Physical morbidity in older people with moderate, severe and profound mental handicap, and its relation to psychiatric morbidity

S. Moss, D. Goldberg, P. Patel, D. Wilkin

Summary. This report describes a study of physical health problems and their relation to psychiatric morbidity in a community sample of 105 people with severe mental handicap and over the age of 50 years from a Metropolitan Borough. An extensive outreach exercise ensured that almost 100% of people fulfilling the age and ability criteria were included in the study. All the physical and mental health assessments were carried out by a psychiatrist at senior registrar level. Physical assessments used a combination of physical examination and access to the subject's medical records. Results showed that, with minor exceptions, the physical health of the handicapped population was no worse than that of controls. Contrary to expectation, no relationship was demonstrated between physical and psychiatric morbidity. However, this may be due to the greater difficulty in identifying psychiatric morbidity in people who are more severely handicapped. Since physical health problems increase with level of handicap, the potential relation between physical and mental health is masked.

The current study investigated physical and mental health problems in a group of people over 50 years of age with moderate, severe and profound mental handicap. The study sample consisted of, as far as possible, the total population of individuals matching the age and developmental level criteria, who lived in, or originated from, a single district. All data were gathered by a psychiatrist at senior registrar level experienced in the interviewing of people with mental handicap. Here, we discuss in detail the physical health findings, and their relation to the overall level of psychiatric morbidity. Elsewhere we have presented the detailed findings on mental health and dementia (Moss et al. 1991).

The association between physical and psychiatric morbidity has been demonstrated in a number of studies on elderly people living at home (Kay et al. 1964; Kay and Bergmann 1966) and in hospital (Kay and Roth 1955; Roth and Kay 1956). It has also been shown that there is an important connection between physical illness and

prognosis of depression in older people, poor outcome being associated with chronic physical health problems (Murphy 1983; Roth 1983) and severity of physical illness (Post 1972). Murphy (1983) has found that the two most important factors in outcome of depression in elderly people are initial severity of depression and continuing physical health. In a very recent study of a random community sample of elderly people, Lindesay (1990) has found that serious physical health problems are associated with cognitive impairment, depression, generalised anxiety and agoraphobia.

Studies of physical health in people with mental handicap have tended to rely on analysis of existing records, or mental handicap register information gathered by non-medically qualified staff (Jacobson et al. 1985; Janicki and Jacobson 1982; Janicki and MacEachron 1984). Such studies have shown clearly that increasing age results in a greater likelihood of medical disorders in the majority of named categories.

A number of smaller studies of morbidity have also been published. In Alberta, Badry et al. (1986) confirm the general finding of Janicki and MacEachron (1984) that cardiovascular and musculoskeletal problems increase significantly with age, while information from mental handicap registers in California, Massachusetts and New York (Jacobson et al. 1985) suggest that the major changes are seen in the areas of hearing impairment, vision impairment and loss of mobility. Comparing a group of 55–64-year-olds with a group aged 65 and over, Janicki et al. found a 25% increase in these problems for the older group. Janicki et al. (1985) conclude that: "By inference, with some exceptions for treatment of neurological and to a lesser degree endocrine problems, the health care needs of this population should be comparable to those of the general population" (p. 126).

In the present study it was considered likely that the association between physical and psychiatric morbidity would be more difficult to demonstrate than in a general population. The difficulties encountered in detecting and classifying psychiatric problems in people with mental handicap increase with the level of handicap (Reid 1972).

Thus, it was expected that people in the sample who could be classified as suffering from a diagnosable psychiatric condition would tend to be among the more intellectually able members of the group. The fact that there is a clear relationship between level of handicap and physical health (Forssman and Akesson 1970) means that, other things being equal, the psychiatric cases would tend to be *healthier* than the non-cases, necessitating the use of multivariate analyses to distinguish the contributions of these various components.

Method

The study sample

The sample consisted of persons over 50 years of age who lived in, or originated from, Oldham Metropolitan Borough, a town of approximately 225,000 persons in the North West of England. The total sample identified consisted of two groups: those currently in contact with specialist mental retardation services (the Community Mental Handicap Team, CMHT), and those who currently were not, or who had never been, in contact with the CMHT. This second group was identified through a comprehensive outreach exercise (Horne 1989) in which contact was made with a wide variety of statutory, voluntary and private agencies. Staff were asked to identify individuals who appeared to match a broad definition of mental retardation, which we furnished. The definition was designed to be over-inclusive, appropriate sample members being selected through subsequent evaluation of their functional level. The extent and coverage of the agency contacts that were made ensured that virtually all persons matching the criteria were known to us by the end of the outreach exercise. The aim, with respect to selection of outreach individuals, was to include persons whose level of functioning was in the same range as those in contact with the CMHT.

A total of 110 persons matching the sample criteria were identified, 105 of whom agreed to participate in this study. Of the 105 sample members, 79 were located via their current contact with Oldham CMHT; the remaining 26 were located via the outreach procedure.

There was a larger overall preponderance of men (58.1%) compared with women (41.9%). The higher preponderance of men in contact with a mental retardation agency has been noted elsewhere (Moss 1991). There was no significant difference in the age distribution of the

sexes. Estimated IQ banding for the sample at the time of the present project was: 54.4% in the range of moderate mental handicap, 35.0% in the severe range and 10.7% in the profound range.

Table 1 shows the residential situations of the sample members. It can be seen that a sizeable proportion of individuals (29/105) were resident in long-term mental handicap hospitals, and many had been there most of their lives. In addition, nine people had moved from long-stay hospital to the community within the previous 7 years, a majority into independent residences established as part of Oldham's resettlement plan.

Physical health

While there are many instruments dealing with the well-being of elderly people and activities of daily living (see Fillenbaum 1984 for a review), there are few examples of assessments that include both function/activity questions and clinical examination items. Fortunately, a study conducted by Wilkin et al. (1984) of the Department of Community Medicine utilised just such an instrument in the context of a study of elderly people referred to health and social services. In addition to furnishing an assessment package that required only minor modifications, this study also provided a comparison group of people drawn from the general elderly population. The availability of the Wilkin data set on non-handicapped elderly people provided an opportunity to make comparisons on data derived from the same instrument.

Most of the items we retained, unchanged, from Wilkin's questionnaire. These included items relating to ischaemic heart pain and intermittent claudication, originally adapted from Rose's (1962) instrument, items on chronic bronchitis and breathlessness from the MRC (1965) questionnaire, and questions on arthritis derived from the WHO international collaborative study of health care (Kohn and White 1976).

We added a number of items, derived from the Kilsyth Questionnaire (Powell and Crombie 1974) on haemorrhoids, haematuria, prostatism, bleeding/discharge per vagina and breast problems. Additional items on headaches, fits and balance disorders, drawn from the same source, were designed to make the overall investigation more complete with respect to CNS conditions.

Use of the Wilkin data for comparative purposes

Health status comparison of people with and without mental handicap presents the problem of choosing appropriate selection criteria for the control group. In the present study, the sample of people with mental handicap was selected to include, as far as possible, all individuals within the ability range under consideration. The vast majority of sample members were, nevertheless, located through their contact with a health or social services agency, so it is likely that long-term health status played a part in bringing some of the sample members into contact with services. This may, in some cases, apply to those whose level

Table 1. Distribution of the sample by residential location

Location	n
Residential hospital	24
Mental handicap hostel	29
Elderly part III/nursing home/private elderly home	16
With family	9
Independent/group home	26
Sheltered housing	1
Total	105

of handicap was milder, but was particularly likely to apply to people located via the outreach procedure. The histories of some of these individuals made it clear that they had previously lived in the wider community, their current functional levels resulting from a variety of factors such as long-term institutionalisation and chronic mental illness. In these cases, health status may be a crucial factor in social/health service contact, and, hence, in outreach sample membership.

Wilkin's sample was also selected on the basis of agency contact, and, thus, was not a representative sample of the general elderly population. Therefore, it was important to ensure that the sample members chosen for comparison had not been primarily referred for reasons of physical health. Wilkin's sample members were referred by one of four agencies: social services, geriatric services, psychiatric services and psychogeriatric services. Use of the geriatric and psychogeriatric referral groups was obviously inappropriate since these referrals relate directly to medial status. It was considered that the psychiatric referral group was the most appropriate since referrals to a psychiatric services were less likely to be primarily for reasons of physical medical status.

The status of Wilkin's social service referrals group was uncertain. People were likely to have been referred to this group for a variety of reasons, many of which would have related to incapacity resulting from age-related infirmity. As such, the physical health of this group was likely to be poorer than in the psychiatric referral group. Bearing in mind these considerations, results from both the psychiatric and social service referral groups were separately compared with our data.

Given the nature of the control group data, it is clear that any systematic bias would tend be in the direction of inflated morbidity amongst the controls compared with the mentally handicapped individuals. Thus, one would be less confident of a result showing significantly higher morbidity for the control groups than vice versa. This factor was borne in mind when interpreting the results.

Health indexing

An assessment of the relation between physical and mental health required a method of classifying and quantifying both variables. Regarding mental health, the diagnostic algorithms with which we generated the diagnoses provided two ways in which to classify severity of psychiatric morbidity: cases versus non-cases and total symptom score on the psychiatric clinical interview (described shortly).

With regard to the physical health data, Burvill et al. (1990) drawing on the earlier study of Eastwood and Trevelyan (1972), suggest that an index of physical health (a) should provide an assessment of current status that can be quantified, (b) should provide both assessments of individual bodily systems and global assessment of health, (c) may be supplemented by a measure of the duration of the illness to distinguish acute and chronic conditions and (d) give an index of severity for each condition. The system of Burvill et al. requires illnesses to be recorded in

terms of (a) the particular organ system involved, (b) whether the illness is acute or chronic, (c) severity of the illness and (d) severity of interference with daily living. For each organ system, severity is assessed using a four-point scale (0 = nil, 1 = mild, 2 = moderate, 3 = severe). Appropriate summing of these scores gives rise to six index scores: overall acute severity and chronic severity, overall acute disability and chronic disability, and total number of organ systems affected by acute and chronic illness.

Mental health

The target of mental health data collection was to complete a standardised psychiatric interview with each member of the sample, and the parallel version with an informant. A specially modified semi-structured clinical interview, the Psychiatric Assessment Schedule for Adults with a Developmental Disability (PAS-ADD) (Moss et al. 1990) was designed to maximise the proportion of valid responses in this population group, and to be usable with a broad range of levels of handicap.

Computerised diagnoses were generated from the PAS-ADD data using programs that apply the decision rules of the major European and American psychiatric symptom classification systems, ICD 9 and DSM III(R). (The ICD 9 program is called CATEGO.) Both the programs identify, and give diagnoses for, definite cases. The DSM algorithm generates, in addition, a total symptom score, which we subsequently used as one of the measures of psychiatric morbidity. CATEGO, in addition to diagnostic categories, generates a measure of the confidence of case detection ("index of definition") for each subject.

Dementia

Detection of dementia cases proceeded in the following way. Firstly, the entire sample was screened for potential dementia by interview with a key informant. Key informants of persons who were suspected, on the basis of this initial screening, to be suffering from dementia were given a standardised interview for informants (Jorm and Korten 1988). This interview deals with changes in memory and intelligence over the previous 10 years. Since, in the present sample, informants with a 10-year knowledge of the subject were rare, flexibility in relation to the time period had to be adopted.

Secondly, the PAS-ADD clinical interview provided the clinician with important verbal and behavioural information that helped diagnose the presence or absence of dementia. Clinical judgements were guided and objectified by means of a checklist of items presented in previous studies of dementia in persons with mental retardation (Reid and Aungle 1974; Reid et al. 1978; Tait 1983).

Thirdly, potential cases of dementia derived from this interview were reassessed on functional ability usign the Adaptive Behaviour Scale (ABS) (Nihira 1975). The original ABS assessments had been performed on all sample members approximately 3 years previously. In this pre-

sent study, any individuals suspected of suffering from dementia, on the clinical grounds described above, were reassessed on the same instrument. Part I of the ABS provides information on 24 domains of self-care and community skills. Part II provides information on 13 domains of problem behaviour. The instrument, containing 66 questions in part I and 43 questions in part II (excluding "use of medications") is completed by the informants.

In a previous report (Hogg and Moss 1989), we have shown that ABS part I data for the Oldham sample have a two-factor structure, factor 1 loading heavily on self-help skills, factor 2 loading on the more complex community skills such as use of transport, and on the more cognitive items such as language, numbers and time. This second factor was found to correlate highly with IQ (0.72). A measure of cognitive level was derived by summing the score of the domains that loaded greater than 0.5 on factor 2 in our previous factor analysis. The skill-domains summed to provide this score were: *Economic Activity, Language Development, Numbers and Time.* Differences between the original and retest cognitive scores were used to estimate the magnitude of cognitive loss.

Medical records

All relevant information was extracted from clinical records, held either by the hospital in which the client was resident or by the individual's GP. Due to the wide variation in detail and quality with which clinical information is recorded, it was inappropriate to attempt to devise a standardised format within which to record these findings. Rather, the physician made detailed notes, information from which was used to inform his clinical judgements relating to past and present histories of physical and mental health.

Results

Physical health

Summary of clinical findings. Table 2 gives a list of the main aetiological diagnostic categories in relation to mental handicap found in this study. As regards other pathology, three individuals had early-onset insulin-dependent diabetes, whereas eight had maturity-onset diabetes. Five people had hypothyroidism, and one person had a goitre with normal thyroid function. Three people had primary Parkinson's disease, four had drug-induced Parkinson's syndrome, nine people had hypertension, five people had congestive heart failure, three had angina, four had a history of stroke or transient ischaemic attacks, and one had ECG evidence of left ventricular hypertrophy. Two had cor pulmonale secondary to chronic obstructive airways disease. Medical data are summarised in Table 3.

Generally speaking, most subjects appeared to utilise medical services to an adequate degree when necessary. The carers appeared to be particularly aware and vigilant in relation to physical disorders.

Table 2. Proportions of subjects with identified handicap aetiologies

Aetiology	n	[%]
Cerebral palsy	15	14.3
Down's syndrome	8	7.6
Childhood meningitis	2	1.9
Congenital hydrocephalus	1	0.9
Post-operative brain damage	1	0.9
Microcephaly	1	0.9
Spina bifida	1	0.9
Cause unknown	76	72.4

Table 3. Percentages of subjects by physical disorder

Physical disorder	n	[%]
Hearing problem requiring aid	19	18.1
Eye disorder (mainly cataracts)	24	22.9
Chronic respiratory disease	17	16.2
Cor pulmonale	2	1.9
Arthritis (mainly osteoarthritis)	53	50.5
Arthritis with restricted mobility	21	20.0
Hypertension	9	8.6
History of stroke/CVA	4	3.8
Congestive cardiac failure	5	4.8
Angina/ischaemic heart disease	5	4.8
Epilepsy	16	15.2
Parkinson's disease	3	2.9
Drug-induced Parkinsonism	4	3.8
Tardive dyskinesia	3	2.9
Diabetes – insulin dependent	3	2.9
Diabetes – maturity onset	8	7.6
Biochemical hypothyroidism	5	4.8
Thyroid goitre	1	0.9
No disorder needing medical intervention	35	33.3

Table 4. Low-prevalence disorders

Condition	Percentage of cases		
	Oldham 65+	Wilkin psychiatric	Wilkin Soc. Serv.
Infarction	4.2	4.1	2.3
Claudication	2.1	4.1	3.7
Congestive cardiac failure	6.4	6.1	4.9
Persistent cough	8.5	8.1	7.0
Persistent phlegm	8.5	6.1	7.0
Recurrent chest illness	6.4	18.8	19.8
Duodenal ulcer	4.3	4.1	3.5
Hiatus hernia	4.3	4.1	3.5
Urinary tract disorder	10.6	10.2	4.7

Comparison with Wilking data. Comparisons were made on the basis of members of the Oldham sample over 65 years of age. This comprised 47 individuals. The mean age in this sub-group was 72.5 years. The mean ages in the comparison groups from the Wilkin data set were 78.6 years for those referred by social services and 74.8 years for those referred by psychiatric services.

Conditions showing relatively low occurrence in both data sets. Table 4 shows conditions showing relatively low prevalence in both the Oldham sample and the Wilkin comparative groups. There were no significant differences between the groups for any of these disorders. Recurrent chest illness appeared to be somewhat more prevalent in

the control groups, nearly 20% compared with 6.4% in the Oldham group. In fact, the Chi-square indicates a probability of 0.11 for this category.

Conditions showing higher prevalence in both mentally handicapped and non-handicapped groups. Table 5 lists a number of conditions that had higher prevalence rates than those listed above. Again, there were no significant differences between the groups for any of these disorders.

Dental problems were frequent owing to vague criteria and there being a significant number who needed dentures, but refused to wear them, or broke or lost them repeatedly. Most people, however and easy access to, and utilised, the dental services.

Conditions showing significant differences in prevalence between the groups. One condition, stroke, was much more prevalent in Wilkin's social service referral group (11.6%) than in either the psychiatric referral group (0%) or the Oldham sample (6.4%). The need for referral to social services in such cases is clear, and is not a relevant comparison in the context of the present study.

Angina was one of the two conditions that had a significantly *lower prevalence in the handicapped group* (2.1%) than in either the psychiatric (14.6%) or social service (16.3%) control groups (χ^2 $P < 0.05$). Hearing disorders also appeared less prevalent in the Oldham sample (23.4%) than in either the psychiatric (40.8%) or social service (43.0%) control groups. Such a large difference, however, was most probably due to differences in interpretation of the rating criteria; accurate measurements of hearing would require the services of a trained audiologist.

Incontinence, obesity and visual disorder were all significantly *more prevalent in the handicapped group* than in the control groups (Table 6). It should be noted, however, that criteria for these conditions were not standardised in the Wilkin instrument. Thus, if one only considered those visual problems that required medical attention, then the prevalence would fall to 24/105, i.e. 22.9%. The most frequent eye conditions found were cataracts. A small number of people had optic atrophy, retinal degeneration and glaucoma.

Psychiatric morbidity

The total number of people identified by either informant or subject interview as DSM cases or as having a CATE-GO index of definition of 4+ was 12, giving an overall prevalence rate of 11.4%. Table 7 gives the 12 diagnoses as specified by the algorithms.

Identified cases had a higher developmental level than the remainder of the group. The mean IQ of the 12 cases was 39.2, that of the non-cases was 29.3 (t-test, $P < 0.005$).

One obvious reason for this finding was that it was easier to interview people with a higher developmental level. Interestingly, however, the same effect occurred in those cases identified solely on the basis of informant interview, although this was not statistically significant (the IQ of non-cases was 25.0; the IQ of cases was 28.0). There-

fore, it appears that the lower rate of detection amongst the less able members of the sample related not just to the possibility of successful interviewing but also to the difficulty in identifying psychiatric symptoms in people whose level of handicap is very severe. This applied not just to the examining psychiatrist but also to informants who knew the individual well.

The 12 people identified as cases were also significantly younger than the remainder of the sample. The mean age of the 12 cases was 61.0 years compared with 65.2 for the 92 non-cases (t-test, $P < 0.01$). The reason for this was obscure. It was certainly not due to older sample members having a lower mean IQ (and hence being more difficult to interview), since this has previously been shown not to be the case (Moss et al. 1992). It may have been due partly to the fact that in some of the older patients a primary diagnosis of dementia was first recorded.

Dementia. Twelve cases of dementia were confirmed, giving a prevalence rate of 11.4% for the entire sample. Two of these individuals were also included in the group of 12 psychiatric cases discussed above. Four of the confirmed cases had Down's syndrome. Full details of the clinical judgements relating to dementia, and their subsequent confirmation by changes in adaptive behaviour over a 3-year period are presented by Moss et al. (1991).

Table 5. Higher-prevalence disorders

Condition	Percentage of cases		
	Oldham 65+	Wilkin psychiatric	Wilkin Soc. Serv.
Gastrointestinal disorder	27.7	31.3	23.3
Arthropathy	55.3	38.8	46.5
Foot disorder	23.4	24.5	25.6
Hearing	23.4	40.8	43.0
Dental problems	42.6	31.3	27.9

Table 6. Conditions having higher prevalence in the handicapped group

Condition	Percentage of cases		
	Oldham 65+	Wilkin psychiatric	Wilkin Soc. Serv.
Incontinence	51.1	10.2	11.6
Obesity	17.0	6.1	3.5
Visual disorder	63.8	26.5	43.0

Table 7. Psychiatric diagnoses of the 12 identified cases

Diagnosis	no. of cases
Mania	1
Generalised anxiety disorder	2
Panic disorder with agoraphobia	1
Agoraphobia without panic attacks	1
Major depression	4
Major depression superimposed on long-standing panic disorder with agoraphobia	1
Depressive neurosis	1
Dysthymia	1
Total	12

Relation between physical and psychiatric morbidity

There was a problem in determining the relation between physical and psychiatric morbidity: in this population, people diagnosed as cases were significantly younger and more able than the rest of the sample. Since ability and age in handicapped populations both relate to physical health this means that, other things being equal, the group diagnosed as cases would be *fitter* than the non-cases. In an attempt to distinguish these effects the following three analytical approaches were taken:

1. Calculation of partial correlation between total PAS score as a measure of psychiatric morbidity, and the various physical health index scores, holding developmental level constant

2. Multiple regression analysis of age, developmental level and total PAS score on the various health index scores

3. Discriminant function analysis to determine whether the individuals classified as cases and non-cases could be predicted from their age, developmental level and total PAS scores

In each of the two multivariate analyses the main aim was to determine the magnitude of contribution of psychiatric morbidity, as expressed by total PAS score, to the prediction of physical health.

Partial correlations. None of the partial correlations between PAS total score and physical health was greater than 0.08. Thus, there was no indication of a relationship.

Multiple regression. The regression method chosen involved entry of all variables followed by backward elimination to achieve highest multiple r. In all analyses, PAS total score played no part in contributing to the multiple r coefficient, and was dropped on the first step of backward elimination. Thus, the results mirrored those of the partial correlations and demonstrated no relation between mental and physical morbidity.

Discriminant function analysis. Again, results indicated no relation between health and psychiatric morbidity. Four analyses were performed, using age, IQ and one of the health indices to predict classification into psychiatric cases and non-cases. Analysis used the *minresid* solution, designed to minimise the sum of unexplained variation between the groups. In each case, the analysis eliminated the health index measure from the equation since it made insufficient contribution. The only indication that there might have been an underlying effect was that, in the analyses of chronic indices, correlations were in the direction of *better* health for the cases than for the non-cases. However, it must be stressed that these effects were small and not statistically significant.

As a result of these three analyses, we are unable to report a relation between physical and psychiatric symptomatology in this sample. Identified cases were, as already stated, younger and more intellectually able than non-

Table 8. Physical health indices

Health index	Non-cases	Psy-chiatric cases	De-mentia cases
Total acute severity	0.3	0.3	0.4
Total chronic severity	4.1	3.9	7.1**
Total acute disability	0.3	0.4	0.3
Total chronic disability	3.9	3.3	6.4**
No. of bodily systems affected acutely	4.4	4.3	7.5**
No. of bodily systems affected chronically	4.2	3.8	6.7*

* $P < 0.01$
** $P < 0.001$

cases. The strength of this relationship was presumably too great for a general relation between physical and mental health to be manifested.

Physical health of dementia cases. Physical health indices (Table 8) for the 12 dementia cases indicated their poorer health status. All indices apart from acute severity and disability scores showed a significant difference between cases and non-cases. Scores for the 12 psychiatric cases are also shown for comparison. It can be seen that these were similar to the scores for non-cases, confirming the lack of association between psychiatric and physical morbidity in this sample.

Discussion

Relation between mental and physical health

Our inability to demonstrate a significant relation between physical and mental health serves to indicate the problems surrounding the detection of psychiatric morbidity in people with mental handicap. Despite the development of the new semi-structured clinical interview, and its use by a psychiatrist with considerable experience in the assessment of mental health in this patient group, detection becomes increasingly difficult with an increasing level of handicap. This artefact makes it appears that people with more severe handicap suffer from fewer psychiatric symptoms. Since physical health tends to be poorer in people with a greater level of handicap, the relationship under investigation tends to become masked by this experimental artefact running in the opposite direction.

In the future it may be possible to increase the sensitivity of symptom detection in more severely handicapped people to the point that this artefact can be appreciably diminished. Indeed, work is currently underway to improve the sensitivity of the PAS-ADD through a developmental project that will be completed in 1994 (Moss and Goldberg 1991). Another possible approach would be to repeat the present study, but to restrict the experimental group to individuals whose intellectual level is sufficiently high so that all sample members can be successfully clinically interviewed.

Physical health

We made a deliberate choice *not* to compare our results with other published surveys of health amongst the elderly in general or specifically amongst people with mental handicap. This was because none of the available data provide adequate information on the criteria used for reaching diagnoses. It is impossible to draw valid conclusions unless, as in the present study, the same criteria are used for both samples. The reader is directed to Hogg et al. (1988, chap. 3), where a full review and comparison of available data is presented. In the present study we showed that even the most promising comparative data gave the prevalence rate of musculoskeletal disorders for handicapped people to be between *4 and 30* times greater than for non-handicapped individuals. While such disorders are probably particularly difficult to define, the magnitude of the difference underscores the importance of adhering to well-defined categories.

Our conclusions concerning the physical health status of the Oldham samples are somewhat at odds with other studies (mostly from the USA) suggesting generally poor health in older people with mental handicap. In comparison, the results of our physical investigations showed that, broadly speaking, this is a basically healthy group of individuals. It may be hypothesised that this good level of health is due partly to the effects of differential mortality having an impact on the medical characteristics of this group – a far greater impact than one would expect in the general population (Moss 1991). In particular, survivors over 50 years of age are likely to be a particularly robust group because of the very high mortality during the course of infancy and early childhood in those born about the same time. In the USA, on the other hand, the effect of differential mortality would tend to be lower in mentally handicapped samples who were defined on the basis of agency contact, since a greater proportion of mildly handicapped individuals receive support in the USA than in the UK. This may partly explain the discrepancy between our results and those of US studies.

Since the impact of differential mortality in the present study cannot be estimated, it is difficult to interpret the significance of prevalence rates relating to potentially life-threatening disorders such as heart disease, respiratory problems and neurological disorders, since it is these conditions that are most likely to have proved fatal to those individuals who died prematurely. This is an indication of the desirability of a longitudinal study to investigate fully the relationship between age and physical health in people with mental handicap.

The relatively good level of health in this group was reflected in the fact that many of the disease categories included very few cases, and even fewer that could be classified as "severe". There were, however, a number of chronic conditions affecting a sizable proportion of both the Oldham sample and the Wilkin comparative groups. These conditions included gastrointestinal disorders (27.7%), foot disorder (14.9%) and balance disorder (40.4%). Incontinence was, not surprisingly, worse in the handicapped groups, while obesity was also more prevalent. Although not quite reaching significance, arthritic

disorders appeared to be remarkably high in the Oldham group.

Angina was the one disorder that definitely had a lower prevalence amongst the handicapped group than amongst Wilkin's social service and psychiatric service referral groups. Even amongst the psychiatric referrals 14.6% had smyptoms of angina, compared with only one individual in the Oldham sample 65 + age group (2.1%). Two possible influences may have produced this finding: (a) heart problems are more likely to cause death in people whose physical state is already fragile (i. e. a facet of differential mortality), and (b) there is a lower level of stress in the lives of people with severe mental handicap. The sceond of these suggestions is speculative and is at odds with the views of some writers such as Day (1985) whose finding of a high level of neurotic disorders amongst community referrals is interpreted as an indication of the stress upon these people. Certainly, other evidence (e. g. Flynn 1988) indicates than many people relocated from long-stay hospitals have lonely lives in the community, sometimes suffering victimisation.

It has been suggested that people who have been in long-term institutional care are more likely to show evidence of neurological damage following the long-term and sometimes excessive use of neuroleptics. While the current results do not give any evidence of significantly higher neurological problems amongst those sample members who lived in mental handicap hospitals, this is a point that deserves further investigation using more exhaustive tests of neurological functioning.

Despite the relatively good health of this group, it was clear that those people identified as suffering from dementia had much poorer physical health than the group average. Health index measures indicated poorer scores for both chronic and acute physical disorders, particularly those involving the central nervous system and gastrointestinal function. Many of the individuals with a firm diagnosis of dementia showed deterioration in a wide variety of self-care and community skill domains. This, coupled with their generally poor health, suggests that the level of these people's needs represents a major use of social service resources.

References

Badry DE, Vrbancic MI, McDonald L, Groeneweg G, Hornick J (1986) A demographic and needs analysis of older developmentally disabled persons in the province of Alberta. Report no. 1. Michener Centre, Faculty of Social Welfare, University of Calgary, Calgary, Alberta

Burvill PW, Mowry B, Hall WD (1990) Quantification of physical illness in psychiatric research in the elderly. Int J Geriatr Psychiatry 5: 161–170

Day K (1985) Psychiatric disorder in the middle-aged and elderly mentally handicapped. Br J Psychiatry 147: 660–667

Eastwood MR, Trevelyan MH (1972) Relationship between physical and psychiatric disorder. Psychol Med 2: 363–372

Fillenbaum (1984) The wellbeing of the elderly: Approaches to multidimensional assessment. World Health Organisation, Geneva

Flynn M (1988) The social environment of adults living in their own homes. In: Flynn M (ed) A place of my own: independent living for adults who are mentally handicapped. Cassell, London, pp 71–91

Forssman H, Akesson HO (1970) Mortality of the mentally deficient: A study of 12,903 institutionalised subjects. J Ment Defic Res 14: 276–294

Hogg J, Moss S (1989) Intellectual and adaptive functioning. A demographic study of older people with mental handicap in Oldham Metropolitan Borough, Part I. H.A.R.C. University of Manchester, Manchester

Hogg J, Moss S, Cooke D (1988) Ageing and mental handicap. Chapman and Hall, London

Horne M (1989) A demographic study of older people with mental handicap in Oldham Metropolitan Borough, part 4. H.A.R.C., University of Manchester, Manchester

Jacobson JW, Sutton MS, Janicki MP (1985) Demography and characteristics of aging and aged mentally retarded persons. In: Janicki MP, Wisniewski HM (eds) Aging and developmental disabilities: issues and approaches pp 115–142. Paul Brookes, Baltimore

Janicki MP, Jacobson JW (1982) The character of developmental disabilities in New York State: Preliminary observations. Int J Rehabil Res 5: 191–202

Janicki MP, MacEachron AE (1984) Residential, health, and social service needs of elderly developmentally disabled persons. Gerontologist 24: 128–137

Janicki MP, Otis JP, Puccio PS, Rettig JH, Jacobson JW (1985) Sercive needs among older developmentally disabled persons. In: Janicki MP, Wisniewski HM (eds) Aging and developmental disabilities: issues and trends pp 289–304. Paul Brookes, Baltimore

Jorm AF, Korten AE (1988) Assessment of cognitive decline in the elderly by informant interview. Br J Psychiatry 152: 209–213

Kay DWK, Bergmann K (1966) Physical disability and mental health in old age: A follow-up of a random sample of elderly people seen at home. Session 1 – Psychiatric and somatic disorders in old age. J Psychosom Med 10: 3–12

Kay DWK, Roth M (1955) Physical accompaniments of mental disorders in old age. Lancet II: 740–745

Kay DWK, Beamish P, Roth M (1964) Old age mental disorders in Newcastle-upon-Tyne. Part I: A study of prevalence. Br J Psychiatry 110: 146–158

Kohn R, White KL (1976) Health care: An international study. Oxford University Press, Oxford

Lindesay J (1990) The Guy's/Age Concern survey: Physical health and psychiatric disorder in an urban elderly community. Int J Geriatr Psychiatry 5: 171–178

Moss SC (1991) Age and functional abilities of people with mental handicap: Evidence from the Wessex Register. J Ment Defic Res 35: 430–445

Moss SC, Goldberg DP (1991) The Psychiatric Assessment Schedule for Adults with a Developmental Disability (the PAS-ADD): Interview development and compilation of the clinical glossary. (Project proposal to the DOH.) H.A.R.C., University of Manchester, Manchester

Moss SC, Goldberg DP, Simpson N, Patel P, Rowe S (1990) The PAS-ADD: Psychiatric Assessment Schedule modified for use in adults with developmental disabilities, H.A.R.C., University of Manchester, Manchester

Moss SC, Goldberg DP, Patel P (1991) Psychiatric and physical morbidity in older people with severe mental handicap. H.A.R.C., University of Manchester, Manchester

Moss SC, Hogg J, Horne M (1992) Demographic characteristics of a population of people with moderate severe and profound intellectual disability (mental handicap) over 50 years of age: age structure, IQ and adaptive skills. J Intellectual Disabil Res 36: 387–401

MRC (1965) Definition and classification of chronic bronchitis for clinical and epidemiological purposes. Lancet I: 775–779

Murphy E (1983) The prognosis of depression in old age. Br J Psychiatry 142: 111–119

Nihira K, Foster R, Shellhaas M, Leland H (1975) AAMD Adaptive behavior manual. AAMD, Washington

Post F (1972) The management and nature of depressive illnesses in late life: A follow-through study. Br J Psychiatry 121: 393–404

Powell C, Crombie A (1974) The Kilsyth Questionnaire: A method of screening elderly people at home. Age Ageing 3: 23–28

Reid AH (1972) Psychoses in adult mental defectives: I. Manic-depressive psychoses. Br J Psychiatry 120: 205–212

Reid AH, Aungle PG (1974) Dementia in ageing mental defectives: A clinical psychiatric study. J Ment Defic Res 18: 15–23

Reid AH, Maloney AFJ, Aungle PG (1978) Dementia in ageing mental defectives: A clinical and neuropathological study. J Ment Defic Res 22: 233–241

Rose GA (1962) Diagnosis of ischaemic heart pain and intermittent claudication. Bull WHO 27: 645–658

Roth M (1983) Depression and affective disorder in later life. In: Angst J (ed) The origins of depression. Springer, Berlin Heidelberg New York

Roth M, Kay DWK (1956) Affectice disorder arising in the senium. II. Physical disability as an aetiological factor. J Ment Sci 102: 141–150

Tait D (1983) Mortality and dementia among ageing defectives. J Ment Defic Res 27: 133–142

Wilkin D, Durie A, Wade G, Jolley DJ (1984) Research report no. 5. Research Section Psychogeriatric Unit, University Hospital of South Manchester, Manchester

Dr. S. Moss
Hester Adrian Research Centre
University of Manchester
Oxford Road
Manchester M13 9PL
UK