Prevalence of the Dually Diagnosed in an

Institution for the Developmentally Handicapped

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Abstract

With government mandates to deinstitutionalize it is important to investigate the prevalence of dual diagnosis (developmental handicap with accompanying mental illness) in institutional settings for persons with a developmental handicap. Assessment for mental illness of 71 institutionalized developmentally handicapped adults was done using the *Reiss Screen for Maladaptive Behavior* (Reiss, 1988). Prevalence of dual diagnosis, identified by the Reiss Screen, was 69%. The most frequent categories of dual diagnosis were Aggression disorder, Sexual problems, Self-injurious behaviour, and Stealing. The Reiss Screen identified a much higher prevalence of dual diagnosis than either previous or current psychiatric diagnosis. There was a high level of dual diagnosis regardless of level of functioning; however, the type of pathology varied considerably across levels of functioning. Despite lack of validation of the Reiss Screen by previous and current psychiatric diagnosis, the Reiss Screen may in fact be a useful and valid instrument for measuring those maladaptive behaviours that prevent dually diagnosed and other developmentally handicapped persons from successful community placement. The high prevalence of persons with these behaviours has implications for planning and implementing support services in the community.

Prevalence of the Dually Diagnosed in an

Institution for the Developmentally Handicapped

In recent years there has been a movement of developmentally handicapped (mentally retarded) individuals from large institutions to community settings. Part of the process of deinstitutionalization requires an awareness of the needs of the developmentally handicapped while in the community (Landesman & Butterfield, 1987). A particularly high need group are those with the dual diagnosis of mental retardation and accompanying psychiatric illness (Galligan, 1990). The purpose of the present study was to determine the prevalence of dual diagnosis within a specific institutionalized population using the *Reiss Screen for Maladaptive Behavior* (Reiss, 1988).

Normalization refers to an ideal whereby increasing access to culturally typical activities and settings leads to an improved quality of life (Landesman & Butterfield, 1987). For the developmentally handicapped population, normalization has been interpreted to mean that quality of life will improve for an individual who is placed in a community with access to community services (Sovner & DesNoyers-Hurley, 1989). Service providers for persons with a developmental handicap have advocated for deinstitutionalization based on this assumption of normalization (Landesman & Butterfield, 1987; Vitello, Attowe & Cadwell, 1983). However, concern has been expressed that although

deinstitutionalization has met the needs of some individuals, it has not met the needs of others (Landesman & Butterfield, 1987).

With respect to normalization, deinstitutionalization has fallen short of ensuring psychological and mental health support services to the developmentally handicapped population (Jacobson & Ackerman, 1988; Jacobson & Schwartz, 1983; Matson, 1989). This is especially evident in those developmentally handicapped persons with a concurrent diagnosis of mental illness (Marcos, Gil & Vazquez, 1986; Sovner & DesNoyers-Hurley, 1989). These individuals who have a developmental handicap and a mental illness have been referred to in recent literature as the dually diagnosed (Borthwick-Duffy & Eyman, 1990; Galligan, 1990; Reiss, 1990).

Developmentally handicapped individuals have been found to be vulnerable to the same types of psychiatric disorders as people of normal intelligence (Benson & Reiss, 1984; Eaton & Menolascino, 1982). The psychiatric disorders cannot be fully attributed to the developmental handicap itself (Kazdin, Matson & Senatore, 1983). The symptoms are the same for the developmentally handicapped persons with mental illness as for the nondevelopmentally handicapped persons with mental illness (Benson & Reiss, 1984). Some of the symptoms and diagnoses reported in the literature are depression (Kazdin et al., 1983) schizophrenia (Benson & Reiss, 1984; Eaton & Menolascino, 1982) personality disorders (Benson & Reiss, 1984; Day, 1985) organic

brain syndromes (Eaton & Menolascino, 1982) psychosis (Heaton-Ward, 1977) and neurosis (Matson, Kazdin & Senatore, 1984).

Even those developmentally handicapped individuals who are well adjusted may experience some difficulties functioning independently in their communities (Borthwick-Duffy & Eyman, 1990; Day, 1985; Eaton & Menolascino, 1982). It would not be unexpected if these difficulties, caused by the stresses of deinstitutionalization and community living, magnified existing psychiatric problems (Day, 1985; Galligan, 1990). Thus, dually diagnosed individuals may be more likely to enter an institution initially or to return to an institution after moving to the community (Carter, 1984; Hill & Bruininks, 1984). Jacobson and Schwartz (1983) found that many of the individuals at risk of placement failure had psychiatric disorders. Similarly, Carter (1984) found that emergency readmissions to institutions involved developmentally handicapped individuals with psychiatric disorders whose behavioral difficulties could not be handled by their community placements.

With government mandates to close institutions, knowledge of the prevalence of dually diagnosed individuals in institutions is necessary to aid the community in planning for essential community-based mental health services. Estimates of prevalence for mental illness in the mentally retarded population (dual diagnosis) have ranged from 10% (Borthwick-Duffy & Eyman, 1990; Singh, Sood, Sonenklar & Ellis, 1991) to 67.3% (Campbell &

Malone, 1991). According to Reiss (1990) this discrepancy in the literature is due in part to differences in methodology, such as whether the sample was taken from the community or from institutions. Reiss surveyed a population from the community and found that 39% of the mentally retarded individuals had a mental illness. Singh et al. (1991) reported that 50% of mentally retarded in institutions had at least one identifiable psychiatric disorder. However, studies that look only at the community also disagree. Eaton and Menolascino (1982) found in a community-based program that those identified as being both mentally retarded and mentally ill represented 14.3% of the mentally retarded in the program. This is much lower than what Reiss (1990) found in the community.

Prevalence of dually diagnosed individuals is higher in institutions according to Menolascino (1989) because the abnormal environment of institutions leads to abnormal behaviour. This implies that institutions cause higher rates of mental illness. Prevalence of dual diagnosis, then, taken from an institutional sample would not be representative of the entire population, specifically the community population. However, there is evidence to indicate that individuals with psychiatric disorders in the institutions were admitted because of problems related to their psychiatric disorder. Heaton-Ward (1977) found that of the emergency admissions of developmentally handicapped persons, 60% also had a psychiatric disorder. Similar results were found by

Carter (1984). Borthwick-Duffy and Eyman (1990) found that the highest proportion of clients diagnosed "mentally retarded-only" were in the natural home, whereas the largest proportion of dually diagnosed clients were in institutions and community facilities. This suggests that the community is not able to fully integrate the dually diagnosed individuals and is having to admit them to institutions. Thus, institutions would have a higher prevalence of dually diagnosed individuals; this would not be due to the environmental conditions, but because the community is unable to deal with the problems associated with psychiatric disorders in the population of persons with a developmental handicap.

A related explanation for the discrepancy between the institutional and the community prevalence of dual diagnosis is the definition of mental illness. The studies on admissions to hospitals are dealing with severe mental illness and/or with individuals in crisis whose symptoms can be identified easily (Carter, 1984; Eaton and Menolascino, 1982; Heaton-Ward, 1977). Reiss' (1990) study, on the other hand, took a random sample from a community and assessed them for psychiatric disorders. The individuals Reiss identified as having a psychiatric disorder need not have been in crisis during the time of the study to be included. In Singh et al.'s (1991) report, there was a distinction made between whether individuals were identified as having at least one psychiatric disorder or whether they had

severe mental illness. The results indicated that 50% of the developmentally handicapped adults were found to have at least one psychiatric disorder and only 10% had severe mental illness.

A further problem with prevalence studies is that they do not consider the level of intellectual functioning of those persons in their sample; most studies treat the developmentally handicapped population as a homogenous population (Singh et al., 1991). There are indications that there are differences but the results are mixed; Galligan (1990) noted that in some studies individuals with severe mental retardation were found to be at greater risk for mental illness and in other studies higher functioning individuals were found to be at greater risk. There have also been findings of no relationship (Carter, 1984; Matson, Kazdin & Senatore, 1984; Reiss, 1990).

The direction of the relationship may also depend on the types of psychiatric disorders within the sample. Psychosis, neurosis and organic states were found to be prevalent in the mild to moderately functioning individuals (Day, 1985). Eaton and Menolascino (1982) found that personality disorders were more frequently diagnosed for mildly retarded individuals and organic syndrome more for moderately and severely retarded individuals.

The differential findings that persons with mild or moderate mental retardation were more likely to have a diagnosis of mental illness (Borthwick-Duffy & Eyman, 1990; Jacobson, 1990), and that severely mentally retarded individuals have a lower prevalence of

psychiatric disorders, may have been due to poor assessment tools for persons with more severe deficits rather than actual differences in prevalence between these groups (Sovner & DesNoyers-Hurley, 1989). Diagnosing mental illness of persons with a developmental handicap regardless of level of functioning is not an easy task (Singh et al., 1991). Diagnostic systems for psychiatric disorders were developed for persons with normal intellectual functioning and are difficult to apply to the developmentally handicapped population (Campbell & Malone, 1991; Matson et al., 1984). Not only may the symptoms be different for the developmentally handicapped as compared to persons with normal intellectual functioning, but their lack of skills, particularly language and communication, interferes with diagnosis (Borthwick-Duffy & Eyman, 1990). Very few professionals are trained with this population (Sovner & DesNoyers-Hurley, 1989; Reiss, 1982); and even when they are trained, professionals tend to attribute the psychiatric symptoms to the developmental handicap. This bias has been termed overshadowing (Reiss, 1982; Reiss & Szyszko, 1983).

There exists a relatively new assessment tool that addresses some of these issues. *The Reiss Screen for Maladaptive Behavior* was developed in 1988 by Steven Reiss. It measures the likelihood of a mentally retarded adolescent or adult having a mental health problem (Reiss, 1988). It was specifically designed to assist in the diagnosis of developmentally

handicapped individuals with a suspected psychiatric disorder. It is an informant-rating scale of psychiatric disorder symptoms derived from a survey of DSM-III-R symptoms exhibited by developmentally handicapped persons with a psychiatric diagnosis. Having significant others provide the necessary information, rather than the individual, provides assessment of individuals from all levels of functioning using the same instrument (Singh et al., 1991).

The process of deinstitutionalization entails facilitating developmentally handicapped people to integrate into the community. One group identified as not succeeding in the community are those persons with an accompanying psychiatric disorder. Prevention of readmission requires determining who these people are. The present study investigated the prevalence of dually diagnosed individuals with at least one psychiatric disorder within an institutional setting for persons with a developmental handicap, a provincial-residential institution in Ontario, using the *Reiss Screen for Maladaptive Behavior*.

Method

Subjects

The 71 participants in this study were diagnosed as mentally retarded and lived in an institutional setting for the developmentally handicapped, a provincial residential institution in Thunder Bay, Ontario. The institution has had a mandate since

1988 to facilitate moving its residents into the community. On April 1st, 1987, its total population was 147. At the start of this study there were 73 residents. Seventy-one residents participated in this study. Of the remaining two, one died and another's guardian refused to give consent for this project. The subjects consisted of 53 males and 18 females whose ages ranged from 18 to 79 years (mean = 39.3, S.D. = 13.1).

Materials

The *Reiss Screen for Maladaptive Behaviour* (Reiss, 1988) was used to measure the likelihood of a dual diagnosis (developmental handicap and an accompanying psychiatric disorder). The Reiss Screen is intended for this use with developmentally handicapped (mentally retarded) adolescents or adults having mental health problems (Reiss, 1988).

The 38 items of the Reiss Screen reflect symptoms commonly seen in developmentally handicapped persons with mental illness (Reiss, 1990). Each symptom is from one or more disorders listed in the DSM-III-R (American Psychiatric Association, 1987). Each item is rated by two or more persons who know the client well such as teachers, and caregivers. A rater uses the criteria of intensity, frequency, and consequences of behaviour to judge whether the behaviour has been "no problem", "problem" or "major problem" within the last three months (Reiss, 1988). The items are each scored no problem (0) problem (1) or major problem (2). Reiss (1988) suggested the test be administered to two raters and

the average score for each item be used in order to compensate for the items' low inter-rater reliability.

The items make up nine scales, six special maladaptive behaviour items, and two experimental items. The nine scales are Aggression disorder, Autism, Psychosis, Depression (behavioral signs), Depression (physical signs), Avoidant disorder, Dependent personality disorder, Paranoia, and a 26-item Total. The 26-item Total score is the sum of 26 items that form the seven scales not including the Autism scale and the special maladaptive behaviour items. Reiss referred to this score as a "...measure of the severity of psychopathology" (p. 580, 1990) in contrast to the specific disorders identified by the other scales and special items. The six special maladaptive behaviour items are Drug/alcohol abuse, Overactivity, Self-injury, Sexual problems, Suicidal tendencies, and Stealing (Reiss, 1990). The experimental items include a question on euphoria and another on tiredness; they are expected to increase the reliability of the Depression (physical) scale.

The Reiss Screen provides 15 cutoff scores to determine the possibility of a dual diagnosis; there is a cutoff score for each of the nine scales and the six special maladaptive behaviour item scores (see Table 1). A subject is said to be "positive" for dual diagnosis if any one of the 15 scores is at or above the cutoff point. A subject is said to be "negative" when all 15 scores are below their respective cutoff points (Reiss, 1988).

Table 1
Cutoff scores of each scale of the Reiss Screen to be positive
for dual diagnosis

Reiss Screen score for:	[a]dual diagnosis Cutoff scores
Scales:	
Aggression	5.0
Autism	4.0
Psychosis	5.0
Paranoia	5.0
Depression (Behavioral)	5.0
Depression (Physical)	4.0
Dependent Personality	6.0
Avoidant Personality	5.0
Other maladaptive behaviour:	
Drug/Alcohol Abuse	1.5
Overactivity	1.5
Self-injury	1.5
Sexual Behaviour	1.5
Suicidal Tendencies	1.5
Stealing	1.5
26-Item Total	9.0

[a]taken from Reiss (1988)

The Reiss Screen was validated against psychiatric diagnoses of people with a developmental handicap for each of two samples. It was found that the Reiss Screen scores discriminated differential diagnoses among psychiatric groups; in addition, people with a psychiatric diagnosis scored significantly higher on the matching Reiss Screen scale compared to the other Reiss Screen scales (Reiss, 1988). Reiss (1990) compared the Screen's results to the evaluations of clinical psychologists in a large community sample of persons with a developmental handicap and found a high rate of agreement for diagnosis of mental illness.

Two measures of adaptive behaviour were used to determine the functioning level of the sample in this study. [Adaptive behaviour is part of the definition of mental retardation by the American Association on Mental Retardation (Middleton, Keene & Brown, 1990)]. These measures are the *American Association on Mental Deficiency Adaptive Behavior Scale* (ABS) (Nihira, Foster, Shellhaas & Leland, 1974), and the *Vineland Adaptive Behavior Scale* (Sparrow, Balla & Cicchetti, 1984).

The ABS is used to help determine an individual's adaptive behaviour level through a behaviour checklist filled out by a significant other. It is used to measure the behaviour of mentally retarded, emotionally maladjusted, and developmentally disabled individuals. The ABS consists of two parts: part one is designed to evaluate an individual's skills in the area of personal independence in daily living (adaptive behaviour) and part two is designed to provide measures of maladaptive behaviour

(Nihira et al., 1974). The ABS was designed to be administered by individuals at all levels of training including institutional aides (Leland, Shoaee & Vayda, 1975; Nihira et al., 1974). It yields reasonably objective ratings of a developmentally handicapped person's everyday functioning and is a commonly used measure (Spreat, 1980).

The *Vineland Adaptive Behavior Scale* (Vineland) is used to assess social competence. An estimate of level of functioning can be obtained for even the most severely retarded individual. It can also be used to assess changes in social development over time (Gould, 1977). It is based on a developmental model and assumes that some skills are prerequisites for others in a person's development. If an individual demonstrates all the skills on two subdomains then the person is assumed to have the skills of all the previous subdomains. This is in contrast to the ABS where each skill is scored. The expanded form of the Vineland is delivered in an interview format to a parent/caregiver. It takes 60 to 90 minutes to complete. There are four domains administered to those older than 6 years: communication, daily living skills, socialization, and maladaptive behaviour. The first three domains make up the adaptive behaviour score with 468 items. The maladaptive behaviour section has 36 items.

Other information was obtained from each subject's case file and included age, gender, number of years living in an

institution, level of mental retardation (profound, severe, moderate or mild deficits) and whether the person had a previous psychiatric diagnosis. Previous diagnosis used the ICD-9 system (International Classification of Diseases-9, World Health Organization, 1978) whereas the Reiss Screen used DSM-III-R categories.

Procedure

Written consent was obtained from the subjects who were competent. For those not considered competent, their legal guardian was asked to give consent. A cover letter explaining the purpose of the study and its voluntary nature was sent along with a consent form to each subject or guardian.

The ABS questionnaire was filled out by the parent surrogate for each subject. The parent surrogate is a direct care staff who takes responsibility for ensuring that the individual subject's needs are being met. The Vineland and the Reiss Screen were administered in an hour to an hour and a half interview with the parent surrogate or another direct-care staff who knew the subject well. A 20-minute interview using the Reiss Screen alone occurred for a second person who knew the subject well.

A sample of those persons who scored positive for dual diagnosis and persons who scored below the cutoff on all of the 15 scales but were below the cutoff point of any scale (or special maladaptive behaviour category) up to 1 point were seen by a psychiatrist. The psychiatrist was blind to the results of

the Reiss Screen for each individual but was aware that some of
the people referred had a suspected mental illness.

The psychiatrist had access to each resident's file
including previous diagnosis, the results of the ABS and Vineland
but not the results of the Reiss Screen. The psychiatrist used
ICD-9 categories for diagnosis. For each subject in the sample,
the psychiatrist read the case file and then interviewed the
subject and a caregiver at the residence for approximately 20
minutes.

Results

Levels of mental retardation were significantly related to
level of functioning as measured by the adaptive behaviour
sections of the Vineland and the ABS. It can be seen from Table
2 that both measures decrease significantly as level of
retardation becomes more severe. The correlation between the
Vineland and the ABS adaptive behaviour scores was $r(69) = .943$
($p < .01$) indicating a high degree of consistency between these
two measures.

Reiss Screen scales

Inter-rater reliabilities for the Reiss Screen are presented
in Table 3. One of the items (question 11) on drug/alcohol abuse
had no variation since it was not applicable to this
institutional population; it was answered "no problem" for all 71

Table 2
Relationship between level of functioning and adaptive behaviour
scores of the Vineland and ABS

Level of functioning	Number of subjects	Mean scores (SD)	
		Vineland	ABS
Profound	34	197.5 (94.1)	89.3 (28.3)
Severe	18	318.0 (130.4)	125.3 (41.7)
Moderate	14	518.6 (143.0)	181.2 (34.7)
Mild	5	705.8 (77.8)	228.8 (14.6)
Total	* 71	327.3 (196.2)	126.4 (55.3)
F(3,67)		46.417, p < .0001	
F(3,68)			43.397, p < .0001

*the Vineland was completed for only 70 subjects.

Table 3
Reiss Screen inter-rater reliability (Pearson Correlations) for
the present study and Reiss' National study

Samples

Item #. content	Present r=	p=	Reiss' National[a] r=
1. aggressive	.60	.01	.73
2. anxious	.40	.01	.48
3. attention-seeking	.65	.01	.56
4. body stress	.40	.01	.64
5. complaining	.70	.01	.46
6. confused thinking	.81	.01	.38
7. crying spells	.57	.01	.54
8. delusions	.80	.01	.47
9. dependent	.18	.ns	.30
10. destructive	.42	.01	.62
11. drug/alcohol abuse	.*	.*	.70
12. eating problem	.50	.01	.64
13. echolalia	.92	.01	.---
14. euphoria	.50	.01	.---
15. fearful	.55	.01	.43
16. hallucinations	.42	.01	.39
17. hostile	.46	.01	.59
18. impulsive	.41	.01	.49
19. inattentive	.35	.01	.49
20. low energy	.28	.05	.61
21. nonassertive	-.02	.ns	.35
22. object attachment	.51	.01	.---
23. overactive	.62	.01	.52
24. overly sensitive	.29	.05	.57
25. paranoia	.19	.ns	.57
26. regressive behavior	-.02	.ns	.39
27. sadness	.14	.ns	.35
28. self-injury	.69	.01	.71
29. self-stimulatory	.63	.01	.---
30. sexual problem	.72	.01	.62
31. sleep problem	.30	.05	.53
32. social inadequacies	.19	.ns	.45
33. stealing	.45	.01	.76
34. suicidal tendencies	.56	.01	.79
35. temper tantrums	.39	.01	.70
36. tiredness	.11	.ns	.---
37. unusual motor move.	.25	.05	.---
38. withdrawn	.50	.01	.39

*coefficient could not be computed.   .---items not included (from
autism scale), [a]taken from Reiss (1988).

subjects. Thirty of the remaining 37 items had significant inter-rater reliability. The items with nonsignificant inter-rater reliability included dependency, nonassertiveness, paranoia, regression, sadness, social inadequacies and tiredness. These items also tended to have lower inter-rater reliability in Reiss' National sample (1988) (see Table 3).

Internal consistencies of the Reiss scales are presented in Table 4. Generally the values for the present sample are similar to those found in Reiss' three samples, except for somewhat lower reliabilities for the Depression (behavioral signs) and Dependent scales in the present sample. This difference may reflect the smaller sample size and/or the restricted range of the present sample.

In the version of the Reiss Screen used with this sample, Reiss (1988) included two experimental items for the Depression (physical signs) scale to increase its reliability. One was a question regarding euphoria and the other regarding tiredness. Inclusion of these items increased Cronbach's alpha (see Table 4).

Dual diagnosis prevalence

The Reiss Screen has a 26-item Total, 8 scales and 6 special maladaptive items each of which can be used to identify a dual diagnosis. In order to be considered positive for a dual diagnosis, the person must score on or above one of the 15 cut

Table 4
Reliability analysis (Cronbach's Alpha) of the scales of the
Reiss Screen for the present sample and Reiss' Chicago, National
and Illinois samples

		Alpha			
Scale	n of items	Present $\underline{N}$ =71	[a]Chicago $\underline{N}$ =205	[a]National $\underline{N}$ =306	[a]Illinois $\underline{N}$ = 29
26-Item Total	26	.81	.84	.84	.84
Aggression	5	.82	.80	.85	- - -
Psychosis	5	.75	.78	.78	- - -
Paranoia	5	.76	.75	.66	- - -
Autism	5	.53	- - -	- - -	.58
Depression (Behavioral)	5	.52	.76	.70	- - -
Depression (Physical) 1)	5	.54	.54	.57	- - -
2)*	7	.64	- - -	- - -	- - -
Dependent	5	.49	.75	.70	- - -
Avoidant	5	.60	.73	.72	- - -

*includes two experimental items.
[a]taken from Reiss (1988).

off scores (see Table 1). A person can be positive for more than one scale.

Positive scores for dual diagnosis on the Reiss Screen were found for 49 of the 71 subjects which is 69% of the sample (see Table 5). The highest number of subjects were found positive on: the 26-item Total (47.9%); then Aggression (25.4%); followed by special maladaptive behaviour items of Self-injury, Sexual behaviour, and Stealing (each at 14.1%); Overactivity, a special maladaptive behaviour item (10%); Avoidant personality and Autism (both at 8.5%); physical Depression (7.0%); Paranoia and Psychosis (both at 5.6%); and behavioral Depression (1.4%). No subjects were indicated as having a Dependent personality, a Drug or alcohol abuse problem, or Suicidal tendencies.

Nineteen of the subjects scored positive on only one of the scales' cutoffs, 13 on 2 of the cutoffs, 6 on 3 of the cutoffs, 7 on 4 of the cutoffs, 1 on 5 of the cutoffs, 2 on 6 of the cutoffs and 1 on 7 of the cutoffs. Thus, 42% of this population was positive for more than one scale or special item.

The subject who exceeded 7 cutoffs was positive on the 26-item Total, Aggression, Depression (physical signs), Avoidant personality, Self-injurious behaviour, Sexual problems and Stealing. One subject who was positive on 6 cutoffs, had the same disorders except for Sexual problems. The other subject who exceeded 6 cutoffs was positive on the 26-item Total, Aggression, Psychosis, Paranoia, Avoidant personality, and Overactivity.

Table 5

Prevalence of dual diagnosis based on the Reiss Screen

Positive for dual diagnosis

Reiss Screen	n (%)	Mean (S.D.)	Range: min.- max.	Max. Score Total*
Scales:	N = 71			
Aggression	18 (25.4)	6.3 (1.0)	5.0 - 9.0	10
Autism	6 (8.5)	4.8 (0.9)	4.0 - 6.5	10
Psychosis	4 (5.6)	6.3 (2.2)	5.0 - 9.5	10
Paranoia	4 (5.6)	6.3 (1.0)	5.5 - 8.0	10
Depression (B)	1 (1.4)	5.0		10
Depression (P)	5 (7.0)	5.3 (1.3)	4.0 - 6.5	10
Dependent	0 (0.0)			10
Avoidant	6 (8.5)	5.4 (0.5)	5.0 -6.0	10
26-Item Total	34 (47.9)	13.6 (4.3)	9.0 - 29.0	52
Special items:				
Drug/Alcohol Abuse	0 (0.0)			2
Overactivity	7 (10.0)	1.7 (0.3)	1.5 - 2.0	2
Self-injury	10 (14.1)	1.8 (0.3)	1.5 - 2.0	2
Sexual Behaviour	10 (14.1)	1.8 (0.3)	1.5 - 2.0	2
Suicidal Tendencies	0 (0.0)			2
Stealing	10 (14.1)	1.7 (0.3)	1.5 - 2.0	2
- -				
Overall	49 (69.0)			

*represents the maximum score possible for the scale or item.

Relationship of the Reiss Screen scores to level of functioning

1. Reiss scores to the ABS and Vineland.

Table 6 contains Pearson correlations between each of the Reiss Screen scales and the scores on the ABS and Vineland for both the adaptive behaviour scores and maladaptive behaviour scores. The adaptive behaviour scores are a measure of level of functioning and the correlations indicate which scales are associated with level of functioning. The findings are somewhat consistent for both the ABS and Vineland. Higher functioning individuals in this sample scored significantly higher on Psychosis, Paranoia, Depression (behavioral signs), and Sexual problems. They are significantly less likely to exhibit Autism, Depression (physical signs), Avoidant personality and Self-injury.

The ABS and Vineland also yield scores of maladaptive behaviour which indicate the presence of a variety of undesirable behaviours ranging from relatively minor problems (e.g., talks too close to another person) to more serious problems (e.g., bites others). These scores are highly correlated with the 26-item Total, an index of relatively serious behaviour problems. The ABS maladaptive behaviour scores were positively related to most of the scales, whereas the Vineland maladaptive behaviour scores were positively associated with all of the Reiss Screen scales. Thus, the more serious problems identified by the Reiss Screen scales are related to the range of maladaptive behaviours

Table 6
Pearson correlations of Vineland and ABS measures to Reiss Screen

Reiss Screen	ABS		Vineland	
	adaptive	maladaptive	adaptive	maladaptive
	$\underline{N}$ = 71		$\underline{N}$ = 70	
Scales:				
Aggression	.045	.546**	.049	.485**
Autism	-.378**	.194	-.412**	.482**
Psychosis	.338**	.292*	.374**	.344**
Paranoia	.395**	.476**	.445**	.368**
Depression (Behavior)	.289*	.380**	.256*	.323**
Depression (Physical)	-.308**	.047	-.232	.336**
Dependent	.120	.398**	.181	.349**
Avoidant	-.345**	.117	-.366**	.404**
26-Item Total	.061	.518**	.088	.606**
Special items:				
Drug/Alcohol	.----	.----	.----	.----
Overactivity	-.195	.198	-.206	.392**
Self-injury	-.291*	.280*	-.232	.285*
Sexual Problem	.246*	-.061	.201	.196
Suicidal	.191	.214	.155	.189
Stealing	-.129	-.007	-.091	.423**

* $\underline{p}$ < .05   ** $\underline{p}$ < .01   (2-tailed)

measured by the ABS and the Vineland.

2. <u>Reiss Screen scores and level of mental retardation</u>.

Level of mental retardation (profound, severe, moderate and mild deficits) obtained from the case files was examined in relation to the scores on the Reiss Screen, as well as the presence of a dual diagnosis as indicated by the Screen. From Table 7, it can be seen that the 26-item Total, an indication of overall severity of psychopathology, was not associated with level of functioning. However, for the remaining 14 scores, which indicate the severity within a type of pathology, level of functioning had significant positive associations with Psychosis and Paranoia, and significant negative associations with Autism, Depression (physical signs), Avoidant personality, and Self-injury. The 26-item Total indicated a consistent presence of psychopathology across levels of functioning. However, looking specifically at the type of pathology reveals that different types of disorders have different associations across the levels. The higher functioning are more likely to exhibit Psychosis and Paranoia. The lower functioning are more likely to exhibit Autism, physical signs of Depression, Avoidant personality, and Self-injury. These patterns are similar to those in found with the ABS and Vineland (see p. 25).

Table 7
Prevalence of persons positive for dual diagnosis on the Reiss and level of functioning

| Reiss Screen | Level of functioning (prevalence of): | | | | Scores[a] & Level |
	Profound (n=34)	Severe (n=18)	Moderate (n=14)	Mild (n=5)	r =
		$\underline{N}$ = 71			
Scales:					
Aggression	8	1	8	1	.035
Autism	4	2	0	0	-.381**
Psychosis	1	0	2	0	.277*
Paranoia	0	0	3	1	.429**
Depression (Behavioral)	0	0	1	0	.161
Depression (Physical)	4	1	0	0	-.274*
Dependent	0	0	0	0	.068
Avoidant	4	2	0	0	-.292*
26-Item Total	17	7	9	1	.029
Special Items:					
Drug/Alcohol	0	0	0	0	- - - -
Overactivity	4	1	1	0	.142
Self-injury	8	0	2	0	-.322**
Sexual Behaviour	4	1	3	2	.218
Suicidal	0	0	1	0	.175
Stealing	6	0	2	0	-.161
Overall	25	9	12	3	
%	73	50	86	60	

*p < .05, **p < .01
[a]Pearson correlations of Reiss scores with level of functioning

Relationship of Reiss Screen scores and psychiatric diagnosis

    1. Reiss Screen and previous psychiatric diagnosis.

There were 19 subjects (26.8%) who had a previous psychiatric diagnosis in their case files. Only fourteen of these people were positive for dual diagnosis on the Reiss Screen as shown in Table 8. There was no significant agreement between previous psychiatric diagnosis and being dually diagnosed on the Reiss Screen scales, Cohen's Kappa = .13 (Cohen, 1960). Five persons with a previous psychiatric diagnosis were found to be negative for dual diagnosis by the Reiss Screen. One person had been previously diagnosed with autism; the Autism scale of the Screen is one of the least reliable of the scales. Two others had been previously diagnosed with Alzheimer's disease and another with senility; these are not disorders that the Reiss Screen claims to measure. The last person had a diagnosis of suspected childhood schizophrenic; the diagnosis was preceded by the word "query". The symptoms of childhood schizophrenia are similar to autism (American Psychiatric Association, 1987) which is one of the Reiss' less reliable scales.

Even when the Reiss Screen and the previous diagnosis agreed that the subject had a psychiatric disorder, the labels were generally different. The labels for only five subjects were similar; these labels included autism, paranoia, psychosis and sexual problems.

Previous diagnosis, though not having an overall

Table 8
Previous dual diagnoses of 19 subjects compared to Reiss positive
results

S#	Previous Diagnosis	Reiss Results
S1	Personality disorder, behaviour disorder.	26-item total.
S2	Early Alzheimer's.	None.
S7	Autism.	None.
S8	Paedophilia.	Sexual problems.
S13	Autism.	26-item total.
S15	query Autism.	Autism, overactive, 26-item total.
S28	Depression, psychogenic vomiting.	Stealing, 26-item total.
S30	query Schizophrenia.	Sexual problems.
S32	Autism, schizophrenia.	Autism, psychosis, self-injury, 26-item total.
S36	query Childhood schizophrenic.	None.
S39	Autism, psycho-social deprivation. stealing.	Aggression, depression (P) avoidant personality, 26-item total.
S40	Unsocialized disturbance of conduct.	Aggression, paranoia, 26-item total.
S41	Psycho-social deprivation, affective disorder, psychosis.	Aggression, psychosis, paranoia, overactive, sexual problems, 26-item total.
S43	Autism.	Aggression, self-injury, 26-item total.
S44	Possible aberrant sexual behaviour.	Sexual problems, stealing.
S46	Suspected Alzheimer's.	None.
S49	Paranoia.	Aggression, psychosis, paranoia, depression(B), 26-item total.
S52	Arcus senilis.	None.
S61	Behaviour disorder.	Depression(P).

(B) = Behavioral signs, (P) = Physical signs.

relationship with the Screen did, however, have a positive relationship with the Reiss Screen scales of Psychosis (r(69) = .308, p < .01), the Depression (behavior signs) (r(69) = .256, p < .05), and Sexual problems (r(69) = .249, p < .05). Thus, a subject with symptoms of psychosis, behavioral signs of depression, and/or sexual problems as measured by the Reiss Screen, was more likely to have had a previous diagnosis. As noted in the preceding paragraph, the label of the previous diagnosis would likely be different than that of the Reiss Screen.

2. Reiss Screen and current psychiatrist's opinion.

Table 9 includes the sample of twenty-three subjects who were chosen on the basis of their Reiss Screen scores to be seen by a psychiatrist; it consisted of subjects positive for dual diagnosis or as negative for dual diagnosis with extreme scores (one point or less below the cutoff score for any one of the scales or special items). The Reiss Screen and the psychiatrist had no significant agreement on whether the subjects were dually diagnosed or not (Kappa = .04). The psychiatrist preferred the ICD-9 system rather than the DSM-III-R for diagnosis; it is not clear how this affected the agreement between the psychiatrist and the Reiss Screen. However, for four cases, the psychiatrist pointed out problems of aggression or self-injurious behaviour, but was of the opinion that these subjects were not dually diagnosed. For three of these cases, the Reiss Screen indicated

Table 9
Current psychiatrist's opinion and Reiss Screen positive scores
indicating whether dual diagnosis or not for 23 subjects

S#	Psychiatrist's Diagnosis	Reiss Results
S3	None (epilepsy).	Depression (P), 26-itemtotal.
S5	Temporal lobe epilepsy.	Aggressive, Sexualproblems, 26-item total.
S8	Facultative paedophilia.	Sexual problems.
S9	Bipolar affective disorder.	Aggressive, 26-item total.
S10	Cyclothymic personality disorder, facultative paedophilia, depression.	Sexual problems.
S13	Anxiety State.	26-item total.
S18	None (epilepsy)	None.
S19	None	None.
S23	None (aggressive)	Aggressive, 26-item total.
S24	None (self-injurious)	Self-injurious, stealing.
S30	None (aggressive)	Sexual problem.
S32	None	Autism, psychosis, self-injury, 26-item total.
S36	None (epilepsy)	None.
S38	None	Autism, overactive, 26-item total.
S40	None (aggressive)	Aggressive, paranoia, 26-item total.
S43	Catatonic Schizophrenia, Pervasive developmental disorder, psychosis.	Aggressive, self-injury, 26-item total.
S45	None (epilepsy)	Aggressive, paranoia.
S46	Psychosis (Alzheimer's).	None.
S49	Paranoid psychosis secondary to epilepsy & organic brain syndrome.	Aggressive,paranoia, depression(B), 26-item total.
S52	Affective Personality disorder, Hypomania.	None.
S57	None (epilepsy)	None.
S58	None	None.
S60	None	Overactive.

(B) = Behavioral signs, (P) = Physical signs

that these behaviours were a problem and were considered criteria for dual diagnosis.

Epilepsy, according to the psychiatrist, explained the maladaptive behaviour of 7 of the 23 subjects seen. Two of these seven subjects were considered to be dually diagnosed by this psychiatrist. Maladaptive behaviours such as aggression, sexual problems and self-injurious behaviour were thought by the psychiatrist to be due to the developmental handicap rather than an underlying mental illness.

3. Previous and current psychiatric opinion.

When corrected for chance agreement, there is no significant correspondence between the previous and current psychiatric opinion (Kappa = .31). Agreement on a dual diagnosis occurred for six subjects. For three of these, the diagnosis given was the same. For the remaining three cases, the two diagnoses were quite different: Previous diagnosis of Arcus senilis was currently diagnosed as affective personality disorder and hypomania; autism as anxiety state; and autism as catatonic schizophrenia, pervasive developmental disorder, and psychosis.

Other relationships with Reiss Screen scores

Pearson correlations of age, number of years residing in an institution, and gender with each Reiss Screen scale and special maladaptive item score were significant for the following: Older

subjects were less likely to score high on the aggression scale (r (69) = -.337, p < .01), and the 26-item total score (r (69) = -.361, p < .01); those subjects who had resided in the institution for the most number of years were less likely to score high on the psychosis scale (r (69) = -.254, p < .05), and paranoia scale (r (69) = -.316, p < .01); and females were more likely to score high on the stealing item than males (r(69) = .278, p < .05). Pearson correlations of level of mental retardation, and previous and current psychiatric diagnosis with Reiss Screen scores were not significant at the .05 level.

Discussion

Prevalence of dual diagnosis as indicated by the *Reiss Screen for Maladaptive Behavior* was found to be 69% for this population of institutionalized developmentally handicapped persons. This prevalence is just above the top of the range indicated by the literature which has varied as much as from 10% to 67.3% (Benson & Reiss, 1984; Borthwick-Duffy & Eyman, 1990; Campbell & Malone, 1991; Carter, 1984; Day, 1985; Eaton & Menolascino, 1982; Heaton-Ward, 1977; Matson, 1984; Menolascino, 1989; Reiss, 1990). The range varies as it includes samples from the community and/or institution and also public mental health services in the community. The higher prevalence of dual diagnosis in the present population may reflect its residual nature as many of the residents with fewer problems had been

previously discharged to community placements. Thus, this study implies a high prevalence of dual diagnosis for the more difficult to place residents of institutions.

Identification of a dual diagnosis occurred most frequently for the 26-item Total. Reiss (1990) had similar results. This is not surprising as a person found positive on other scales would likely also be positive on the total. The positive associations between the 26-item Total and the scores on the maladaptive behaviour sections of the ABS and Vineland support the validity of the 26-item total as a measure of the maladaptive behaviours that make up the symptoms of psychopathology.

The Aggression disorder scale was second in frequency for identification of dual diagnosis. Institutions are noted to have high rates of aggression (Jacobson & Schwartz, 1983). It has been suggested that the institutional setting itself causes these rates (Menolascino, 1989). Surveys of community settings, though, have also found aggression to be high (Benson & Reiss, 1984; Borthwick-Duffy & Eyman, 1990; Reiss, 1990). As well, aggression has been found to be a predictor for readmission to institutional settings (Causby & York, 1991; Frankel & Forness, 1985; Galligan, 1990).

The special maladaptive behaviour items of sexual problems, self-injurious behaviours, and stealing were the next most prevalent after aggression at 14.1% each. This is much higher than the 1.5 to 2% prevalence of these behaviours that Reiss

(1990) found in a community sample and may be due to institutions having higher prevalence of problem behaviours than community facilities (Cunningham & Mueller, 1991; Jacobson & Schwartz, 1983). Drug or alcohol abuse was nonexistent which is similar to Day's (1985) findings for developmentally handicapped patients in a psychiatric hospital.

The prevalence of dual diagnosis for both Psychosis and Paranoia for this sample was 5.6%. Prevalence of schizophrenia or psychosis in the developmentally handicapped population has been reported to range from 0.3% to 25% (Singh et al., 1991). Reiss (1990) using the Reiss Screen found prevalence of paranoia at 7.8% and psychosis at 5.8% which is very similar to the present findings.

The Reiss Screen detected a prevalence of 42% for subjects positive for more than one type of disorder. Developmentally handicapped persons with psychiatric disorders are often found to display multiple behaviour problems (Carter, 1984). Multiple disorders were also found by Reiss (1988) using the Reiss Screen.

The present study failed to provide direct validation for the Reiss Screen. There was no significant correspondence between the Reiss and either current or previous psychiatric diagnosis. The previous diagnoses and the Reiss Screen provided very different rates for prevalence of dual diagnosis at 26.8% and 69% respectively. The prevalence of dual diagnosis by the current psychiatrist for a sample of the present population was

much more conservative than the Reiss Screen.

The previous and current psychiatric diagnoses did not agree. This may be a result of the difficulties of diagnosing the developmentally handicapped population (Campbell & Malone, 1991; Borthwick-Duffy & Eyman, 1990; Matson et al., 1984; Reiss, 1982; Reiss & Szyszko, 1983; Sovner & DesNoyers-Hurley, 1989).

For instance, the maladaptive behaviours of aggression, sexual problems, and self-injury without any other accompanying psychiatric symptoms were attributed by the psychiatrist in the present study to the developmental handicap or epilepsy (when present) rather than an underlying mental illness. This is suggestive of overshadowing (Reiss, 1990). However, Sovner and DesNoyers-Hurley (1989) report that for maladaptive behaviours, there are a number of determinants including those the present psychiatrist considered.

The difficulties in diagnosing psychiatric disorders in the developmentally handicapped population contribute to the variance in the literature regarding prevalence of dual diagnosis. In order to meet the conditions necessary to describe the occurrence of psychiatric disorders in this population, more research on accurate diagnosis is vital (Borthwick-Duffy & Eyman, 1990).

A relationship was found for the specific Reiss Screen disorders of psychosis, depression (behavioral signs) and sexual problems with a previous diagnosis. This suggests that people who displayed these symptoms were more likely to have had a

previous diagnosis. It could be that the caregivers were influenced by the previous diagnosis in rating the resident. Alternatively, it could be that residents with these symptoms may have been more likely to be referred for psychiatric consultation (Borthwick-Duffy & Eyman, 1990).

The Reiss Screen had concurrent validity with the maladaptive behaviours measured by the ABS and Vineland. Persons with many maladaptive behaviours were more likely to be indicated as dually diagnosed by the Reiss Screen. Miller and Monroe (1990) had similar results with the Reiss and the ABS. Dually diagnosed persons often display multiple maladaptive behaviours (Carter, 1984; Sovner & DesNoyers-Hurley, 1989).

The Reiss Screen is further validated by the special maladaptive behaviour items. In order to be positive for dual diagnosis on the special items, a person must be rated as having a major problem by at least one rater and at least a problem by the other rater. This demonstrates the face validity of the Reiss Screen; ratings of major problem for these special maladaptive behaviours cannot be ignored.

Whether the Reiss Screen does in fact indicate mental illness may not be as important as identifying problem behaviours. Boshes (1987) not only questions the value of the label of dual diagnosis but suggests that in pharmacotherapy, diagnosis is not essential for the treatment of unwanted symptoms. Problem behaviours could be symptoms of psychiatric

disorders (Carter, 1984; Reiss, 1988; Sovner & DesNoyers-Hurley, 1989), or could be behaviours inherent in a population that has difficulties, by definition, functioning in their environments (Borthwick-Duffy & Eyman, 1990). Sovner and DesNoyers-Hurley (1989) detail five different determinants of maladaptive behaviour other than psychiatric disorders.

Regardless of whether the Reiss Screen is interpreted as measuring dual diagnosis or problem behaviours, higher prevalence of persons with these symptoms of dual diagnosis has implications for placement in the community. Problem behaviour of developmentally handicapped persons has been a major factor contributing to their lack of success in community placements (Causby & York, 1991; Galligan, 1990; Hill & Bruininks, 1984), and have led to emergency admissions at psychiatric hospitals (Day, 1985; Galligan, 1990). Jacobson and Schwartz (1983) found that the most prominent group of developmentally handicapped persons at risk of placement failure were those with a psychiatric disorder whose behavioral problems led to the placement difficulties. The Reiss Screen's importance lies, then, in its ability to measure maladaptive behaviour regardless of whether they are psychiatric symptoms.

The Reiss Screen suggests higher need for support services than does the previous diagnosis. Planning for support services would be necessary based on the Reiss Screen results in order not to over burden the existing services. Surveys of services for

the developmentally handicapped in other communities have found available support services inadequate (Jacobson & Ackerman, 1988; Jacobson & Schwartz, 1983; Matson, 1989).

Community mental health services are recommended to prevent readmissions (Carter, 1984; Jacobson & Schwartz, 1983; Sovner & DesNoyers-Hurley, 1984; Szymanski, 1987). Types of services recommended are: available beds at the hospital for crises, and a community nursing team for long-term management and prevention (Carter, 1984); professional counselling, existing mental health services, and psychological/behavioral intervention (Day, 1985); and planning to prevent specific types of behavioral problems with high levels of support and/or training for caregivers at the group homes (Causby & York, 1991).

The Reiss Screen could be used to assess current group homes for prevalence of developmentally handicapped persons with maladaptive behaviours/psychiatric symptoms and to determine whether they are being adequately served. A follow-up to the present study could be done to observe those who have problems integrating into the community and what services are available to them. It would also be interesting to see what best predicts placement success, the psychiatrist's diagnosis or the Reiss Screen. A follow-up study could also provide information as to whether the subjects improve as a result of living in the community as normalization would predict.

There was no significant difference across levels of

functioning and the presence of a dual diagnosis as indicated by the Reiss Screen. The same results were found by Kazdin, Matson, and Senatore (1983). Level of functioning did have a positive association with the specific Reiss Screen scores for psychosis, paranoia, behavioral signs of depression, and sexual problems, meaning that higher functioning persons are more likely to exhibit these symptoms. Day (1985) and Jacobson (1990) also found psychosis (including paranoia) were more likely diagnoses for persons with mild and moderate deficits. Day found, as well, that sexual offenses were diagnosed more often for the higher functioning.

It is possible that the Reiss Screen is only able to pick up psychosis and paranoia in higher functioning persons because the items which make up these scales require verbal skills. Communication skills have been suggested as necessary to be diagnosed with these disorders (Nihira, Price-Williams, & White, 1988).

A negative association was found for autism, physical signs of depression, avoidant personality and self-injurious behaviour, meaning that lower functioning persons are more likely to exhibit these symptoms. Day (1985) found that self-injurious behaviour occurred more frequently in the severely handicapped. Depression has been found more likely both for the higher functioning (Benson, 1985; Benson & Reiss, 1984; Day, 1985), and also the lower functioning (Kazdin et al., 1983).

Several additional relationships with dual diagnosis emerged. Older subjects were less likely to score positive on the aggression scale. Day (1985) found a similar trend for behavior disorders (this includes aggression). Persons residing at the institution for longer periods were less likely to be positive for psychosis or paranoia. This is contrary to what would be expected for behaviours in an institutional setting as they are said to increase over years of residence (Menolascino, 1989). Females were found to be more likely to steal. It is not clear whether this is a meaningful finding, and it should be noted that the number of females in this sample was low (25% of the sample).

Summary

The findings from the Reiss Screen indicate that this population of institutionalized developmentally handicapped people had a high prevalence (69%) of dual diagnosis. The lack of correspondence between the Reiss Screen and either the current or previous psychiatric diagnosis is a cause for concern and an indication of the need for further research to validate the Reiss Screen. However, previous findings of difficulties in psychiatric diagnosis of developmentally handicapped population, suggest that psychiatric diagnosis may not be the best index of the presence of mental health problems in this population. Thus further research needs to be done on improving the accuracy of

the diagnostic process for the developmentally handicapped.

The Reiss Screen's concurrent validity with maladaptive behaviour scores of the Vineland and ABS, suggests a more practical use for this instrument. As a measure of maladaptive behaviour, the Reiss Screen would be useful in the planning and implementing of support services to enable successful community placement.

Overall, dual diagnosis was not related to level of functioning, although the disorders of psychosis, paranoia, behavioral signs of depression, and sexual problems were more likely for higher levels of functioning; and autism, physical signs of depression, avoidant personality, and self-injurious behaviour were more likely for lower levels of functioning.

This study implies a high prevalence of dual diagnosis for the more difficult residents of institutions. Though this information does not necessarily generalize to community populations, it does give information as to what the community can expect and plan for with the continuance of deinstitutionalization.

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