Evaluation of the use of brief screening instruments for dementia, depression and problem drinking among elderly people in general practice

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SUMMARY

Background. *Use of brief screening instruments for detection of psychological morbidity among elderly people is being promoted, although the appropriateness and effectiveness of available instruments have not been evaluated in general practice.*

Aim. *This study set out to determine the outcome of opportunistic use of brief screening instruments for dementia, depression and problem drinking in randomized trials in two group practices in north west London.*

Method. *Screening instruments were inserted into a random sample of medical records for people aged 75 years and over in each practice. Medical records of those seen by their general practitioners over a six month period were reviewed for new diagnoses of dementia (or confusion), depression or problem drinking, and the scores obtained on screening instruments noted. The records of all those identified as possibly demented, depressed or drinking heavily were reviewed one year after screening and all relevant referrals and new treatments were noted.*

Results. *In one practice use of screening instruments resulted in a significant increase in the detection of possible dementia, but not of depression. In the second practice screening instruments yielded significantly higher numbers with possible dementia or depression. Heavy drinking was uncommon in either population. There was no difference in the proportions of cases identified by screening instrument or by clinical judgement alone who received treatment or referral.*

Conclusion. *These results suggest that in the absence of agreed guidelines and resources, information derived from screening instruments may not alter clinical practice.*

Keywords: geriatric screening; dementia; depression; alcohol consumption.

Introduction

THE 1990 contract for general practitioners requires them to review the 'mental condition' of all their patients aged 75 years and over, as part of an annual assessment of the medical and social needs of this age group.[1] This review requires general practitioners and other members of primary care teams to develop skills in psychiatric interviewing techniques. Research suggests that general practitioners tend to underdiagnose both depression and dementia,[2,3] partly because they perceive no advantage to their patients in diagnosing 'untreatable' conditions. A joint initiative on earlier detection and more effective treatment of depression by the Royal Colleges of Psychiatrists and General Practitioners in 1992[4] failed to make any specific comment about the problems of diagnosing and treating depression in elderly people.[5]

Early diagnosis of dementia allows early mobilization of support services and may avert crisis admission among patients with dementia living alone,[6] and may also reduce the psychological morbidity experienced by the carers of people with dementia.[7] Diagnosis of depression allows appropriate medical treatment of severe cases, with a subsequent reduction in morbidity and mortality,[8] and consideration of non-medical treatments for individuals with demoralization syndrome/dysphoria.[9] Gurland and colleagues urge that the ability of primary care services to identify depressed elderly patients be enhanced.[10] Although alcohol consumption is known to decrease with advancing age[11,12] problem drinking appears to make an important contribution to psychiatric and physical morbidity among elderly people needing specialist care.[13]

There is a need for effective, brief screening instruments for the detection of dementia, depression and problem drinking, suitable for use by trained non-medical staff and acceptable to elderly patients and their carers. A number of brief instruments exist, but their appropriateness for routine use in general practice has not yet been studied.[14] However, Macdonald raised doubts as to whether better diagnosis of depression would result in improved mental health in depressed elderly patients, arguing that further study of treatment effectiveness was more important.[15]

This study set out to test two hypotheses: that use of brief screening instruments for dementia, depression and problem drinking would yield a significantly higher number of cases than would general practitioners' unaided clinical judgement; and that general practitioners would initiate more treatment and referrals as a consequence. The evaluation of a 'package' of the mini-mental state examination,[16] the 15-item geriatric depression scale[17] and an alcohol quantity–frequency scale derived from the health survey questionnaire[18] in a randomized trial in two group practices in Brent, north west London, each with approximately 400 patients in the age group 75 years and over, is described.

Method

The mini-mental state examination has been validated in community studies in the United Kingdom and is acceptable to patients.[19] Although a diagnosis of dementia cannot be made using the examination alone, scores below 18 on its 30-point scale are predictive of dementia with a true positive rate of 81%.[20] Scores below 25 indicate probable cognitive impairment and possible dementia. The 15-item geriatric depression scale

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has been validated in a community study.[17] The alcohol quantity–frequency scale has been evaluated in a community study in an area of north London adjacent to that covered by the study practices.[18]

A computer search of medical records in each practice identified all patients aged 75 years and over on 1 April 1990. Random number tables were used to select random samples from each practice, providing a one in two sample from one practice (practice A — list size 11 500, six doctors) and a one in four sample from the other (practice B — list size 8700, four doctors). The larger random sample was sought in practice A because the doctors had smaller list sizes and a smaller proportion of the total practice population was aged 75 years and over; the practice was also using a printed checklist card for assessments of elderly patients with prompts for dementia, depression and problem drinking. In practice B no checklist of prompts was used for assessments of elderly people, and there was concern at the work that might be generated by the mental health assessment; therefore the smaller sample was used. A printed card carrying the three screening instruments was inserted into the medical records of all those in the random sample (the screened group), in each practice.

All the general practitioners were instructed in the use of the screening instruments by S I in group training sessions. At the time of the study only general practitioners were undertaking annual assessments in these practices, and all such assessments done between 1 October 1990 and 31 March 1991 were included in the analysis.

Assessments were offered to patients aged 75 years and over when they were seen, either at the surgery or on home visits, and all were encouraged to take up the offer. General practitioners were asked to administer the screening instruments whenever they found them in the records, or to arrange to do so at another time if immediate use was not practical or appropriate. The general practitioners were asked to note when they did the assessments in the patients' computer record and in particular to note any psychiatric diagnoses.

Data collection

Completed screening cards were collected for analysis by S I. In the screened group, scores of 24 or less on the mini-mental state examination were taken as indicating possible dementia, while scores of more than five on the geriatric depression scale were taken as indicating possible depression. Any individual drinking at or above the recognized 'safe limits' for their sex (21 units per week for men; 14 units per week for women) was noted as a potential problem drinker.

At the end of the study period computer searches in both practices identified all patients aged 75 years and over who had been seen by the doctors in that period. The records of individuals identified on the computer search as not having been seen were then checked to estimate the failure to record consultations on the computer, for each practice. The medical records of those in the control group (the clinical judgement group) were searched by S I and any diagnoses of dementia (or confusion), depression or problem drinking were noted.

The medical records of all patients identified as possible cases were reviewed after 1 April 1992, and all referrals (to any agency, including psychiatrists, community psychiatric nurses and psychogeriatricians) and new treatments with antidepressant or anxiolytic drugs that had occurred during the year following assessment were noted. Record reviews were done by S I for practice A and M G for practice B, using a standard checklist. Referrals to district nurses were cross-checked against data held by district nursing management, to estimate failure to record referrals in each practice.

Analysis

Data from both practices were entered on and analysed with *MINITAB* for contingency tables, with *SPSS-PC* for logistic regression, with *EPI INFO* for odds ratios and with a programme for calculating Fisher exact tests.[21] Only those comparisons planned at the outset of the study were tested, obviating the need to adjust for unplanned multiple comparisons.

Results

Study populations

The characteristics of the populations aged 75 years and over in the two practices, and the numbers of assessments done and deferred are shown in Table 1. In practice A the clinical judgement group consisted of 95 people, with 82 in the screened group. In practice B, 178 people were in the clinical judgement group and 57 were in the screened group.

Data recording

In practice A three consultations (1.7% of those seen) were not recorded on the computer but were documented in the notes, as were seven consultations (3.0%) in practice B. In practice A one of the consultations not recorded on the computer was with an individual in the screened group, but in practice B all unrecorded consultations were with individuals in the clinical judgement group, suggesting that in practice A the presence of the prompt card may have influenced data recording. Those whose consultations were not recorded on the computer but which did appear in the written record were allocated to the appropriate diagnostic group, if any.

Deferred assessments

In practice A assessments were not carried out in four individuals from the clinical judgement group and 11 from the screened group who were seen during the study period. In practice B 14 individuals from the clinical judgement group and nine from the screened group did not receive assessments despite being seen. In most cases the doctors felt that the individual was too ill to proceed with a full assessment or to use screening instruments, although lack of time was also given as a reason. Those whose assessments were deferred were included as not showing dementia, depression or heavy drinking, to allow analysis of data on an 'intention-to-treat' basis.

Group differences

There were no statistically significant differences in the median ages between screened and clinical judgement groups, in either practice — the median age for all four groups was 80 years.

Table 1. Characteristics of the populations aged 75 years and over, and number of assessments done and deferred.

	Practice A	Practice B
Total no. of patients aged 75+ years (% of total practice list)	438 (*3.8*)	442 (*5.1*)
Median age (years)	80	80
% women	*67.1*	*63.8*
No. of patients seen in study period	177	235
No. of patients for whom assessments done (% of all patients in age group)	162 (*37.0*)	212 (*48.0*)
No. of patients for whom assessment deferred (% of patients seen)	15 (*8.5*)	23 (*9.8*)

Significantly more men were in the clinical judgement group in practice B (77/178, 43.3%) than in practice A (25/95, 26.3%) (chi square test, $P<0.01$). The percentage of men in the screened groups in the two practices was not significantly different — 28/82, 34.1% in practice A versus 20/57, 35.1% in practice B.

Yield of cases

Because different random samples were selected in each practice, and because of the apparent heterogeneity of the clinical judgement groups, data are presented for each practice separately. The yield of cases of possible dementia, depression and heavy drinking in the clinical judgement and screened groups in each practice are shown in Table 2. There was a significant difference between the practices when the general practitioners were using clinical judgement alone: doctors in practice A (in which a checklist was routinely used) were significantly more likely to diagnose dementia (Fisher exact test, $P<0.05$) or depression (χ^2 test, $P<0.001$) than doctors in practice B.

The effect of the different sex ratios in the two clinical judgement groups was investigated using logistic regression analysis. With depression caseness as the independent variable and age, sex and practice as dependent variables, only practice had a significant effect on diagnosis, with an odds ratio of 9.3 for detection of depression in practice A compared with practice B. When adjustment was made for sex in the two clinical judgement groups, the effect of practice on diagnosis was reduced and sex itself became a predictor of depression caseness. The odds ratio for detection of depression in practice A compared with practice B was then 7.7, and women were significantly more likely to be depressed ($P<0.05$).

Review at one year

At review one year later, two individuals with possible dementia from the screened group in practice A had been lost to follow up through death or transfer out of the practice, together with three possible dementia cases in the clinical judgement group and four in the screened group in practice B. Four elderly people with possible depression were lost to follow up in practice A, two from each group; two possibly depressed individuals were also lost to follow up in practice B, one from each group. One individual thought to be a heavy drinker in the screened group in practice B was lost to follow up.

Referral and treatment. Table 3 shows the action taken during the following year, as recorded in the medical records. There were no statistically significant differences in the proportions of cases from either screened or clinical judgement groups who were referred or treated in the year following assessment. Cross checking with district nursing records did not identify any referrals to community nursing services that had not been documented in the medical records.

Table 2. Yield of cases using screening instruments and clinical judgement.

Possible cases	% of patients: Screened group	% of patients: Clinical judgement group	Odds ratio (95% confidence interval)
Practice A	(*n* = 82)	(*n* = 95)	
Dementia	*26.8*	*9.5*	3.5 (1.4 to 8.9) **
Depression	*22.0*	*21.1*	1.1 (0.5 to 2.3)
Heavy drinking	*2.4*	*1.1*	2.4 (0.2 to 140.9)
Practice B	(*n* = 57)	(*n* = 178)	
Dementia	*21.1*	*3.4*	7.6 (2.5 to 26.0)***
Depression	*17.5*	*2.8*	7.4 (2.1 to 28.5)***
Heavy drinking	*1.8*	*0.6*	3.2 (0.0 to 249.5)

n = total number of patients in group. Fisher exact test: **$P<0.01$, ***$P<0.001$.

Table 3. Action taken in the year following identification as a possible case.

Possible cases	% of possible cases for whom action[a] taken [total no. of possible cases]: Screened group	Clinical judgement group
Practice A		
Dementia	*20* [20]	*44* [9]
Depression	*38* [16]	*39* [18]
Heavy drinking	*0* [2]	*100* [1]
Practice B		
Dementia	*13* [8]	*33* [3]
Depression	*44* [9]	*100* [4]
Heavy drinking	*0* [0]	*0* [1]

[a]Any referral to National Health Service, social services or voluntary agencies, or any new treatment with antidepressant or anxiolytic drugs.

Criteria for action. The scores on the mini-mental state examination and geriatric depression scale of those for whom action was taken were compared with those for whom no action was taken, using a Mann-Whitney *U* test. Those whose apparent dementia prompted action had a median score on the mini-mental state examination of 16, compared with 19 for those for whom no action was taken (difference not statistically significant). Median scores on the geriatric depression scale were also not significantly different, being seven in the group being treated or referred and six in the group for whom no action was taken, but numbers were small, limiting the statistical power of the test.

Discussion

This study has shown that the mini-mental state examination, the 15-item geriatric depression scale and the alcohol quantity–frequency scale can be used after brief training by general practitioners who have no special experience in the psychiatry of old age, and can be incorporated into everyday clinical practice. Although screening instruments were not completed in 14% of the random sample, many of the individuals for whom screening results were not obtained were seriously ill, and their general practitioners felt administration of the screening instruments would have been detrimental to patient care. Using the screening instruments was found to be difficult by some doctors, partly because of time constraints and partly because of the content of the questionnaires (unpublished observations). The 15-item geriatric depression scale in particular included emotionally charged questions such as 'Do you feel hopeless?' which some doctors found difficult to ask.

All three instruments yielded more cases where detailed reassessment was needed than did clinical judgement alone. None of the screening instruments provides a diagnosis, and a review of the individuals identified as potential cases is needed to exclude acute confusional states and other neurological, endocrine and organic disorders that may impair cognitive function or depress mood. A detailed alcohol history, and an assessment of the impact of high alcohol consumption, is needed for the small number of individuals identified as possible heavy drinkers by the screening instrument.

O'Connor and colleagues have argued that general practitioners in the Cambridge area can diagnose dementia, at least when prompted to do so by research psychiatrists presenting case vignettes,[3] and Sandholzer has reported a similar finding from Germany (40th International Congress on General Practice, September 1989, Klagenfurt). Macdonald has shown that depression in elderly patients was more often diagnosed than treated by south London general practitioners, and argued that awareness of treatment options was more important for general practitioners than refinement of diagnostic skills.[15] The 1990 contract for general practitioners requires each family doctor to offer an assessment of mental condition to elderly patients, and this may act as a non-specific prompt. However, the findings presented here suggest that such a non-specific prompt does not maximize the diagnostic skills of general practitioners, at least for dementia, even in a research study where all were aware that they were participating in a clinical trial of screening instruments. There may be a specific lack of diagnostic skills among the general practitioners involved in this study, even though both practices include academic staff and are bases for undergraduate or postgraduate training, but it seems likely that the results reflect a wider problem.

Four times as many individuals were identified as having possible dementia by the screening instruments than by doctors using clinical judgement, and twice as many possible cases of depression. The observed prevalence of possible dementia was higher than the expected prevalence of 6–12% found in community studies of similar populations in north London,[22,23] but this is probably because the instruments were used opportunistically in a population consulting its doctors. The proportion of the random sample identified as possibly depressed by the 15-item geriatric depression scale corresponds to the prevalence of about 20% for all degrees of severity of depression noted in other studies from similar populations.[23,24] This would be expected because of the association between depression and physical disabilities that would be brought to the attention of doctors.[10] The small number of individuals identified as possible problem drinkers may make case finding using this screening instrument cost ineffective, but it may also reflect the insensitivity of the particular instrument used in this age group, and further studies of methods of identifying elderly problem drinkers are needed.

Doctors in practice A diagnosed depression and dementia significantly more often than those in practice B when no screening instruments were available as aids. This may be an effect of a printed prompt, which was only used in practice A; alternatively, use of a printed prompt may reflect a practice interest in this age group, and this may explain the higher diagnosis rate. The doctors in the two practices may be at different points on a learning curve about the psychiatry of old age, and so responded to the screening instruments in different ways.

General practitioners in this study were no more likely to initiate action after identifying a potential case using a screening instrument than they were when relying on their clinical judgement alone. This does not appear to be related to the severity of the disorder, since no significant differences were found in the scores of the 'treated' and 'untreated' groups. Other factors, such as the existing support for the individuals identified as possibly having depression or dementia, or the perceived lack of local services, may have influenced the general practitioners. The screening instruments may have been over-diagnosing dementia and depression; the mini-mental state examination is influenced by educational level, for example.[25] General practitioners may have compensated for this, using their prior knowledge of their patients. The extent of general practitioner action may have been underestimated, since only medical and nursing records were searched for evidence of activity initiated after assessment, and social service departments were not contacted. However, the correspondence of medical and district nursing records suggests that the scale of under-documentation of referrals is small. The lack of a blind outcome assessment procedure may have biased the results, but this is unlikely given the research team's previous positive attitude to the use of screening instruments.[22]

These findings support Macdonald's argument that knowledge about effective treatment options may be more important than technical diagnostic skill in determining 'underdiagnosis' of psychiatric disorders in elderly patients.[15] The small numbers of cases available for review one year after screening mean that caution is required in the interpretation of the results, but any hidden association between case finding and action is likely to be small.

General practitioners and their teams undertaking opportunistic assessment of the health of elderly patients can use brief screening instruments for dementia and depression as the first step in case finding for these common conditions, but if the general practitioners in this study are typical of the profession, the case for doing so remains unproven. The promotion of psychiatric screening instruments in assessment packages like that published by the Royal College of General Practitioners[26] may be premature, and larger scale studies of the outcome of using such instruments are needed to establish their true value. Trials of different approaches to treating depression, and of different ways of caring for people with dementia in the community, would be especially useful.

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