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Principal Components Analyses of Behavior Problems in Jamaican Clinic-Referred Children: Teacher Reports for Ages 6–17

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Factor analyses of child behavior problems have often yielded two broad-band syndromes, Overcontrolled (e.g., worrying, fearfulness, withdrawal) and Undercontrolled (e.g., restlessness, fighting, disobedience). We explored whether these two broad-band syndromes might be identified for youngsters in Jamaica. We obtained teacher reports for 320 clinic-referred Jamaican youngsters on a 24-item problem checklist designed by Jamaican clinicians for the assessment of child behavior problems and subjected these to principal components analyses. Regardless of whether the sample was split according to age or sex, the analyses revealed factors similar to the Over- and Undercontrolled syndromes most often found in other cultures. The analyses also revealed school absence factors in each age and sex group; school avoidance was correlated with crying in children (aged 6–11) but with conduct problems in adolescents (aged 12–17). The findings suggest important similarities and possible differences between the factor structures of child behavior problems in Jamaica and the United States.

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A handicap to research and clinical intervention with children is the lack of standardized ways of describing and classifying childhood behavior problems (Achenbach & Edelbrock, 1978; Quay, 1986a). Some of the categories in complex committee-derived systems such as the DSM-III (American Psychiatric Association, 1980) have posed problems of poor interjudge reliability (e.g., Mattison, Cantwell, Russell, & Will, 1979; Quay, 1986b). These problems have intensified the awareness of clinicians and researchers of the need for psychometrically sound empirical approaches in classifying child behavior problems. Efforts to develop empirically derived classification systems began as early as the 1940s and have continued up through this decade. Comprehensive reviews of these efforts are provided by Achenbach and Edelbrock (1978), Dreger (1981, 1982), and Quay (1986a).

Most of the empirical approaches that have been developed rely on adult reports of children's behavior problems. The problem ratings are subjected to multivariate statistical techniques in an effort to identify dimensions or syndromes of child behavior problems. Two major syndromes have emerged with considerable consistency (Achenbach & Edelbrock, 1978). One involves behavior which shows insufficient self-control and which is often directed toward the environment (e.g., restlessness, stealing, fighting); the other involves behavior that shows excessive self-control or inhibition and is often directed internally (e.g., worrying, fearfulness, social withdrawal). The two syndromes have been labeled Undercontrolled and Overcontrolled, respectively, by Achenbach and Edelbrock (1978).

In their review of empirical classification efforts, Achenbach and Edelbrock (1978) employed certain criteria to determine the generality of the broad-band syndromes across numerous studies. They found that, although given different names by different investigators, these syndromes were indeed present in studies using both teacher and parent reports. Indeed, these two syndromes have been found in more than a dozen independent factor-analytic studies of parent and teacher reports (see Achenbach & Edelbrock, 1978) and in research not only with Americans but also with British, Sicilians, Japanese, Greeks, Finns, and Iranians (see Quay, 1986a).

Our purpose here was to use methods similar to those of previous research to determine whether the Over- and Undercontrolled syndromes might be identified in another culture—namely, Jamaican. The question was of interest in part because Jamaican culture differs in theoretically important ways from cultures such as that of the United States. The Jamaican population is predominantly black; most of the inhabitants are decendants of British slaves who were originally brought from Africa. Cultural rules and childrearing practices therefore reflect an amalgamation of British and African perspectives. An example is that British parents have traditionally placed a premium on respect for authority figures (Zigler & Child, 1982). This

phenomenon and the African-based emphasis on respect for older persons, including siblings, appears to set Jamaica apart from other cultures like the United States, where youth is admired and a certain amount of brashness and nonconformity is actually expected (see Lambert, 1987 for further discussion). Given these and other cultural differences between Jamaica and the United States, it is not clear whether the broad-band syndromes often identified in U.S. samples would be evident among Jamaican youngsters.

To assess which syndromes might be found in Jamaican youngsters, we carried out principal components analyses using 360 clinic-referred Jamaican youth aged 6–17. We reasoned that identification of Over- and Undercontrolled syndromes in Jamaican youngsters would lend further support to the notion of a culture-general phenomenon—i.e., that the two syndromes exist across diverse cultures (see Lambert, 1987). By contrast, a failure to identify the two syndromes in Jamaica would cast some doubt on this view.

METHOD

Subjects and Research Design

Data for the present study were drawn from the clinic records of 320 Jamaican youngsters. These children were seen between the years of 1982 and 1986 in the *only* child treatment facility in Jamaica. The sample consisted of 40 urban and 40 rural boys aged 6–11, 40 urban and 40 rural girls aged 6–11, 40 urban and 40 rural boys aged 12–17, and 40 urban and 40 rural girls aged 12–17. The above subsamples were selected by stratified random sampling, but with the constraints that all design cells within the sample contain equal numbers and neither the sex nor urban-rural factors be confounded with age. We first combined males and females and analyzed the data according to age (i.e., 6–11 vs. 12–17). We then reanalyzed the data according to sex (i.e., boys 6–17 vs. girls 6–17).

Method of Data Collection

For each child in the sample, data from a standard teacher checklist were recorded. This checklist was independently designed by Jamaican clinicians. It includes 24 problems often noted in referred children and is routinely sent to the teacher of each child referred for treatment in the clinic. It is the only checklist developed specifically for Jamaican children. To facilitate Jamaican-American comparisons, two trained coders judged whether each Jamaican problem matched Achenbach and Edelbrock's (1986) 118-item

Teacher Report Form (TRF). Working independently, the coders agreed 100% of the time in their judgment as to whether each Jamaican problem did or did not have a TRF equivalent. Of the 24 problems, 23 were deemed to have an equivalent. For the problems with TRF equivalents, the coders agreed 96% of the time as to which of the 118 TRF problems was the appropriate match.

RESULTS

Data Analyses

Principal components analyses were performed. The scree test advocated by Cattell (1952) and deemed superior to others in locating major factors (Trucker, Koopman, & Linn, 1969; Linn, 1968) was utilized to determine factors for rotation. The factors were then rotated to the orthogonal varimax criterion in one wave of analyses, and oblique rotations were performed in another. This procedure was initially performed individually on two subsamples: boys and girls aged 6–11, and boys and girls aged 12–17. The or-

Table I. Factor Analysis of Behavior Problem Ratings for Children Aged 6–11

	Undercontrolled	Overcontrolled	School avoidance-crying
1. Restless	.60	.12	−.13
2. Truants	.38	.06	.58
3. Fidgety	.53	.16	−.26
4. Destroys	.49	−.03	−.15
5. Fights	.74	.07	.08
6. Disliked	.52	.14	.19
7. Worried	.10	.50	.12
8. Solitary	.04	.54	−.01
9. Temper	.60	.21	.03
10. Tearful	.14	.56	.23
11. Twitches	.09	.41	−.20
12. Bites	.12	.25	.13
13. Sucks	.23	.07	−.29
14. Absent	.30	.28	.50
15. Disobeys	.66	.12	−.02
16. Inattentive	.28	.42	−.07
17. Fearful	−.07	.63	−.05
18. Fussy	.36	.38	.02
19. Lies	.55	.16	.15
20. Steals	.40	.07	.12
21. Wets/soils	.20	.06	−.39
22. Aches	.13	.38	.06
23. Cries	.05	.32	.34
24. Speech	.07	.33	−.22
Eigenvalue	3.60	2.42	1.32

thogonal and oblique rotations provided similar results. We therefore report only the orthogonal rotation results.

For younger children, the scree test indicated that as many as three factors could be retained for rotation. In the three-factor solution shown in Table I, the first factor includes items that appear to involve low levels of self-control (e.g., *restless, fights, temper tantrums*); it was therefore labeled Undercontrolled. The second factor includes items that appear to involve excessive self-control, inhibition, or inward behavior (e.g., *worried, solitary, fearful*) and thus was labeled Overcontrolled. The third factor included two items involving school avoidance, plus "cries a lot"; we therefore labeled this factor School Avoidance-Crying.

The scree test for the adolescent sample indicated a three-factor solution. The first factor in the three-factor solution (see Table II) seemed to reflect excessive self-control, inhibition, or inward behavior (e.g., *worried, fearful, solitary*) and was thus labeled Overcontrolled. The second factor has items involving insufficient self-control (e.g., *fights, restless, fidgety, temper tantrums*). It was therefore labeled Undercontrolled. The third factor includes items that involve school avoidance and conduct problems (e.g., *lies, steals*); it was therefore labeled School Avoidance Conduct-Problems.

Table II. Factor Analysis of Behavior Problems for Adolescents Aged 12-17

	Overcontrolled	Undercontrolled	School avoidance-conduct problems
1. Restless	.02	.64	.18
2. Truants	.08	.11	.68
3. Fidegty	.03	.60	.25
4. Destroys	.26	.40	.46
5. Fights	.04	.60	.35
6. Disliked	.50	.26	.33
7. Worried	.70	−.01	.02
8. Solitary	.44	−.09	.19
9. Temper	.28	.65	.00
10. Tearful	.69	.05	.06
11. Twitches	.27	.12	.03
12. Bites	.40	.21	.00
13. Sucks	.17	.28	−.02
14. Absent	.02	.05	.67
15. Disobeys	.04	.58	.41
16. Inattentive	.33	.29	.30
17. Fearful	.46	.11	.02
18. Fussy	.35	.37	−.15
19. Lies	.15	.18	.57
20. Steals	−.10	.11	.50
21. Wets/soils	.06	.02	.32
22. Aches	.38	.02	−.06
23. Cries	.37	.06	.22
24. Speech	.35	.19	.08
Eigenvalue	2.73	2.62	2.51

Table III. Factor Analysis of Behavior Problems for Boys Aged 6–17

	Undercontrolled	Overcontrolled	School avoidance-conduct problems
1. Restless	.67	−.04	.06
2. Truants	.12	.06	.69
3. Fidgety	.59	.02	.09
4. Destroys	.49	.04	.25
5. Fights	.73	.08	.14
6. Disliked	.37	.35	.24
7. Worried	.05	.58	−.01
8. Solitary	−.11	.53	.13
9. Temper	.57	.22	.03
10. Tearful	−.01	.59	.25
11. Twitches	.12	.29	.00
12. Bites	.07	.45	.05
13. Sucks	.17	.32	−.04
14. Absent	.14	.10	.61
15. Disobeys	.56	.11	.37
16. Inattentive	.32	.40	.24
17. Fearful	.03	.26	.12
18. Fussy	.45	.26	−.09
19. Lies	.33	.13	.49
20. Steals	.24	−.05	.44
21. Wets/soils	.16	.02	.04
22. Aches	.04	.46	.07
23. Cries	−.11	.26	.36
24. Speech	.12	.36	−.05
Eigenvalue	2.98	2.29	1.87

Using procedures described above, additional analyses were done by splitting the sample according to sex (i.e., girls aged 6–17, and boys aged 6–17). In both cases, the scree test indicated that three or four factors could be extracted. For parsimony, we retained and rotated only three factors. In both cases, an Over- and an Undercontrolled syndrome emerged (see Table III). For boys, the first factor was Undercontrolled; it included items like *restless, fidgety, destroys own and others' things, fights, disliked,* and *disobeys.* The second factor was Overcontrolled and included items like *worried, solitary,* and *tearful.* The third factor involved school avoidance and conduct problems. It included *truants, absent for trivial reasons, disobeys, lies, steals,* and *cries.*

For girls, Overcontrolled emerged as the first factor with items like *worried, solitary,* and *tearful* (see Table IV). Undercontrolled was the second factor; it included items like *restless, destroys own and others' things, fights, disobeys, lies,* and *steals.* As with the boys, the girls' third factor involved school avoidance and conduct problems. It included *restless, truants, disliked, absent for trivial reasons, lies,* and *steals.*

Table IV. Factor Analysis of Behavior Problems for Girls Aged 6–17

	Overcontrolled	Undercontrolled	School avoidance-conduct problems
1. Restless	.26	.42	.31
2. Truants	.11	.09	.79
3. Fidgety	.21	.54	.11
4. Destroys	.18	.57	.08
5. Fights	.11	.63	.24
6. Disliked	.40	.30	.31
7. Worried	.64	−.02	.14
8. Solitary	.39	.14	.09
9. Temper	.43	.52	.10
10. Tearful	.72	−.01	.14
11. Twitches	.30	.18	−.09
12. Bites	.31	.07	.18
13. Sucks	.00	.33	−.01
14. Absent	.10	.03	.77
15. Disobeys	.13	.66	.24
16. Inattentive	.36	.28	.08
17. Fearful	.70	−.05	−.02
18. Fussy	.49	.16	.05
19. Lies	.13	.46	.39
20. Steals	−.10	.36	.40
21. Wets/soils	.00	.43	−.13
22. Aches	.31	.05	−.03
23. Cries	.40	.03	.29
24. Speech	.36	.20	.00
Eigenvalue	3.09	2.85	2.07

DISCUSSION

This study was designed to determine whether Over- and Undercontrolled syndromes often identified in factor analyses of American youngsters would be evident in the factor structure of Jamaican child behavior problems, as reported by teachers. The two syndromes did appear to be reflected in the factors identified for all groups of Jamaican youngsters studied here: 6- to 11-year-olds (both sexes combined), 12- to 17-year-olds (both sexes combined), boys aged 6–17, and girls aged 6–17.

Casting a critical eye on the factor findings, one could argue that (a) the item selection in the Jamaican checklist was more limited than on most American checklists (e.g., TRF—Achenbach & Edelbrock, 1986; BCP—Dreger et al., 1964), and that the factors identified here may have resulted in part from the use of the 24-item checklist, (b) the Jamaican samples were also smaller than those of many U.S. investigations, and (c) to better represent the syndromes of Jamaican clinic-referred children, more than one clinic in different sections of the island should be used in the sampling procedure.

Certainly an increment in the array of behavioral problem items on the Jamaican checklist (e.g., Achenbach & Edelbrock's, 1986, 118-item TRF) would provide a more comprehensive picture of Jamaican children's syndromes. The use of a more extensively itemed checklist that closely parallels those used in other cultures such as the United States could conceivably strengthen our inferences on cross-national similarities and/or differences. A larger sample would also increase one's confidence in the robustness of the findings.

In response to concerns about the size of the Jamaican sample in relation to samples used in American studies, it might be noted that the present sample could be regarded as more substantial, relative to the Jamaican population of 2½ million (see Praxton, 1988), than most U.S. samples have been, relative to the U.S. population. Regarding the third issue, it would certainly be appropriate and more scientifically appealing if more than one clinic were utilized. However, as noted earlier, the clinic from which we drew subjects is the only child treatment facility on the island. Thus, the sample could be seen as being particularly representative, since virtually all clinic-referred children in the country are referred to this clinic. On the other hand, it is possible that our sample included only a select group of those youngsters who live at some distance from the clinic (e.g., the more disturbed, or those whose families can affort to travel).

Two potentially important findings from the analyses are the emergence of the Over- and Undercontrolled factors and school avoidance factors across all groups. The item loadings on both Over- and Undercontrolled factors differ somewhat from those in U.S.-based research (e.g., Achenbach & Edelbrock, 1986). Overall, in interpreting the findings, it would be possible to emphasize either similarities or differences between the Jamaican patterns identified here and the patterns identified in other research in other cultures. For example, in the present findings, conduct problems appear on both the Undercontrolled and School factors, in contrast to the usual separation of such behavior elsewhere. On the other hand, several factor analyses have indicated that less serious and more serious conduct problems load on two separate syndromes. It may be argued that some of the specific differences between present and previous findings (including the emergence of the school avoidance factors) may be attributed to the item quantity and selection of the Jamaican checklist. The emergence of, and the similarities between, these Over- and Undercontrolled factors and those found in other cultures such as the United States are, however, striking.

Focusing on the school avoidance factors, one may argue that their emergence is artifactual. Two very similar items, *absent for trivial reasons* and *truancy,* appeared on the school avoidance factor across all groups. These items seem to have similar meaning and were strongly correlated with each other. They have the most substantial loadings on the school avoidance fac-

tors (i.e., ≥ .50). The items may therefore be measuring virtually the same construct, and their high correlation with one another may have led to the identification of unique factors on which both have high loadings. The other items that load on these factors (e.g., *cries* in children aged 6–11) differ slightly across the groups. It is possible that these additional nonschool item loadings resulted from largely random processes.

Another possible explanation is that the school avoidance syndrome does have considerable reality in Jamaica. It is the first author's experience as a former schoolteacher and guidance counselor in Jamaica that adults in that country place a high premium on education, but that school avoidance in Jamaican youngsters is nonetheless relatively common. In fact, in an earlier study of clinica referral problems, Jamaican parents of clinic-referred children reported school avoidance as the seventh most common problem associated with their children's referral for treatment (see Lambert, 1986). It may also be that the other items that load on the school avoidance syndrome for each group are indeed behavior problems that occur with school avoidance. For example, the occurrence of school avoidance and conduct problems in adolescents is believable. The first author's teaching experience in Jamaica suggested that school avoidance is often part of a cluster of problems involving antisocial acts such as *stealing* and *lying,* two of the problems that load on the School Avoidance Conduct-Problems factor for adolescents. For children aged 6–11, school avoidance appears to be a different phenomenon; the syndrome seems to have a depressive and/or anxious and inhibitory quality as evidenced by the loading of *cries* and *speech problems.* Taken together, the loadings for the school avoidance factors suggest that such avoidance may be associated with rebellion or acting-out in adolescents, but with depression, anxiety, or inhibition in younger children.

To summarize, the current study is the first effort we know of to use teacher ratings of Jamaican clinic-referred children to assess the factor structure of behavior problems in Jamaican youngsters. As such, the study adds a potentially useful Caribbean component to the growing body of research on the patterning of children's behavioral and emotional problems.

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