

Psychiatric symptoms in adults with learning disability and challenging behaviour

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Background In people with learning disability one of the most frequent reasons for psychiatric referral is challenging behaviour.

Aims To determine what proportion of people with challenging behaviour actually have psychiatric symptoms.

Method Using an instrument specifically designed for use by informants, a sample of 320 people with administratively defined learning disability, with and without challenging behaviour, was surveyed for the presence of psychiatric symptoms.

Results Increasing severity of challenging behaviour was associated with increased prevalence of psychiatric symptoms, depression showing the most marked association. Anxiety symptoms were associated with the presence of self-injurious behaviour.

Conclusions There is clearly the potential for reducing challenging behaviour by improved identification and treatment of coexisting psychiatric disorders. The possibility of modifying diagnostic criteria for depression in people with learning disability, by including aspects of challenging behaviour, merits attention.

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A total of 16.7% of people with administratively defined learning disability in the UK have challenging behaviour (e.g. aggression or self-injury) (Qureshi & Alborz, 1992). This behaviour is costly to manage and frequently leads to significant burden of care, high health care and social costs and social exclusion (Felce *et al*, 2000). Recently, it has been suggested that some challenging behaviour may be caused or exacerbated by a coexisting psychiatric disorder (Emerson *et al*, 1999). Prompt identification and treatment of these psychiatric disorders could thus have a positive impact on the challenging behaviour, and hence on the burden of care, the quality of life of the individual and carers and the cost-effectiveness of service provision. At the present time, however, the mental health needs of this group of individuals are poorly understood. This paper presents the results of a study investigating the prevalence of psychiatric symptoms in people with learning disability and challenging behaviour in the North West of England.

METHOD

Design considerations

Age, IQ and gender are factors known to be associated with the presence of challenging behaviour (e.g. Borthwick-Duffy, 1994):

- the overall prevalence of challenging behaviour increases with age during childhood, reaches a peak during the age range 15-34 years and then declines;
- the prevalence of aggression, property destruction, self-injurious behaviour and other forms of challenging behaviour is positively correlated with degree of intellectual impairment;
- males are more likely to be identified as showing challenging behaviour than females.

Because the incidence of challenging behaviour decreases markedly in later life, the

confounding effect of age was minimised by restricting the investigation to people under 60 years and matching by age bands. Because IQ is also a powerful confounder, the samples were stratified by their level of speech, as an approximate measure of intellectual level. There was no significant difference between the proportion of males in the sample groups.

Derivation of the samples

In 1988, seven district health authorities in the area then covered by the North West Regional Health Authority participated in a total population survey of the extent and nature of challenging behaviour among people with learning disability (Qureshi & Alborz, 1992; Kiernan & Qureshi, 1993). The study included individuals with challenging behaviour from age 3 to 87 years. A further study was undertaken in 1995 (Emerson *et al*, 1997). This involved: the attempted follow-up of all people identified in 1988 as showing more severe challenging behaviour; a repeat of the total population screening in two of the seven districts; and the attempted follow-up of all people identified in 1988 as showing less severe challenging behaviour. The current investigation uses the 1995 data on those individuals who were between 18 and 60 years of age at the time of follow-up ($n=234$).

A control group ($n=86$) was drawn from a study of the health needs of 200 people with learning disability, commissioned by Tameside Learning Disability Services. The control sample was drawn from those individuals living in staffed accommodation, because there were few missing cases (in comparison with those living alone or with family members). Those individuals identified on the Wessex Scale (Kushlick *et al*, 1973) as having no challenging behaviour were randomly selected and age-matched to produce the same age banding as in the challenging behaviour study. Those in the latter study tended to be younger than the Tameside population, so the selection was achieved by randomly removing Tameside cases from the upper age bands to achieve the same proportions.

Information collected

Challenging behaviour

A full account of the extensive information collected in this sample can be found in the

report by Emerson *et al* (1997). Sample members in the challenging behaviour studies were rated on four basic types of challenging behaviour: aggression; destruction of property; self-injury; and other unacceptable behaviour. Each of these types was rated on a four-point scale (serious, controlled, lesser, no problem). Overall severity of challenging behaviour was estimated using a compound dichotomous variable (less demanding/more demanding) derived from other information collected on the sample members. A client was coded as 'more demanding' if any of the following applied:

- the person showed any challenging behaviour at least once a day;
- the challenging behaviour usually prevented the person from taking part in programmes or activities that would otherwise be appropriate to his or her level of skills and competence;
- physical intervention by more than one member of staff was the usual level needed to control any of the person's challenging behaviour;
- the usual consequence of challenging behaviour was major injury to the self, to another person with learning disability or to staff; 'major injury' was defined as that requiring hospital treatment (e.g. broken bones, cuts or stab wounds).

Level of learning disability

There were no formal measures of intellectual ability collected on the sample members. However, a strong indication could be inferred from sample members' level of speech. In both the challenging behaviour study and the control group this was measured on a three-point scale (no language, words and phrases, full sentences).

Psychiatric symptoms

The Psychiatric Assessment Schedule for Adults with a Developmental Disability (PAS-ADD) Checklist (Moss *et al*, 1998) is a screening instrument designed to identify mental health problems in people with learning disability. In both the challenging behaviour and the Tameside study, a PAS-ADD Checklist was completed for each sample member by an individual (staff member or family member) judged to be in the best position to rate the symptoms. The PAS-ADD Checklist has a four-point rating

scale, designed to be the best compromise between the loss of information resulting from a binary scale and the unreliability resulting from too many points. However, because the psychometric properties of the four-point scale were not known, a conservative analysis was performed, items being dichotomised into symptom present/absent.

RESULTS

Sample details

Age banding of the total sample of 320 people with administratively defined learning disability was as follows: 18–30 years, $n=129$ (40%); 31–45 years, $n=125$ (39%); 46+ years, $n=66$ (21%). Numbers in each level of challenging behaviour were: no problem, $n=86$ (26.9%); less demanding, $n=148$ (46.2%); more demanding, $n=86$ (26.9%). There were 64% males ($n=205$) and 36% females ($n=115$). There was no significant difference in the proportion of males to females in the Tameside and challenging behaviour studies.

Speech results indicated that there was an expected strong association between level of challenging behaviour and level of

learning disability (see Table 1). Most of the 234 individuals in the two challenging behaviour groups showed aggressive behaviour of various kinds, including self-injurious behaviour. However, 57% of the people in the study ($n=133$) did not manifest any self-injurious behaviour at all. As expected, those who did manifest self-injury ($n=101$) included a significantly larger proportion of individuals with no speech (see Table 2).

Group comparisons of psychiatric symptomatology

Increasing severity of challenging behaviour was strongly associated with the mean number of psychiatric symptoms (range 0–16) scored on the PAS-ADD Checklist: no problem, $n=1.4$; less demanding, $n=2.0$; more demanding, $n=4.3$; $p<0.0001$ (Kruskal-Wallis test). *Post hoc* comparisons using the Mann-Whitney test indicated that the difference between the group without challenging behaviour and the group with less demanding challenging behaviour was not significant. The difference between the groups with less and more

Table 1 Relation between level of speech and severity of challenging behaviour

Severity of challenging behaviour	Level of speech			Total
	None	Words and phrases	Sentences	
None	12	17	57	86
Less demanding	83	53	12	148
More demanding	34	39	13	86
Total	129	109	82	320

χ^2 test: $P<0.00001$.

Table 2 Distribution of individuals in the two challenging behaviour groups by level of language and presence/absence of self-injurious behaviour

Presence of self-injurious behaviour	Level of language			Total
	Sentences	Words and phrases	Little or none	
Aggressive or destructive behaviour, but no self-injurious behaviour	76	39	18	133
Self-injurious behaviour	20	40	41	101
Total	96	79	59	234

χ^2 test: $P<0.0001$.

Table 3 Prevalence of Psychiatric Assessment Schedule for Adults with a Developmental Disability (PAS–ADD) symptoms in the three samples

Symptom	Severity of challenging behaviour			Total sample
	None	Less demanding	More demanding	
Irritability/bad temper***	15.3	23.6	50.6	28.8
Odd gestures or mannerisms***	7.2	18.2	34.5	19.8
Elevated mood**	9.4	19.6	28.7	19.4
Odd or repetitive use of language	14.5	18.9	24.1	19.2
Pacing***	3.5	10.8	34.5	15.3
Loss of self-care skills**	9.5	10.8	24.1	14.1
Depressed mood***	4.7	10.8	27.6	13.8
Confusion	10.8	9.6	13.8	11.0
Broken sleep***	7.1	5.4	21.8	10.3
Loss of concentration***	0.0	8.8	21.8	10.0
Delay in falling asleep	9.4	6.1	14.9	9.4
Hallucinations	7.4	6.1	12.6	8.2
Phobic anxiety	6.0	6.9	11.5	7.8
Repeated actions	6.0	6.8	10.3	7.5
Loss of interest**	3.5	4.7	14.9	7.2
Loss of energy	4.7	5.4	11.6	6.9
Suspicious, untrusting	3.5	6.1	10.3	6.6
Waking too early*	3.6	4.7	12.6	6.6
Loss of appetite*	5.9	3.4	11.5	6.3
Non-situational anxiety	3.5	4.7	6.9	5.0
Jumpy	4.7	2.9	8.0	4.4
Increased appetite	2.4	3.4	8.0	4.4
Delusional beliefs	3.8	2.0	6.9	3.8
Suicidal thoughts or actions	6.0	2.0	2.3	3.1
Avoidance/withdrawal*	2.4	0.7	6.9	2.8
Loss of self-esteem	2.4	2.0	0.0	1.8
Loss of weight	0.0	0.0	0.0	0.0

Values show percentages of sample members in each of the three challenging behaviour severity groups having the specific symptom. χ^2 test: * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

demanding challenging behaviour was highly significant ($P < 0.0001$).

Table 3 gives details of the individual symptoms in relation to each level of severity of challenging behaviour. It can be seen that for 23 of the 26 items the prevalence was highest in the group whose challenging behaviour was more demanding.

Four diagnostic categories were then derived from the PAS–ADD scores: anxiety, depression, hypomania and psychosis. In relation to anxiety, depression and psychosis it was possible to identify items on the schedule whose diagnostic significance was very clear-cut. With regard to hypomania, the core symptom in the PAS–ADD Checklist is elevated mood. However, the diagnostic significance of this symptom was not considered to be sufficiently clear-cut, so for the present purpose individuals with probable hypomania were defined as those with elevated mood in conjunction

with reduced need for sleep (either broken sleep or early waking). Core symptoms were thus as follows: anxiety – phobic anxiety, non-situational anxiety; depression – depressed mood, suicidal intent/

actions; hypomania – elevated mood *plus* early waking or broken sleep; psychosis – hallucinations, delusions.

Table 4 shows the prevalence of individuals who either had at least one core

Table 4 Percentages of individuals meeting defined diagnostic criteria, in relation to severity of challenging behaviour

Disorder category	Severity of challenging behaviour			Total population
	None ($n=86$)	Less demanding ($n=148$)	More demanding ($n=86$)	
Anxiety	7.1	8.1	12.6	9.1
Depression***	8.3	11.5	28.7	15.4
Hypomania*	2.4	3.4	10.3	5.0
Psychosis	7.5	7.4	13.8	9.2
At least one of the three categories***	16.3	22.3	43.7	26.7

χ^2 test: * $P < 0.05$ and *** $P < 0.001$.

symptom in the anxiety, depression or psychosis symptom groups or met the criteria for hypomania. These results show the prevalence of psychiatric disorders to be high in the whole sample and very high in the group with more demanding challenging behaviour. All four categories showed an increasing prevalence with severity of challenging behaviour, although this did not reach significance in the case of anxiety and psychosis. Depression showed a very marked prevalence that was differential across the three groups. For the whole study, the overall prevalence of psychiatric disorders is in accord with other published studies (Campbell & Malone, 1991).

Self-injurious behaviour

Within the 234 people in the challenging behaviour groups, the prevalence of PAS-ADD symptoms in people with and without self-injurious behaviour was investigated. In terms of the mean total number of psychiatric symptoms identified by the PAS-ADD Checklist, there was no significant difference. However, four individual symptoms showed significant differences in prevalence (Table 5).

The symptom 'odd gestures and mannerisms' probably features because people with self-injurious behaviour include a higher proportion of individuals with profound learning disability, many of whom demonstrate stereotyped behaviour. However, two of the symptoms are indicative of the fact that anxiety disorders are a possible factor in self-injurious behaviour ('jumpy' and 'phobic anxiety').

Table 5 The Psychiatric Assessment Schedule for Adults with a Developmental Disability (PAS-ADD) symptoms showing significantly different prevalence in people with self-injurious behaviour ($n=101$) compared with those who have challenging behaviour but no self-injurious behaviour ($n=133$)

Symptom	Type of challenging behaviour		Total sample with challenging behaviour
	Aggressive or unacceptable behaviour but no self-injurious behaviour	With self-injurious behaviour	
Odd gestures or mannerisms	18.8	31.7	24.4
Phobic anxiety	5.3	12.9	8.5
Jumpy	1.5	7.9	4.3
Avoidance/ withdrawal	0.8	5.9	3.0

Values show percentages of sample members. χ^2 test: * $P < 0.05$.

CLINICAL IMPLICATIONS

- Psychiatric disorders, particularly depression and hypomania, are significantly related to the presence of challenging behaviour.
- There is a clear potential for reducing challenging behaviour through the identification and treatment of unrecognised psychiatric problems.
- Improved methods for identifying psychiatric disorders in the community should be adopted as a routine part of service provision to people with learning disabilities.

LIMITATIONS

- Data on psychiatric symptoms were collected by support staff, rather than psychiatrists with expertise in learning disability.
- Learning disability was administratively defined, rather than from an epidemiological perspective.
- The intellectual level of the subjects could be inferred only approximately from their level of speech.

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DISCUSSION

Significance of the association

The results provide some evidence for a statistical association between challenging behaviour and psychiatric disorders. The

overall prevalence of psychiatric disorders, as measured by the four diagnostic categories, showed people with more demanding challenging behaviour to have over twice the prevalence compared with those who had no challenging behaviour. Depression was four times as prevalent in those whose challenging behaviour was more demanding than in people showing no challenging behaviour; hypomania was three times as prevalent. The strong association with depression is particularly important because this condition often remains undetected, both in the general population (Goldberg & Huxley, 1980) and in people with learning disability (Patel *et al*, 1993). It is thus probable that there are many individuals with learning disability and challenging behaviour who also have unrecognised psychiatric problems. This highlights the importance of introducing improved methods for identification of psychiatric problems in people with learning disability – methods such as the PAS-ADD Checklist (Moss *et al*, 1998) and the Mini PAS-ADD (Prosser *et al*, 1998).

Challenging behaviour as a possible diagnostic criterion for depression

Some authors (e.g. Meins, 1995) have suggested that challenging behaviour can sometimes be an atypical expression of depression and should be incorporated into diagnostic criteria modified specifically for this population. Although the results from the current study suggest that this assertion merits attention, it may be difficult to implement in practice. The determinants of challenging behaviour are likely to be highly complex – a combination of factors relating to history of learned behaviour and biological, environmental, social and psychological factors. Challenging behaviour may exacerbate a coexisting psychiatric disorder, whereas psychiatric disorders may express themselves partly in terms of a challenging behaviour. Given this complexity, the use of data on challenging behaviour to make psychiatric diagnoses would pose major questions of validity.

Self-injurious behaviour

Among people with self-injurious behaviour, anxiety disorders were identified as being more prevalent than among people without such behaviour. It is not clear whether this finding relates specifically to the presence of self-injurious behaviour or whether it is because this group contains more individuals with profound learning disability. It has been noted elsewhere

(King *et al*, 1994) that anxiety disorder is one of the most frequent diagnoses made in people with this level of disability.

Reliance on untrained raters

A potential limitation of the current study was that the information on psychiatric disorders was provided exclusively by non-psychiatrists. Although the PAS-ADD Checklist has been validated for use by unqualified observers (Moss *et al*, 1998), accurate quantification of the statistical associations between challenging behaviour and psychiatric disorders would need a further study using comprehensive multi-disciplinary assessment, including expert psychiatric opinion.

REFERENCES

- Borthwick-Duffy, S. A. (1994)** Prevalence of destructive behaviors. In *Destructive Behavior in Developmental Disabilities: Diagnosis and Treatment* (eds T. Thompson & D. B. Gray), pp. 3–23. Thousand Oaks, CA: Sage.
- Cambell, M. & Malone, R. P. (1991)** Mental retardation and psychiatric disorders. *Hospital and Community Psychiatry*, **42**, 374–379.
- Emerson, E., Kiernan, C., Alborz, A., et al (1997)** *The HARC Challenging Behaviour Project. Summary*. Manchester: Hester Adrian Research Centre.
- , Moss, S. C. & Kiernan, C. K. (1999)** The relationship between challenging behaviour and psychiatric disorders in people with severe intellectual disabilities. In *Psychiatric and Behavioural Disorders in Mental Retardation* (ed. N. Bouras), pp. 38–48. Cambridge: Cambridge University Press.
- Felce, D., Lowe, K., Perry, J., et al (2000)** Service support to people with severe intellectual disabilities and the most severe challenging behaviours in Wales: prevalence, outcome and costs. *Journal of Intellectual Disability Research* (in press).
- Goldberg, D. & Huxley, P. (1980)** *Mental Illness in the Community*. London: Tavistock Publications.
- Kiernan, C. & Qureshi, H. (1993)** Challenging behaviour. In *Research to Practice? Implications of Research on the Challenging Behaviour of People with Learning Disabilities* (ed. C. Kiernan). Kidderminster: British Institute of Learning Disabilities.
- King, B. H., De Antonio, C., McCracken, J. T., et al (1994)** Psychiatric consultation in severe and profound mental retardation. *American Journal of Psychiatry*, **151**, 1802–1808.
- Kushlick, A., Blunden, R. & Cox, G. (1973)** A method of rating behaviour characteristics for use in large scale surveys on mental handicap. *Psychological Medicine*, **3**, 466–478.
- Meins, W. (1995)** Symptoms of major depression in mentally retarded adults. *Journal of Intellectual Disability Research*, **39**, 41–45.
- Moss, S. C., Prosser, H., Costello, H., et al (1998)** Reliability and validity of the PAS-ADD Checklist for detecting psychiatric disorders in adults with intellectual disability. *Journal of Intellectual Disability Research*, **42**, 173–183.
- Patel, P., Goldberg, D. & Moss, S. (1993)** Psychiatric morbidity in older people with moderate and severe learning disability. II: The prevalence study. *British Journal of Psychiatry*, **163**, 481–491.
- Prosser, H., Moss, S. C., Costello, H., et al (1998)** Reliability and validity of the Mini PAS-ADD for assessing psychiatric disorders in adults with intellectual disability. *Journal of Intellectual Disability Research*, **42**, 264–272.
- Qureshi, H. & Alborz, A. (1992)** Epidemiology of challenging behaviour. *Mental Handicap Research*, **5**, 130–145.