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## Issues in the identification of comorbidity of mental retardation and psychopathology in a multicultural context

Accepted: 27 August 1998

**Abstract** Identification of the comorbidity of mental retardation and psychopathology in a multicultural setting raises manifold difficulties. The present study explored the sampling and identification issues implicated in estimating the prevalence of this dual diagnosis in a South African clinic sample. The relations between the prevalence of dual diagnosis and socioeconomic status, gender, and severity level of retardation were investigated. The detection rate of 4.36% was significantly lower than that of other studies. Prevalence was found to be greater in areas of high socioeconomic status, among males, and among less severely retarded individuals. Implications of these findings for cross-cultural studies and for allocation of service resources for patients with dual diagnosis are considered.

### Introduction

In recent years, there has been growing recognition of comorbidity of mental illness in the population of chil-

dren with mental retardation, supporting the validity of making a dual diagnosis (Nezu 1994). Epidemiological studies of comorbidity have yielded varying estimates, probably due to sampling and identification issues (Borthwick-Duffy 1994). Definitions of mental retardation vary with the manifold classification systems, which are used in isolation, in combination, or in modified form across agencies (Lowitzer et al. 1987; Borthwick-Duffy 1994). Referrals reflect variations in agency availability and accessibility, and prevalence rates tend to be lowest for studies based on agency-defined samples, ranging between estimates of 10% to 15%. Similarly, studies fluctuate in the psychiatric disorders encompassed (Borthwick-Duffy 1994), with some including only entities delineated in general taxonomies (Reiss and Valenti-Hein 1994) and others utilizing signs of maladaptive functioning (Menolascino 1990). Mental retardation and mental illness may be confounded, for example, with low IQ scores resulting from psychiatric disorder, or with diagnostic overshadowing in which emotional problems are attributed to the retardation rather than identified as etiologically distinct (Reiss et al. 1982). Additionally, the possible interaction of identification issues with sampling variations compounds the difficulty.

The present study highlights these multifarious sampling and identification issues in the examination of dual diagnosis prevalence in a multicultural clinic sample in South Africa. South African mental health services have historically been divided by discriminatory inequalities, and the emphasis on redressing this legacy on the basis of informed data has long been recognized (Lachman and Stander 1990).

The study was based on clinic data obtained at the Red Cross Hospital Development Unit in Cape Town, South Africa. Clinic data is an acceptable sampling technique, although it may be problematic in terms of inclusion criteria such as the perceived need and accessibility of state service agencies (Borthwick-Duffy 1994). The present data have broad boundaries of inclusion, as the Development Unit is the sole regional outpatient

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governmental institution for the assessment of individuals with mental retardation, aiming to service all population sectors. Referrals are received from personnel of outlying hospitals, community health clinics and schools, and from general practitioners and pediatricians (Molteno 1990). The clinic is centrally located in the heart of Cape Town and is easily accessible by public transport from all surrounding areas. Within this wide geographical perimeter, almost all suspected cases of mental retardation are referred to this highly specialized unit across the multicultural population. Fees are not charged for the assessment procedure, subsequent to which individuals may be treated at the clinic or allocated to different treatment facilities. The unit serves a diverse spectrum of economic strata, cultures, and ethnic groups, which enhances representativeness of the data and potentiates cross-strata and cross-cultural analyses.

The present study proposed four hypotheses concerning the identification rate of comorbidity in this South African sample. The first hypothesis predicted a higher prevalence of individuals with dual diagnosis than that reported in previous clinic data studies, due to the unique focal nature of the clinic and inclusivity of all sectors of the regional population.

The second hypothesis predicted higher dual diagnosis prevalence among patients with low socioeconomic status, that is, black and colored patients residing in economically deprived areas. Past apartheid policies entailed economic wealth divisions in South Africa along racial lines, such that black and colored communities have lived traditionally in relative social deprivation in predefined residential areas, while whites have been afforded separate and more affluent living conditions (Cook 1991). Despite the rescinding of the Group Areas Act, past segregation policies have perpetuated the schisms along parallel racial and socioeconomic lines, such that economically deprived conditions have perpetuated class divisions and ethnic insularity (Wolpe 1988). This has resonated in the confounding of identification of mental retardation and socioeconomic status, with children with mild mental retardation from areas of low socioeconomic status frequently escaping diagnosis (Slone et al. 1998). We expected, therefore, that referral of children with mental retardation from areas of low socioeconomic status would be based on manifest or high-impact behavioral disorder.

Gender has been found to have no association with dual diagnosis prevalence (Borthwick-Duffy and Eyman 1990; Iverson and Fox 1989). Therefore, the third hypothesis stated that there would be no gender differences in comorbidity.

The fourth hypothesis predicted decreased dual diagnosis prevalence with increased severity of mental retardation, since individuals with mild mental retardation participate to a greater extent in mainstream society and would manifest a wider variety of behavior disorders associated with social interaction. By contrast, individuals with severe mental retardation may be expected to display more bizarre and infrequent behav-

ioral symptomatology. This has been borne out by previous studies, which have found high rates of referrals based on behavioral disturbance and a positive relation between intellectual level and the presence of psychopathology (Borthwick-Duffy and Eyman 1990; Iverson and Fox 1989; Jacobson 1982).

## Subjects and methods

### Subjects

The sample consisted of 1101 patients diagnosed with mental retardation, comprising the total number of patients with this disorder referred to the Developmental Unit during the 4-year period 1990–1993. Of the total sample, 457 were mildly mentally retarded, 474 were moderately mentally retarded, and 170 were severely mentally retarded. In terms of ethnic group, 98 subjects were white and 998 were either black or colored. These population criteria were not documented for five subjects. Of the sample whose gender was recorded, 610 were male and 471 were female. The age of the sample ranged from 11 months to 17 years, with a mean age of 3.85 years and a standard deviation of 2.7 years. Data regarding age and ethnic distribution of the research sample are presented in Table 1.

### Assessment measures

The ethnically mixed and multi-stratified composition of patients attending the Developmental Unit necessitated the use of assessment procedures that were as inclusive and culture-free as possible. Therefore, the categorization of mental retardation and the diagnosis of psychological disorder were based on a number of objective measures and assessments by a multi-professional team.

### Mental retardation

Due to the difficulties in administering intelligence tests in a multicultural context and cognizance of the culturally biased nature of such tests (Anastasi 1968; Sen 1991), a single IQ test was not considered sufficient. Therefore, the diagnosis and categorization of mental retardation was based on several assessment measures by a multidisciplinary team. Standardly, all children presenting to the clinic from all referral agencies were examined by a pediatrician to determine physical and neurological status. Thereafter, a full Griffiths Developmental Scales was administered and standard developmental quotients were used for broad categorization, i.e., mild, 50–74; moderate, 30–49; severe, < 30.

The Griffiths Developmental Scales of Mental Development, which was constructed in Great Britain, constitutes a comprehensive test of intellectual functioning, covering broad areas related to the natural, non-laboratory environment. Items divide into six subscales (Locomotion, Personal-Social, Hearing and Speech, Eye and Hand Coordination, Performance, and Practical Reasoning) yielding both global and subscale developmental quotients. All skills are equally represented at all age levels under the subscales, enabling profile analysis of any child at any age. Test-retest reliability coefficients for British samples range from  $r = 0.77$  to

**Table 1** Age structure and ethnic distribution of the sample

	White	Black and colored
Pre-school: below age 5	98	984
Primary school: 6–11 years	0	14
Adolescence: 12–17 years	0	2

Missing values: 3

$r = 0.87$  (Griffiths 1970). The test has been adapted for use in several countries, including Canada, Columbia, Lebanon, Germany, and France and is considered to be culturally fair (Griffiths 1984). In South Africa, the test has been translated into Afrikaans and several Black languages, and its usefulness in the assessment of South African black, Indian, colored and white children has been demonstrated (Allan et al. 1992). Cross-validation studies between typical British and South African samples without mental retardation have yielded no significant differences in performance (Allan et al. 1992).

In light of the multicultural, multistrata, and multilingual nature of the referred population, caution is standardly exercised in the diagnosis of mental retardation with all its attendant implications. Thus, although performance on the Griffiths served as the major indicator of impairment, the assessment was augmented by an evaluation in other domains of adaptive functioning. A speech therapist assessed expressive and receptive language skills in the child's home language, and an occupational therapist assessed visuomotor integration and gross and fine motor coordination by means of the Beery-Buktenica Developmental Test of Visual Motor Coordination (Beery 1982).

The data collected during the assessment procedure for each child was presented by the relevant professionals at the agency's weekly multidisciplinary team conference. Contributions from each data source were discussed and a final diagnosis and severity were determined on the basis of consensus of team members. The same diagnostic procedure and criteria were utilized for all children referred to the clinic, and these remained consistent over the 4-year period of the study, despite changes in the AAMR's definition of mental retardation (Luckasson et al. 1992).

### Psychopathology

During the data collection period in the research, all children presenting to the clinic who received a diagnosis of mental retardation were referred for further investigation to the clinical psychology team in the unit. Psychiatric assessment was based on a full standardized intake procedure with the Maudsley interview schedule, which has been used successfully in the unit in view of its culture-free efficiency. The interview schedule involves data collection in the categories: identifying data, reason for referral, presenting problems and features, family history, and personal history. This intake data is collected using as many family and individual clinical interviews as necessary. The schedule also involves a Mental State Examination conducted during the individual interview with the child.

During the clinical interviews, particular attention was focused on determination of the presence and severity of the eight behaviors identified by Borthwick-Duffy and Eyman (1990) as key indicators in the prediction of dual diagnosis: depression, aggression, self-injury, resistive behavior, running away, temper tantrums, adjustment to social relationship changes, and socially inappropriate behavior. However, in the present sample, the widespread presentation of two additional maladaptive behaviors was noted – impulsivity and hyperactivity – and these were afforded the same investigative attention given to the eight behaviors identified by Borthwick-Duffy and Eyman (1990). For patients of kindergarten and school-going age, protocols of social behavior and reports of emotional or behavioral difficulties manifesting at school were obtained from teachers. The entire assessment procedure was conducted in the child's home language.

Each case formulation was presented at the psychiatric team conference, where a decision was taken regarding the presence of psychological disorder and a final diagnosis was determined, based on deviation from normative behavior observed in similar-aged children with equivalent levels of mental retardation. All diagnoses were based on DSM-III-R criteria, which was in use over the 4-year period of the study.

The following vignette illustrates the assessment procedure:

*S* was a 5-year-old black boy who lived with his mother, grandmother, and two younger sisters in a small house in Gugu-

letu. His mother worked as a maid in a house in Cape Town and returned home only on weekends. *S* was referred to the Development Unit by the doctor of the outreach clinic in the area as a result of his grandmother's complaints of his uncontrollable behavior, temper tantrums, constant agitation, and inability to complete tasks.

On referral to the unit, *S* was examined by a pediatrician, who found no major pathology alerting to illness or physical disorder. The Griffiths was administered and yielded a score of 70. Assessment by the speech therapist evidenced some articulation difficulties and language developmental delay. Performance on the Beery-Buktenica test, administered by the occupational therapist, evidenced some gross and fine motor coordination difficulties. In addition, the occupational therapist noted significant experiential poverty.

Reports from this intake battery were presented at the weekly team conference, where discussion included consideration of the relative contribution of environmental deprivation to the findings. A final diagnosis of mild mental retardation was given and a management program was planned.

The family were then referred to the psychiatric team for assessment. Individual and family clinical interviews were conducted using the Maudsley interview schedule, with particular attention focused on pervasiveness and severity of the high-impact presenting symptoms, and the case was presented at the weekly psychiatric team meeting. *S* met DSM-III-R criteria for ADHD, and this diagnosis was confirmed at the meeting, where a treatment strategy was constructed.

In this way, the assessment procedures for mental retardation and psychological disorder were relatively independent, although there occurred some overlap as a result of cross-consultation of the professional staff. Fortunately, the entire multidisciplinary and multicultural team dealing both with mental retardation and with psychopathology remained unchanged over the 4-year duration of the study. For purposes of the research, final diagnoses from both assessment procedures were entered into a database from which statistics of comorbidity were determined.

### Results

Of the total sample of patients with mental retardation, 48 were diagnosed as also manifesting psychopathology. In comparison to previous estimates based on both random samples and clinic data, this 4.36% dual diagnosis was exceptionally small.

Prevalence rates of dual diagnosis by age group are reported in Table 2, a two-way contingency table.

The findings showed a highly significant age difference in dual diagnosis, with the majority of cases occurring in the youngest age group [ $\chi^2(2) = 58.87$ ,  $P < 0.001$ ].

A two-way frequency distribution for the detection of comorbidity by population group is reported in Table 3. The findings indicate that few black and colored patients from areas of low socioeconomic status manifested a dual diagnosis in comparison with white

**Table 2** Prevalence rates of dual diagnosis by age group

	White	Black and colored	Percentage per age group
Preschool: below age 5	8	33	85.41%
Primary school: 6–11 years	1	4	10.42%
Adolescence: 12–17 years	0	2	4.17%

**Table 3** Frequency of dual diagnosis by population group

	Mental retardation	Dual diagnosis	Total
White	89 (90.82%)	9 (9.18%)	98
Black and colored	959 (96.09%)	39 (3.91%)	998
Total	1048	48	1096

patients [ $\chi^2(1) = 5.93, P < 0.05$ ]. These findings conflict with our predictions. Since mental retardation tends to be conflated with socioeconomic deprivation, we expected the manifest behavioral disorder to prompt referral for treatment. Consequently, we anticipated a higher proportion of mentally retarded patients of low socioeconomic status to be assigned a dual diagnosis.

A similar two-way frequency table for the detection of dual diagnosis by gender is reported in Table 4.

The results of a chi-square analysis indicated that there were significant gender differences in dual diagnosis, with a higher prevalence of dual diagnosis among males than among females [ $\chi^2(1) = 5.55, P < 0.05$ ].

Regarding the third hypothesis, increased severity of mental retardation was associated with a lower prevalence of dual diagnosis. Of the 48 patients presenting with dual diagnosis, 30 (62.5%) suffered from mild mental retardation, 17 (35.4%) suffered from moderate mental retardation, and 1 (2.1%) was diagnosed with severe mental retardation. Thus, the prevalence of dual diagnosis for the categories mild, moderate, and severe mental retardation was 6.6%, 3.6%, and 0.6% respectively.

## Discussion

The current study presents findings from cumulative clinic referrals regarding the presence of psychopathology among referred children diagnosed with mental retardation. In addition to the specific cultural backdrop, the design entailed a sample derived from an ethnically diverse and relatively representative, central outpatient clinic population, suggesting generalizability to other pediatric multicultural centers.

The first hypothesis, predicting higher comorbidity than reported clinic data studies, was not supported. This could plausibly be explained in two ways. First, significantly lower presentation of comorbidity may re-

flect a real difference in prevalence rates in South Africa as opposed to estimates for other populations. Rigid past apartheid structures have produced population parameters with distinctive characteristics, which may underly a spectrum of cultural differences in perceptions of both disorder entities. Second, it is probable that sampling and identification methods of mental retardation and psychopathology differ across studies. Although the use of agency databases is an acceptable sampling technique (Borthwick-Duffy 1994), the nature of our clinic data was relatively unique in its multicultural and socioeconomic composition. In addition, an outpatient clinic would a priori preclude the most severe manifestations of both mental retardation and psychopathology necessitating institutionalization.

The most plausible explanation for the significant age differences in prevalence of comorbidity is the loading of referred cases in the age category below 5 years. The nature of the clinic data did not allow for equal sampling from all age categories, obviating controlled comparisons of prevalence by age.

The second hypothesis, predicting higher detection rates of dual diagnosis in areas of low socioeconomic status, was not confirmed, with results showing higher prevalence from areas of high socioeconomic status. A possible explanation may stem from the abject poverty of the areas of low socioeconomic status. Cultural and/or socioeconomic variations in the perceived impact of behavioral disturbance and lack of community detection services, compounded by the possibility of underqualified medical and paramedical professionals, may have raised the threshold for referral.

The third hypothesis predicted no gender differences in dual diagnosis. This was not supported, with higher comorbidity prevalence among males than females. This may be indicative of a particular constellation of comorbidity in South Africa or in the clinic sample. The finding is also congruent with the implications of DSM-IV documentation of higher prevalence of both mental retardation and certain behavior disorders among males than among females. In addition, isolated studies have found that gender may interact with behavior disorder among people with mental retardation (Koller et al. 1983).

The fourth hypothesis of a positive relation between severity of mental retardation and pervasiveness of psychopathology was supported, in line with the findings of previous studies (Borthwick-Duffy and Eyman 1990; Iverson and Fox 1989; Jacobson 1982). There was only one case of dual diagnosis among the severely retarded population, manifested by unmanageable behavior causing significant individual and familial distress. However, this result must be interpreted with caution, as the sample is restricted on the basis of its derivation from an outpatient clinic, which encounters a lower frequency of children with severe retardation than an inpatient unit. Further, the likelihood for institutionalization is even greater for children with severe retardation who display psychological disorder of sufficient

**Table 4** Frequency of dual diagnosis by gender

	Mental retardation	Dual diagnosis	Total
Male	575 (94.26%)	35 (5.74%)	610
Female	458 (97.24%)	13 (2.76%)	471
Total	1033	48	1081

impact to warrant a dual diagnosis. These limitations in sample presentation focus the complexity of equating sample inclusivity in comparative prevalence research.

The present findings suggest economic and/or cultural biases in identification rates of comorbidity of mental retardation and psychopathology, which are open to several interpretations. Subsistence status in the black population could account for lowered referral rates. If biases are prompted by referral difficulties, these may lie in reduced accessibility of identification sources who would refer to the clinic, or to differing referral patterns through other practitioners. The immediate ramifications of this would be to identify referral sources for the various communities and economic strata and to implement "outreach" programs for target sources aimed at enhancing awareness and expertise among professionals.

Cultural or socioeconomic biases may also promote differential thresholds for referral of children with dual diagnosis. There could be a perception among families in deprived circumstances that children with mental retardation and psychiatric difficulties will be institutionalized, tending toward a wish to protect their children from such consequences. The implications of this would be to disentangle resistance to intervention attempts in underprivileged populations from real community needs, and to address these by means of culturally sensitive programs. The present study cannot tease out the sociological mechanisms underlying these referral biases. However, it represents an overdue initial attempt to investigate the domain in an orderly manner in South Africa, as the dark legacy of apartheid dissipates.

The nexus of different sampling and identification definitions and techniques presents an obstacle to the extension of prevalence rate expectancies across different populations and cultures. An initial inroad into this difficulty lies in the formulation of universally acceptable definitions of both mental retardation and psychiatric disorder and the boundaries of their comorbidity. The delineation of transferable cross-population sampling techniques represents a challenge of greater complexity. Future research needs to elaborate on the nature of dual diagnosis in the South African context, while remaining cognisant of these methodological concerns. It is feasible to extend the present study to other clinics in the future and to augment this with epidemiological surveys. This avenue of research may hold important implications for the diagnosis and treatment of both entities in South Africa, as well as for the clarification of cross-cultural sampling and identification pitfalls in the extension of prevalence estimates across studies.

## References

- Allan MM, Luiz DM, Foxcroft CD (1992) The performance of South African normal preschool children on the Griffiths Scales of Mental Development: a comparative study. Paper presented at the 10th National Congress of the Psychological Association of South Africa. Stellenbosch
- Anastasi A (1968) *Psychological testing*, (3rd edn). Heath, London
- Beery KE (1982) Revised administration, scoring and teaching manual for the Developmental Test of Visual-Motor Integration. Modern Curriculum Press, Cleveland
- Borthwick-Duffy SA (1994) Epidemiology and prevalence of psychopathology in people with mental retardation. *J Consult Clin Psychol* 62: 17-27
- Borthwick-Duffy SA, Eyman RK (1990) Who are the dually diagnosed? *Am J Ment Retard* 94: 586-595
- Cook GP (1991) Cape Town. In: Lemon A (ed) *Homes apart: South Africa's segregated cities*. David Phillips, Cape Town, pp 26-42
- Diagnostic and Statistical Manual of Mental Disorders, 4th edn (1994) American Psychiatric Association, Washington, D.C.
- Griffiths R (1970) *The abilities of young children*. The Test Agency, Bucks
- Griffiths R (1984) *The abilities of young children*. ARICD, Amersham
- Iverson JC, Fox RA (1989) Prevalence of psychopathology among mentally retarded adults. *Res Dev. Disabil* 10: 77-83
- Jacobson JW (1982) Problem behavior and psychiatric impairment within a developmentally disabled population: behavior frequency. *Appl Res Ment Retard* 3: 121-139
- Koller H, Richardson SA, Katz M, McLaren J (1983). Behavior disturbance since childhood among a 5-year birth cohort of all mentally retarded young adults in a city. *Am J Ment Defic* 87: 386-395
- Lachman P, Stander IA (1990) Patterns of referral to Red Cross Memorial Children's Hospital, Cape Town. *S Afr Med J* 78: 404-408
- Lowitzer AC, Utley CA, Baumeister AA (1987) AAMD's 1983 classification in mental retardation as utilized by state mental retardation/developmental disabilities agencies. *Ment Retard* 25: 287-291
- Menolascino FJ (1990) The nature and types of mental illness in the mentally retarded. In: Lewis M, Miller SM (eds) *Handbook of developmental psychopathology*. Plenum, New York, pp 397-408
- Molteno C (1990) Medical aspects of mental handicap. In: Lea S, Foster D (eds) *Perspectives on mental handicap in South Africa* Butterworths, Durban, pp 183-200
- Nezu AM (1994) Introduction to special section: Mental retardation and mental illness. *J Consult Clin Psychol* 62: 4-5
- Reiss S, Levitan GW, Szysko J (1982) Emotional disturbances and mental retardation: diagnostic overshadowing. *Am J Ment Defic* 86: 567-574
- Reiss S, Valenti-Hein D (1994) Development of a psychopathology rating scale for children with mental retardation. *J Consult Clin Psychol* 62: 28-33
- Sen A (1991) Alternatives to psychological testing. *Psychol Dev Soc* 3: 203-220
- Slone M, Durrheim K, Kaminer D (1998) The association between the diagnosis of mental retardation and socioeconomic factors. *Am J Ment Retard* 102(6): 535-546
- Wolpe H (1988) *Race, class and the apartheid state*. James Curry, London