

The Utility of a Screening Instrument for Behavioral Problems of Children in Clinical and Community Samples

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A total of 1563 children were surveyed using the Connors Parent Teacher Rating Scale (C P T R S) in different clinical (N= 307) and community (N= 1256) samples. Although the C P T R S was found to be limited in its capacity to search for behavioral problems in school - aged children, this instrument was more effective in discriminating higher rates of behavioral problems in clinical and high risk samples (66%) in comparison to lower rates (22%) in community nonreferred children, particularly for preschoolers and younger children .

Our results are suggestive of a good discriminate validity of this instrument. The implications of further use of CPTRS in epidemiological research on Egyptian Children are discussed. (Egypt.J. Psychiat.,1992,15:89-95).

Introduction

Since the late 1960s hyperkinesis and conduct disorders have grown into one of the most popular diagnostic clinical concepts in child psychiatry and, as such, they have become a catchall. DSM-III-R (American Psychiatric Association, 1987) has expanded the category of disruptive behavior disorder which is composed of attention deficit hyperactivity disorder (ADHD) and conduct disorder (CD) to include milder forms, in addition to moderate and severe subtypes, thus more behavioral problems are included that would have not been included according to the previous DSM-III (American Psychiatric Association, 1980). However, the independence of the behavioral dimensions of hyperactivity (ADHD) and conduct disorder (CD) has been questioned by a number of researchers (Lahey et al. 1980, Quay, 1979, Sandberg et al. 1980).

Various estimates suggest that the hyperkinetic and conduct problem syn-

drome affects between 3 and 5% of the primary-school population (Wender, 1971) and up to 20% in U.S.A. depending on the varying socioeconomic status and countries. A conservative figures is that of 3% in British reports, and far less, as suggested by Rutter et al. (1970) of incidence of only 1 per 1.000 children in the Isle of Wight general population survey, with only 1.5% of nonretarded British psychiatric clinic attendants and 10.7% in a sample of community adolescents in U.S.A. (Kashani et al. 1987).

On the other hand, estimates of behavioral difficulties / problems and ADHD which have been reported in clinical samples of psychiatrically referred children tended to be higher than nonclinical community sample. For example, behavioral difficulties were reported in 58.5% of the presenting problems in Hooks et al. (1988) in addition to 4.1% with disruptive behavioral problems. ADHD in the Ontario Child Health Study (OCHS) ranged from 4.9% to 6.5% (Boyle et al. 1991, Offord et al. 1987), in adolescent with substance abuse disorder 23% (Milin et al. 1991),

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in suicidal attempters 9% to 31.6% in initial and follow-up assessments (Pfeffer et al. 1991), and 11% in psychiatric inpatient children and adolescents (Gabel and Shindledecker 1991). Moreover, follow-up studies of ADHD children have shown that a significant number of children with ADHD develop conduct disorder by adolescence (Cantwell, 1985, Gittelman et al., 1985, Weiss et al. 1985). Also, children with ADHD may have an associated conduct problems (Sutterfield and Schell, 1984). Clearly, behavioral problems appear commonly in the every-day psychiatric practice, even though expert researchers cannot agree on its exact frequency.

Meanwhile pediatrician rely upon clinical interview with children and their families to determine the presence and severity of childhood psychiatric and behavioral problems to guide treatment and evaluation. The Conners Parent-Teacher Rating Scale (CPTRS) has been widely used in research and clinical practice (Conners, 1969, 1970, El-Defrawi et al. 1990). El-Defrawi et al. (1992) in a reliability and validity study of this instrument recommended further studies and encouraged its use in screening for psychiatric and behavioral problems in children and adolescents.

Since the psychiatric assessment using CPTRS represents an approach which is becoming increasingly popular in child mental health, it is important to assess the utility and discriminant validity of data obtained with an array of applications. In nonclinical community samples of children such as those targeted within psychiatric epidemiology, it is of special interest to determine whether the CPTRS can provide a reasonable method of detection of similar rates of behavioral problems in children in community samples and subsamples, and even a higher rates in high risk children who are currently maladjusted. A second concern in the epidemiological study of behavior problems involves the ability of the scale to generally characterize the behav-

ioral pattern of a particular target population. In the case of a sample drawn from the general population, for example, the data derived from parental reports should be closely resemble patterns within national norms or similar to other findings in similar studies.

We report here results from studies completed within normal nonreferred samples of young preschool and school-aged children in comparison to clinical samples of psychiatrically referred preschoolers and older children using data from parents, teachers, psychiatrists and pediatricians reports of behavior problems.

Subjects and Method

Three systematic random samples of nonreferred nonclinical community children including preschool (N=428), school aged children (N=653), and a heterogenous sample including both age groups (N=175) (Zeitoun et al. 1992, El-Defrawi and Sarhan, 1992) were assessed physically and psychiatrically. Children were medically free of psychosomatic, chronic or infectious physical disorders.

The clinical samples consisted of two age groups of preschool (N=100) and school-aged (N=207) children referred to a child psychiatry clinic for evaluation, consultation, and treatment.

The general procedures for assessment were similar for different ages, samples, and subsamples. Parents, teachers, pediatricians and psychiatrists were asked to rate the children on the 10-item rating scale (CPTRS) to describe the behavior of the children cases in clinical and nonclinical samples were diagnosed through a semistructured interview. The history and details of the present study are provided by El-Defrawi and Mahfouz (1992), El-Defrawi et al (1992), El-Defrawi and Fathy (1992), El-Defrawi, (1992), Zeitoun et al. (1992), and El-Defrawi and Sarhan, (1992).

The aim to have an equal number of "cases" and "noncases" was difficult to achieve.

A total score of 15 points or more on the CPTRS was used as the cut off level to discriminate between normal and deviant behavior. Chi-Square statistical test was used in the analysis of data.

Results

A total of 1563 children were assessed including 1256 (80.3%) normal nonreferred community children and 307 (19.7%) psychiatrically referred children and adolescents. In the clinical sample aged ranged from 6 to 18 years for the school - aged children and 3 to 6 years in the preschoolers samples.

Table (1) shows the distribution of percentages of behavioral problems in clinical vs. community samples using Conners Parent Teacher Rating Scale (CPTRS). In the preschool clinical sample, those scored positively on the CPTRS include ADHD, disruptive behavior disorder, and oppositional defiant disorder.

χ^2 Statistical analyses revealed that the Conners scale significantly differentiated cases from non-cases in the clinical and community samples ($\chi^2= 64.4$,

$P<0.05$) of preschool children. However, in the school - age children sample the Conners scale was not as discriminative as in the younger preschool samples ($\chi^2= 0.76$, $P>0.05$).

Discussion

At the outset it should be noted that there are some methodological limitations in the present study that will influence the conclusion could be this partly due to its place as a step in a series of investigations. Both Anderson et al. (1987) and McGee et al. (1990) have presented prevalence data for mental health disorders at age 11 and 15 years respectively. The aim of the present study was not to report two new sets of prevalence figures. Rather, the aim was to investigate the prevalence of the mental health disorders in preschool, school - age children, and adolescents in different clinical and nonclinical nonreferred samples using the same methodology of psychiatric assessment including a simple brief rating scale. One strategy open to us was to simply examine prevalence changes based upon the different methodologies described in those two original papers.

Table 1
Percentages of Prevalence of Behavioral Problems in Clinical vs. Community Samples Using the Conners Parent Teacher Rating Scale (CPTRS)

Sample Age group	Clinical Sample						Community Sample					
	* Cases		Non Cases		Total		Cases		Non Cases		Total	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Preschool** Children	66	(66)	34	(34)	100	(100)	102	(24)	326	(76)	428	(100)
School - aged Children	52	(25)	155	(75)	207	(100)	145	(22)	508	(78)	653	(100)
Mixed group of Children	--	--	--	--	--	--	35	(20)	140	(80)	175	(100)

* Caseness defined as the presence of DSM-III-R diagnoses.

** Statistically significant differences, $\chi^2= 64.4$, $P<0.05$.

However, Rutter (1989) has emphasized the importance of having comparable measures and procedures across different ages, communities, samples, and subgroups to study such prevalence differences, and this approach was adopted in the present study.

Our results have shown disruptive behavioral problems identified by the CPTR scale in the clinical preschool sample (66%), i.e., about three times as much as those picked up by the same instrument in similar age groups in community samples. $X^2 = 64.4$, $P < 0.05$. On the other hand the numbers of problematic school - aged children in the clinical sample are not very different $X^2 = 0.76$, $P > 0.05$ from those school - aged children in the community (25% vs 22%).

Estimates of the prevalence of mental health disorders in preadolescents range from about 7% in the Rutter et al. (1970) Isle of Wight study, to 14% in the Connell et al. (1982) study of Queensland (Australia) children, to 19% in the Miller et al. (1974) study of children in New Castle (U.K.) to 25% in the Inner London Borough Study of Rutter et al. (1975). These estimates were based upon samples of children aged about 10 to 11 years old. Investigations of adolescent samples suggest a comparable range of estimates. For example, Leslie (1974) estimated that about 21% of 13 to 14 years old in Blackburn (U.K.) had a disorder, where as Rutter et al. (1970) suggested that about 8% of 14 to 15 years-old in a follow up on the Isle of Wight study had a disorder. However, the latter study also provided a corrected estimate of 21% with disorder. These figures suggest that a significant proportion of both preadolescent and adolescent children have emotional and / or behavioral disorders. There is, however, little research to indicate the extent of prevalence of psychiatric problems in clinical and nonclinical samples of Egyptian children and adolescents.

Overall, there was a clear increase in the prevalence of behavioral problems re-

ported and detected in clinical samples and disadvantaged subgroups. The results of this study confirm and extend the original findings of Boyle and Offord (1987), in suggesting an increase problems and disorders among preschool and school - aged psychiatrically disturbed children. The CPTRS seem to be more effective at identifying these preschool children than school-aged children.

In other words, discriminant validity of CPTRS appears to be in the range of acceptance. i.e., good. Discriminant validity assesses whether the instrument appropriately differentiate samples known to have high and low rates of mental disorders. A question to be posed but perhaps not answered concerns the specificity and sensitivity of this instrument.

Our data suggest that CPTRS has an extended validity and utility in differentiating behavioral problems in different samples as expected.

These differences raise the important question as to whether current status of the mental health services directed for the care of psychiatrically disturbed children is enough and can provide adequate and optimal planning with therapeutic intervention.

In conclusion, Conners Parent Teacher Rating Scale (CPTRS) appears to be a good valid and reliable instrument. Pediatrician and psychiatrists should be encouraged to use this instrument in their screening practice and research. Further studies need to be continued to compare CPTRS with other instruments and different high - risk subgroups of children.

Cross - sectional surveys are efficient because all measurements are taken at a single occasion. Given adequate measurement and sampling methods, cross - sectional surveys provide efficient means for addressing a number of important administrative and scientific issues. For examples these surveys are able to reveal potential problems in the delivery of mental health and social services such as

geographical inequities in the allocation of services (Boyle and Offord, 1988) and mismatches between the need for and use of services (Offord et al. 1987, Boyle, 1990), they are able to identify groups of children at high risk for disorder so that needed service may be targeted more accurately (Offord et al. 1989, a) and they are able to generate hypotheses about the cause of disorder by way of correlation analyses (1989, b).

However, adding both clinical samples together to form a mixed age group, behavioral problems becomes 45.5% i.e., twice as much as the behavioral problems in the mixed group of children in the Community sample (20%).

Overall, there was a clear increase in the prevalence of behavioral problem reported and detected in clinical samples. These results confirm and extend the original findings of Conner (1969, 1969) and El-Defrawi et al. (1992) of a good discriminate validity of CPTRS. Discriminate validity assesses whether the instrument appropriately differentiates samples known to have high and low rates of behavioral disorders. A question to be posed but perhaps not answered concerns the utility of this scale in older age group children and adolescents because of the wider range of behavioral problems exhibited by adolescents and preadolescents.

References

- American Psychiatric Association (1980) *Diagnostic and Statistical Manual of Mental Disorders*. Third Edition. Washington, D.C.: APA.
- (1987) *Diagnostic and Statistical Manual of Mental Disorders*. Third Edition. Revised Washington D.C.: APA.
- Anderson, J.C., Williams, S., McGee, R., and Silva, P.A. (1987) DSM-III disorders in preadolescent children: prevalence in a large sample from the general population. *Arch. Gen. Psychiat.*, **44**: 64-76.
- Beitchman, J.H., Christie, W., and Hood, J. *Amer. Acad. Child Adolesc Psychiat.*, **25**: 694-699.
- Boyle, M.H. and Offord, D.R. (1988) Prevalence of childhood disorder, perceived need for help, family dysfunction and resource, allocation for child welfare and children's mental health services in Ontario. *Canad. J. Behav. Scien.*, **20**: 374-488.
- (1990) Children's mental health Issues. In: *Children, Families and Public Policy in the 90's* Ch. 3 L. Hohnson Educational Publishing Inc.
- Offord, D.R., acine, Y.A., and Catlin, G. (1991) Ontario child health study follow up: Evaluation of sample *J. Amer. Acad. Child Adolesc. Psychiat.*, **30**: 449-456.
- Cantwell, D.P. (1972) Psychiatric illness in the families of hyperactive children, *Arch. Gen. Psychiat.*, **27**: 414-417.
- (1984) The attention deficit disorder syndrome. Current knowledge, future needs. *J. Amer. Acad. Child Adolesc. Psychiat.*, **32**: 315-318.
- Connell, H.M., Irvine, L., and Rodney, J. (1982) Psychiatric disorder inQueensland Primary School Children. *Aust. Paediatr. J.*, **18**: 177-188.
- Conners, C.K. (1969) A teacher rating scale for use in drug studies with children. *Amer. J. Psychiat.*, **126**: 152-156.
- 1970) Symptom patterns in hyperkinetic, neurotic, and normal children, *Child Develop.*, **41**: 667-682.
- El-Defrawi, M. H., Mahfouz, R., and Ragab, L. (1992) A reliability and validity study of a rating scale for attention deficit hyperactivity disorder in Egyptian children and adolescents. *Egypt. J. Psychiat.*, **15**: 40-47.
- , ----- (1992) Psychiatric problems of school-age children and adolescents in a child psychiatry clinic in Suez. *Egypt. J. Psychiat.*, **15**: 59-67.
- and Fathy, H. (1992) Psychiatric correlates of under-nutrition in children aged 9-11 years in Port-Said City. *Egypt. J. Psychiat.*, (in Press).

- (1992) Psychiatric disorders in a sample of Egyptian preschool children. *Egypt. J. Psychiat.*, **15**:135-147.
- Atef, A., Ragab, L., and Sobhy A.S. (1992) Parent-child interactions and child abuse in rural and urban population in Ismailia, Port - Said and Suez governorates. *Egypt. J. Psychiat.*, (in Press).
- and Sarhan, Z.A. (1992) Behavioral problems reported by parents in medically referred children and adolescents (in preparation).
- Hooks, M.Y., Mayes, L.C., and Volkmar, F.R., (1988) Psychiatric disorders among preschool children. *J. Amer. Acad. Child Adolesc. Psychiat.*, **27**: 623-627.
- Gabel, S., and Shindeldecher, R., (1991) Aggressive behavior in youth: Characteristics, outcome, and psychiatric diagnoses. *J. Amer. Acad. Child Adol. Psychiat.*, **30**: 982-488.
- Gittelman, R., Mannuzza, S., Shenker, R., and Bonagura, N. (1985) Hyperactive boys almost grown up. *Arch. Gen. Psychiat.*, **24**: 937-947.
- Kashani, J.H., Hooper, E., W., Beck, N.C., Corcoran, C.M., Fallahi, C., McAllister, J., Rosenberg, T.J., and Reid, J. (1987) Personality, Psychiatric disorders, and parental attitude among a Community Sample of adolescents. *J. Amer. Acad. Child Adolesc. Psychiat.*, **28**: 879-885.
- Lahey, B., Green, K.D., and Forehand, R. (1980) On the independence of ratings of hyperactivity, Conduct problems, and attention deficits in children, a multiple regression analysis. *J. Consult. Clin. Psychol.*, **48**: 566-574.
- Leslie, S.A., (1974) Psychiatric disorder in the young adolescents of an industrial town. *Brit. J. Psychiat.*, **125**: 113-124.
- Milin, R., Halikas, J. A., Meller, J.E., and Morse, C. (1991) Psychopathology among substance abusing Juvenile offenders. *J. Amer. Acad. Child Adolesc. Psychiat.*, **30**: 569-574.
- Miller, F.J.W., Court, S.D.M., Krox, E.G., and Brandon. S. (1974) The School Years in Newcastle upon Tyne. London: Oxford University Press.
- McGee, R., Feehan, M., Williams, S., Partridge, F., Silva, P.A., and Kelly, J. (1990) The prevalence of DSM-III disorders in a large samples of adolescents. *J. Amer. Acad. Child Adolesc. Psychiat.*, **29**: 611-619.
- Offord, D.R., Boyle, M.H., and Racine, Y.A., (1989, a) *Children at Risk*. Toronto: Ontario Ministry of Community and Social Services.
- Fleming, J.E., Munroe Blum, H., and Rae-Grant, N.I. (1989, b) Ontario's Child Health study: summary of selected results. *Canad. J. Psychiat.*, **34**: 483-491.
- , Boyle, M.H., Szatmari, P. (1987) Ontario child health study. II Six-month prevalence of disorder and rates of service utilization. *Arch. Gen. Psychiat.*, **44**: 826-831.
- Pfeffer, C.R., Klerman, G., Hurt, S., Lesser, M., Peskin, J. R., and Siefker, C.A., (1991) Suicidal children grown up: Demographic and Clinical risk factors for adolescent suicide attempts. *J. Amer., Acad. Child Adolesc. Psychiat.*, **30**: 609-616.
- Quay, H.C. (1979) Classification. In: *Psychopathological Disorders of childhood* 2nd edition. H.C. Quay and J.S.Werry (eds.) New York: Wiley and Sons.
- Rutter, M., Lizard, J. and Whitmore, K., (1970) *Education, Health, and Behavior: Psychological and Medical Study of Childhood Development*. London and New York: Longman Group and John Wiley and Sons.
- Cox, A., Tupling, C., Berger, M., and Yule. W. (1975) Attainment and adjustment in two geographical areas. I. The prevalence of psychiatric disorder. *Brit. J. Psychiat.*, **126**: 493-509.
- Tizard, J., Yule, W., Graham, P., and Whitmore K., (1979) Isle of Wight studies 1964-1974. *Psychol. Med.*, **6**: 313-332.
- (1989) Isle of Wight revisited: twenty-five years of child psychiatric epidemiology. *J. Amer. Acad. Child Adolesc. Psychiat.*, **28**: 633-653.

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- Tizard, J., and Whitmore, K. (1970) *Education, Health and Behavior*. London: Longman.
- Sandberg, S.T., Wieselberg, M., and Shaffer, D.C. (1980) Hyperkinetic and conduct problem children in a primary school population: Some epidemiological considerations. *J. Child Psychol. Psychiat.*, **21**: 293-311.
- Sutterfield, J.H. and Schel, A.M. (1984) Childhood brain function differences in delinquent and nondelinquent hyperactive boys. *Electroencephalogr. Clin. Neurophysiol.*, **57**: 199-207.
- Weiss, G., Hechtman, L., Milroy T., and Perlman, T. (1985) Psychiatric status of hyperactive adults: a controlled prospective 15-year follow-up of 63 hyperactive children. *J. Amer. Acad. Child Adolesc. Psychiat.*, **24**: 211-220.
- Wender, P.H. (1971) *Minimal Brain Damage in Children*. New York: Wiley.
- Young, J. G., O'Brien, J.D., Guterman, E., M., and Cohen, P. (1987) Research on the clinical interview. *J. Amer. Acad. Child Adolesc. Psychiat.*, **26**: 613-620.
- Zeitoun, A. and El-Defrawi, M. H. and Abdel Salam, Z. (1992) Screening medically and Psychiatrically referred children for behavioral problems. (in preparation) M.D., Lecturer of Pediatrics.

L'Utilité d'un Instrument pour Dépister les Problèmes de Conduite dans un Groupe d'Enfants Présentant en Clinique et dans la Communauté

Un groupe de 1563 enfants a été sondé à l'aide de l'échelle, parents, instituteurs, de Connors CPTRS. Cet instrument d'évaluation a pu délimiter un taux plus élevé de trouble de conduite dans le groupe clinique et le groupe à risque (66%) relativement à un taux plus bas (22%) dans le groupe communautaire non consultant, surtout pour les enfants d'âge préscolaire. Nos résultats suggèrent que cet instrument possède une bonne validité discriminative. Les implications relatives à l'utilisation du CPTRS dans d'autres études épidémiologiques concernant les enfants Egyptiens est discutée.

نفاية أداة لمسح الاضطرابات السلوكية في الأطفال

من خلال عينات إكلينيكية وأخرى من المجتمع

استعرض الباحثان مدى فائدة ونفاية مقياس كونرز للوالدين والمدرس في مسح عينات من الأطفال يبلغ عددها ١٥٦٣ طفلاً لقياس مدى تواتر الاضطرابات السلوكية في المجموعات المختلفة. وقد أظهرت النتائج أن هذا المقياس يتميز بصلاحيته للتفريق بين التواترات العالية للإضطرابات السلوكية في الأطفال في العينات الإكلينيكية بالمقارنة بنسبة التواترات المنخفضة في عينات من الأطفال العاديين في المجتمع وخصوصاً في الأطفال في سن ما قبل المدرسة. وتناقش الدراسة إمكانية تطبيق هذا المقياس في الدراسات المسحية المختلفة للأطفال في

مصر.