1975) with hearing children and two that were specific to the deaf, were obtained.

This study was concerned with further examining the factor structure of the BPC in a sample of deaf children who attended a day school program and lived at home.

## METHOD

### *Subjects*

This sample was composed of 101 boys and 91 girls between 3 and 17 years of age (mean of 9.91 years, *SD* of 3.52, median of 10.27), who attended a state-supported day school for deaf children from the metropolitan Atlanta area. Students were rather evenly distributed from 7 to 13 years of age with 52 students at ages 12 and 13, 34 below 7 years, and 27 above 13 years. This represents all children in attendance at the school.

### *Raters*

The ratings were made by the 24 teachers at the school. Classes in the school average about eight students each in largely self-contained classroom settings so that teachers had substantial experience with each of the students they were rating.

### *Factor-Analysis Procedure*

Those items with less than 12 responses were deleted. This criterion was used because the resulting item deletions were reasonably consistent with the Quay and Peterson (1975) and the Reivich and Rothrock (1972) studies. When retained in the analysis, loadings on the deleted items were generally insignificant.

All retained items had loadings of at least .30 on one or more factors. A principal components factor analysis with orthogonal rotation to the varimax criterion was conducted using the squared multiple correlation coefficient as communality estimates. Three separate analyses were performed. In the first, the number of factors extracted (11) was based on the number of eigenvalues greater than 1. In order to replicate more closely earlier studies (i.e., Quay & Peterson, 1975; Reivich & Rothrock, 1972), the second and third analyses rotated four and five factors, respectively. The initial five-factor analysis was run with sex and age included as variables to test their effect on the factor structure. Since neither loaded significantly on any factor, they were deleted from the final analysis.

## RESULTS

### *5-Factor Solution*

Table I shows the rotated factor loadings for the 5-factor analysis. This representation appeared to be the most useful because (1) the first 4 factors were virtually identical to the 4-factor solution, and (2) the factors in the 11-factor solution tended to be either fragmentations of the 5-factor solution or spurious factors containing few items and/or items whose pragmatic relationship(s) to one another were questionable. In this regard none of the 11 factors that appeared seemed to be particularly attributable to the deafness handicap.<sup>3</sup>

The five factors accounted for 49.3% of the total variance. Of this variance accounted for, Factor 1 (analogous to CP factor from Quay-Peterson, 1975) accounted for approximately 50%, Factor 2 (PP from Quay-Peterson, 1975) for 20.9%, Factor 3 (II from Quay-Peterson, 1975) for 9.2%, Factor 4 (SD from Quay-Peterson, 1975) for 12.1%, and Factor 5 for 7.8%.

The present study provides further evidence for the four factors – Conduct, Personality, Immaturity, Socialized Delinquency – that tend to account for over two-thirds of the variance of the interrelationships among the problem behaviors (Quay, 1964; Quay & Quay, 1965; Quay et al., 1966; Reivich & Rothrock, 1972).

### *Comparative Solutions*

Table II contains the factors from the present study compared to those given by Quay and Peterson (1975) and Reivich and Rothrock (1972). The CP,

<sup>3</sup> A copy of the factor loadings from the 11-factor analysis is available from the authors upon request.

Table I. Rotated Factor Matrix: Five-Factor Solution<sup>a</sup>

Factor					Fre- quency	Checklist item
1	2	3	4	5		
Factor 1						
43	52	23	0	-16	18	1. Oddness, bizarre behavior
69	-03	31	-09	04	26	2. Restlessness, inability to sit still
61	-04	17	42	-12	29	3. Attention-seeking, "show-off"
59	-01	27	21	15	34	8. Disruptiveness, tendency to annoy and bother others
63	-01	16	36	-07	24	11. Boisterousness, rowdiness
48	01	56	-05	10	35	20. Short attention span
43	06	-02	61	22	35	25. Fighting
54	24	-16	26	14	29	27. Temper tantrums
43	13	19	27	-07	19	38. Disobedience, difficulty in disciplinary control
53	24	27	18	10	25	40. Uncooperativeness in group situations
32	10	08	-06	06	20	43. Clumsiness, awkwardness, poor muscular coordination
54	-03	04	-04	12	12	44. Hyperactivity, always on the go
46	-09	55	16	24	39	45. Distractibility
37	21	24	36	-14	17	47. Negativism, tendency to do the opposite of what is requested
40	-02	11	35	17	29	48. Impertinence, sauciness
43	-00	-11	36	27	35	53. Irritability, hot tempered, easily aroused to anger
Factor 2						
43	52	23	00	-16	18	1. Oddness, bizarre behavior
-08	64	09	13	27	21	6. Self-consciousness, easily embarrassed
08	77	05	-06	-04	12	7. Fixed expression, lack of emotional reactivity
-03	45	17	13	45	16	9. Feelings of inferiority
17	35	49	09	-07	14	13. Preoccupation, "in a world of his own"
-24	41	10	00	31	23	14. Shyness, bashfulness
01	63	01	-11	11	18	15. Social withdrawal, preference for solitary activities
08	33	30	22	44	39	21. Lack of self-confidence
24	36	22	07	42	28	23. Easily flustered and confused
16	62	17	-00	08	12	41. Aloofness, social reserve
11	35	45	06	20	13	50. Drowsiness
Factor 3						
69	-03	31	-09	04	26	2. Restlessness, inability to sit still
17	35	49	09	-07	14	13. Preoccupation, "in a world of his own"
48	01	56	-05	10	35	20. Short attention span
26	22	57	03	-03	29	22. Inattentiveness to what others say
10	08	55	24	-00	27	31. Laziness in school and in performance of other tasks
18	06	54	24	07	26	33. Irresponsibility, undependability
10	15	63	12	13	18	34. Excessive daydreaming
-02	14	46	29	35	33	42. Passivity, suggestibility, easily led by others
46	-09	55	16	24	39	45. Distractibility
14	30	47	-04	27	14	49. Sluggishness, lethargy
11	35	45	06	20	13	50. Drowsiness

Table I. Continued

Factor					Fre- quency	Checklist item
1	2	3	4	5		
Factor 4						
61	−04	17	42	−12	29	3. Attention-seeking, “show-off”
−01	59	18	00	05	15	5. Doesn’t know how to have fun, behaves like a little adult
03	−04	19	48	17	13	10. Steals in company with others
63	−01	16	36	−07	24	11. Boisterousness, rowdiness
11	−06	05	82	−09	17	18. Belongs to a gang
43	06	−02	61	22	35	25. Fighting
07	08	27	70	12	31	26. Loyal to delinquent friends
12	−02	16	84	−08	14	36. Has bad companions
37	21	24	36	−14	17	47. Negativism, tendency to do opposite of what is requested
40	−02	11	35	17	29	48. Impertinence, sauciness
43	−00	−11	36	27	35	53. Irritability, hot tempered, easily aroused to anger
Factor 5						
−03	45	17	13	45	16	9. Feelings of inferiority
15	01	04	03	44	28	12. Crying over minor annoyances and hurts
−24	41	10	00	31	23	14. Shyness, bashfulness
08	33	30	22	44	39	21. Lack of self-confidence
24	36	22	07	42	28	23. Easily flustered and confused
17	27	−00	11	63	27	30. Hypersensitivity, feelings easily hurt
−02	14	46	29	35	33	42. Passivity, suggestibility, easily led by others
00	02	05	−04	32	12	55. Often has physical complaints e.g., headaches, stomachaches

*a*Decimals omitted.

PP, and II hold up rather well across all three studies. For example, 12 items are included in the CP factor of all three studies. Similarly, the PP factor had 7 and the II factor had 6 items common to all three studies with additional items appearing in two studies.

Factor 5 was composed of eight items and was labeled passive inferiority. This factor was unique to the present study, having no parallel in the two earlier studies although six of the eight items had loadings on the PP factor. Similarly, Factors IV and V of the Reivich-Rothrock study had no match in either the present study or the four factors of the BPC.

### DISCUSSION

The factor-analysis results from this present study of 192 deaf children corresponded closely with earlier studies of varying types of samples. There

Table II. Comparative Factor Loadings from Three Studies<sup>a</sup>

Item	Quay-Peterson (1975)				Reivich-Rothrock (1972)					Present study				
	CP	PP	II	SD	I	II	III	IV	V	1	2	3	4	5
CP Factor														
2	60				65					69		32		
3	62				68					61			42	
8	70				72					59				
11	66				66					63			36	
16	35				33			39		-	-	-	-	-
17	40				52									
25	63				69					43			61	
27	51				63					53				
33	57				49		56					54		
38	70				75					42				
40	62				56			39		52				
44	51				58					53				
46	57				-	-	-	-	-	-	-	-	-	-
47	59				60			38		37			36	
48	57				59					39			34	
51	48				-	-	-	-	-	-	-	-	-	-
53	59				67					43			36	
PP Factor														
5		41						58					59	
6		55					61			64				
7								54		77				
9		60					62			45				45
12		33			40	40								44
14		51				61				40				31
15		50				27	36	58		62				
21		60				61				33				44
23		53				54	33			36				42
28		38				41	32			-	-	-	-	-
30		50				52				-	-	-	-	63
32		53				62				-	-	-	-	-
37		34			41	50				-	-	-	-	-
39		48				40	31			-	-	-	-	-
41		33				41		43		62				
51			1		39	31	38	31		43	51			
52	-	-	-	-	34	54				-	-	-	-	-
II factor														
13			48				57				35	48		
20			40		36		49			48		56		
31			41		36		57					55		
34			46				63					63		
35			31		-	-	-	-	-	-	-	-	-	-
42			34			40						46		35
49			36				67					47		
50			32				58				34	45		
22	-	-	-	-	37		47		34			57		
45	-	-	-	-	49		39		35	46		55		

Table II. Continued

Item	Quay-Peterson (1975)				Reivich-Rothrock (1972)					Present study				
	CP	PP	II	SD	I	II	III	IV	V	1	2	3	4	5
SD factor														
4				50	-	-	-	-	-	-	-	-	-	-
10				49	-	-	-	-	-				48	
18				68	-	-	-	-	-				81	
26				48	-	-	-	-	-				70	
29				23	-	-	-	-	-					
36				61	-	-	-	-	-				84	
Miscellaneous loadings														
19									47	-	-	-	-	-
24									44					
43	-	-	-	-		32	41			32				
55	-	-	-	-		37						32		

<sup>a</sup>Dashes denote items not included in the analysis. Italicized loadings denote items loading consistently across all three studies.

were four factors that have appeared consistently and correspond to the four dimensions scored on the BPC. A fifth factor, unique to this study, loaded on eight items, some of which also appeared in other factors. The items were logically consistent, however, and fell into a category labeled passive inferiority. No counterparts to the Reivich and Rothrock (1972) factors labeled isolation and communication were found. While both studies dealt with deaf children, those children in the Reivich and Rothrock study resided in a state school for the deaf, whereas the children in the present study commuted to the special school each day from their homes. This difference in living arrangements may have contributed to these varying results. However, other considerations such as difference in severity of deficit, etiology of deficit, and degree of concurrent physical problems may also have contributed to the variance in results.

The fifth factor coming out of the study appears to be somewhat related to the deafness attribute. To test the possibility that this fifth factor was indeed an aspect of the auditory disability rather than a factor concerned with specific behavior pathology, the data were reanalyzed with only four factors being rotated. The resulting four factors were virtually identical to the first four factors from the five-factor analysis.

Since the first four factors found in this study correspond closely to those identified in previous research, it seems reasonable to conclude that these behavioral patterns in children are largely independent of the deafness attribute.

The fact that the fifth factor does not appear in other studies would tend to support its relationship to deafness or at least to some characteristic of the sample used in this study. While relationships of this factor to sex or age were not evident, other factors not included in this investigation should be considered before making any final conclusions.

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