RESEARCH

The management of depressive symptoms in patients with COPD: a postal survey of general practitioners

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Aims: We examined the management of depression by general practitioners (GPs), through the use of case vignettes, in patients with chronic obstructive pulmonary disease (COPD), severe osteoarthritis and depressive symptoms alone. **Background:** Depression is common in patients with COPD. Untreated depression leads to poor compliance with medical treatment and increases health-care utilisation. **Methods:** We surveyed a random sample of GPs ($n = 3956$) in England using a postal questionnaire. The questionnaire explored how GPs would approach the management of emotional distress in patients with and without a chronic condition and gauged their views of and experiences with depression in patients with COPD. **Findings:** A total of 864 completed responses were received (22%). In the vignettes, a significantly greater percentage of GPs reported that they would explore or offer the diagnosis of depression in a patient with COPD (95.4%) compared with patients with either severe osteoarthritis (88.3%) or depressive symptoms alone (86.3%). In each case, the vast majority of GPs reported that they would explore a diagnosis of depression using a clinical diagnostic tool. The preferred method of treatment, if offered, in all three cases was a combination of anti-depressant drugs and psychological therapy. GPs endorsed the importance of routinely screening for depression in patients who have COPD and acknowledged that depression impairs patient self-management of COPD.

In conclusion, GPs in England were able to diagnose depression from the vignettes and plan appropriate treatment strategies in patients with chronic diseases. This should be complemented with thorough physical examination by GPs to rule out other factors such as the impact of physical illness. GPs believe depression interferes with patient self-management of COPD.

Key words: COPD; depression; general practitioners; postal survey; vignettes

Received 28 April 2010; accepted 6 December 2010; first published online 8 March 2011

Introduction

Chronic obstructive pulmonary disease (COPD) is a major cause of disability and mortality in old age, and its incidence is rising more rapidly than that of other chronic diseases (Jemal *et al.*, 2005; Maurer *et al.*, 2008; National Clinical Guideline on Management of COPD, 2010). The risk of depression is increased in the presence of COPD (Walters, 2008) as it is in the presence of other long-term physical conditions (Katon and Ciechanowski, 2002). People with both depression and a chronic physical disease are less physically and socially active and less likely to comply

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with medical care than are people with physical diseases alone (DiMatteo *et al.*, 2000; Katon and Ciechanowski, 2002). These behaviour changes are, in turn, associated with worse long-term health outcomes in terms of disease complications and premature death (DiMatteo *et al.*, 2000; Lin *et al.*, 2009). Health-service costs are higher as people with co-morbid depression and physical disease tend to have higher rates of hospital admission rates, longer lengths of stay in hospital and increased consultation rates in primary care (DiMatteo *et al.*, 2000; Katon and Ciechanowski, 2002; Walters, 2008). The negative effects of co-morbid depression on health outcomes for patients may either be direct, or indirect mediated through impaired patient self-care (Noel *et al.*, 2004). Patients with moderate-to-severe COPD are twice most likely to develop depression compared with patients without COPD in a primary care setting (Schneider *et al.*, 2010. The prevalence of depression in patients with COPD was estimated at 40% (Yohannes, 2008) and in elderly community dwellers with no physical condition it was reported at 10% (McDougal *et al.*, 2007). A recent systematic review identified the prevalence of depression in patients with osteoarthritis ranges between 21% and 33% (Yohannes and Caton, 2010).

Studies have shown that depression is missed by the general practitioner (GP) in up to 50% of patients with a physical illness, (Memel *et al.*, 2000) while less than 40% of depressed patients receive treatment for their depression (McQuaid *et al.*, 1999). Factors associated with poor detection rates of depression by GPs in older patients with a physical illness include lack of time during routine consultations for adequate assessment, poor reimbursement for the time spent in identifying depression, patients' reluctance/unwillingness to talk about depression (Orrell *et al.*, 2000; Krupinski and Tiller, 2001; Richard *et al.*, 2004) and inadequate knowledge of diagnosing depression (Orrell *et al.*, 2000; Krupinski and Tiller, 2001; Richard *et al.*, 2004). In addition, some GPs may lack the confidence to diagnose and treat depression in older people (Collins *et al.*, 1995; Shah and Harris, 1997; Orrell *et al.*, 2000; Krupinski and Tiller, 2001). Even if depression is identified, the initiation of therapy is often hampered by the low uptake of treatment (Yohannes *et al.*, 2001). Two studies have identified that less than one-third of COPD patients who were diagnosed with depression were receiving appropriate treatment for their depression (Kunik *et al.*, 2005; Koenig, 2006). We hypothesised that GPs are less likely to detect and treat depression in people with COPD than people without this condition. This may be because doctors miss psychological problems in their focus on patients' chronic physical condition. Alternatively, they might recognise there are both physical and psychological problems present but choose to focus only on the physical one. Where the decision is made not to treat a recognised psychological problem, this may be because the doctor believes the psychological problem may resolve on its own or in response to improving physical health without the need for specific mental health intervention. To investigate these possibilities, we compared GPs' approach to the diagnosis and management of depression in patients with COPD to that in patients with depressive symptoms and either osteoarthritis or no chronic physical condition.

Methodology

Data collection

The data were collected via a postal questionnaire survey administered to a random sample of GPs in England between February and May 2008.

Sample selection

This survey approached GP providers (formerly GP principals) and salaried GPs (Personal Medical Services contractors and other salaried) in England, drawn from the General Medical Services statistics database maintained by the Department of Health. This is derived from an annual census and contains the names, addresses, contract status and practice characteristics of all doctors in contract with the NHS (National Health Service) in England and Wales on the census date. The database is updated annually and made available between six and nine months after collection. We used the October 2007 database to sample GPs for this study.

Questionnaires were mailed to a random sample of 3956 English GPs. Each mailing included a covering letter, the questionnaire and a reply-paid envelope. Respondents were asked to return the blank questionnaire, if they did not wish to participate and, therefore, avoid reminders.

Reminders were sent at three and six weeks after the initial mailing. Responses were entered twice to minimise the risk of error and crosschecked by two investigators. This study was declared exempt from the need for ethics approval.

Vignettes

The questionnaire included three vignettes, designed to explore the diagnosis and management of depression in a patient with chronic obstructive pulmonary disease, a patient with severe osteoarthritis and a depressed patient with no known chronic physical condition (see Appendix 1 for the content of each vignette). Each clinical case history was followed by a series of questions about GPs' clinical decisions.

We developed the three vignettes using in-house expertise of the management of co-morbid psychological problems in older people with physical illness. We subsequently tested the questionnaire in a pilot study of a convenience sample of eight GPs in order to obtain feedback on the duration of completing the questionnaire, content of the vignettes, clarity of the questions and layout of the questionnaire. On the basis of feedback from this group, we revised the questionnaire to ensure that it was acceptable for the main survey.

Other items in the questionnaire explored GPs' experiences of depression in patients with COPD and their views on depression in patients with COPD.

Data analysis

We identified response biases by comparing the demographic characteristics – age and sex – with the wider GP population. Assuming that such biases existed, we derived 'probability' weights (the inverse of the probability of being sampled adjusted for non-response – by age group and gender) in order to ensure that the respondent sample more closely reflected the population it was designed to represent.

Using these weights, we obtained the percentage of GPs who would explore or offer a diagnosis of depression in each vignette and then examined which specific course(s) of action GPs were most likely to take if they opted for this diagnosis. Logistic regression was then used to determine predictors of a diagnosis of depression.

Age group, gender, contract status, practice training status and the level of practice deprivation were used as predictors. Finally, we investigated GPs views and experiences of depression in patients with COPD. All analyses were undertaken using STATA (v. 9.2). Statistical significance was determined at the 5% level throughout.

Results

We received 2816 responses. Of these, 864 were fully completed – an overall response rate of 22%. The remaining 1952 questionnaires were returned blank. Where reasons for not completing the questionnaire were given, they were noted: moved practice (76); retired (12); sabbatical leave (11); died (1).

Diagnostic tools

The patient health questionnaire (PHQ-9) was used by 676 (78%) where as the Hospital Anxiety Depression scale was used by 174 (20%), the Beck Depression Inventory by 13 (1.5%) and the diagnostic and statistical manual of mental disorders (DSM-IV) criteria by four (0.5%). PHQ-9 is widely used as a screening tool for diagnosing depression in patients with COPD by GPs.

Table 1 shows the sociodemographic characteristics of the survey respondents and their general practices. The mean age of the participants was 45.8 years (SD = 8.5 years), while 433 (50.1%) were female and 431 male. The vast majority (82%) were GP providers.

Representativeness of the respondent sample

Table 2 gives a breakdown of the respondent sample ($n = 864$) by age group ($\leqslant 40$, 41–50, >50) and gender. When compared with the eligible GP population, there is an underrepresentation of GPs aged 40 and below, and, specifically, male GPs in the respondent sample. Weights were derived by age group and gender, in order to redress these imbalances (ie, to ensure that the respondent sample more closely reflected the population it was representing).

Case management – diagnosing depression

Table 3 shows the percentage of GPs who reported that they would explore or offer the diagnosis of depression for each vignette. The number of GPs who responded were ($n = 864$).

Table 1 Sociodemographic characteristics of the patients

Characteristic	Mean (SD)
Age	45.9 (8.47)
Total number of GPs at practice	6.69 (3.2)
Practice list size	9557 (4569)
Contract status of GPs	*n* (%)
Principal status	705 (82)
Salaried status	129 (15)
Others	27 (3)
Gender	
Male	431 (49.9)
Female	433 (50.1)
Special clinical interests of the GPs	
Musculo-skeletal	114 (13.2)
COPD/respiratory	149 (17.2)
Mental health	160 (18.5)
Other special clinical interests	450 (52.1)
No special clinical interests	152 (17.6)
Practice location	
Rural	76 (8.8)
Semi-rural	185 (21.4)
Suburban	214 (24.8)
Town/city	281 (32.5)
Inner city	105 (12.2)
Training practice	
Yes	516 (60)
No	345 (40)
Patient group description in the practice	
Deprived	96 (11.1)
Mixed-poor	183 (21.2)
Average	380 (44)
Mixed-well off	181 (20.9)
Affluent	21 (2.4)
Special clinics in the practice[a]	
Musculo-skeletal	80 (9.3)
COPD/respiratory	582 (67.4)
Mental health	157 (18.2)
Other clinics	421 (48.7)

GPs = general practitioners; COPD = chronic obstructive pulmonary disease.
[a] Some of the practices have more than one special clinic.

Table 2 Respondents by age group and gender in comparison with GP population

Group	Respondent sample *n* (%)	GP population *n* (%)
Age group (years)		
≤40	245 (28.4)	12,180 (33.8)
41–50	325 (37.6)	12,682 (35.2)
>50	294 (34)	11,143 (31.0)
Gender		
Male	431 (49.9)	20,451 (56.8)
Female	433 (50.1)	15,554 (43.2)

GP = general practitioner.

Table 3 Diagnosis of depression (*n* = 864)

Case management	GP diagnosis of depression % (95% CI)
Case 1: moderately severe COPD	95.4 (94.0, 96.8)
Case 2: severe osteoarthritis of the knee	88.3 (86.1, 90.5)
Case 3: depressive symptoms alone	86.3 (83.9, 88.6)

GP = general practitioner; COPD = chronic obstructive pulmonary disease.

$P < 0.001$), suggesting that GPs diagnosed depression significantly more often in case 1 than in cases 2 or 3.

The only significant predictor of the diagnosis of depression was that GPs in training practices were 1.6 times more likely to diagnose depression in case 2 (osteoarthritis) than GPs in non-training practices (95% CI (1.1, 2.5); $P = 0.024$). There were no significant differences in the percentage of GPs who would pursue a diagnosis of depression by either age group, gender, contract type (provider, salaried, other) or level of deprivation. This is unsurprising, given that the vast majority of GPs would explore a diagnosis of depression.

Case management – course of action following diagnosis

Table 4 shows, for GPs who reported that they would pursue a diagnosis of depression, the actual course(s) of action that they would take. The number of GPs who responded were $n = 864$. In each case, at least 90% of GPs reported that they would explore the diagnosis using a clinical diagnostic tool, whereas just over a third of GPs

This course of action was most frequently indicated in case 1, where the patient has moderately severe COPD: 95.4% of GPs reported that they would pursue a diagnosis of depression here. Perhaps surprisingly, GPs least frequently indicated (although still 86.3% of the time) that they would pursue a diagnosis of depression in case 3, where the depressed patient presented with non-specific symptoms. Cochran's Q-Test (Siegel, 1956) revealed that there were significant differences between the three percentages ($\chi^2_{(2)} = 76.6$;

Table 4 Course of action (*n* = 864)

	Case 1 (%)	Case 2 (%)	Case 3 (%)
Percentage of GPs who would …			
….explore using clinical diagnostic tool	92.9	93.7	90.9
….suggest anti-depressant drug therapy	35.6	33.6	33.9
….suggest psychological therapy	35.6	27.6	38.1

GPs = general practitioners.
Case 1 = patient with chronic obstructive pulmonary disease.
Case 2 = patient with osteoarthritis.
Case 3 = patient with depressive symptoms alone.
Note: GPs were permitted to select as many 'courses of action' as they deemed appropriate.

suggested that anti-depressant drug treatment was appropriate. The percentage suggesting psychological therapy as a possibility varied from case to case: 27.6% would suggest psychological therapy in case 2 (osteoarthritis), whereas 38.1% would suggest such a therapy in case 3 (non-specific symptoms).

The most popular 'combined' course of action was simply to investigate the diagnosis of depression using a clinical diagnostic tool without suggesting either drug treatment or therapy (case 1 = 52.9%; case 2 = 59.8%; case 3 = 50.2%). The second most popular option was to explore all three possibilities (case 1 = 22.1%; case 2 = 19.4%; case 3 = 20.1%).

Exploration of depression management in patients with COPD by GPs

In cases of suspected depression, 44.4% of GPs stated that they always used a formal diagnostic tool to confirm the diagnosis; a further 34.5% stated that they often did, whereas only 2.6% reported never using such a tool. GPs that explored a diagnosis of depression in the COPD vignette were more likely to use diagnostic questionnaires. Thirty nine percent, of GPs reported, that good management of depression often improved control of COPD symptoms in patients who have both conditions; a further 56.8% reported that this was sometimes the case. GPs that explored a diagnosis of depression in the COPD vignette were less likely to report (in their experience) that good management of depression improves the control of COPD symptoms. Almost 75% of GPs disagreed to some extent that there was little value in routinely screening for depression in patients with COPD while over 95% agreed to some extent that depression impairs patient self-management of

COPD. GPs who reported that they would explore a diagnosis of depression in the COPD vignette were more likely to disagree with the former view while being more likely to agree with the latter one.

Discussion

This is the first study that has used clinical vignettes to investigate the diagnosis and management of depression in patients with COPD, chronic osteoarthritis and depressive symptoms but no chronic physical condition in a primary care setting. Our findings indicate that the vast majority of GPs made a diagnosis of depression: 95%, 88% and 86% in patients with COPD, severe osteoarthritis and depressive symptoms alone, respectively. The high rate of recognition of depression may in part be due the recent introduction of the quality and outcomes framework (QOF) in which GPs are reimbursed for screening for depression in patients with heart disease and diabetes (BMA, 2006) and which may have sensitised them to the detection of depression in other patient groups.

Our analysis identified five key points. First, in each of the three vignettes, at least 90% of physicians who reported that they would explore or offer a diagnosis of depression stated that they would use a formal diagnostic tool to confirm the diagnosis. This is consistent with both QOF (BMA, 2006) and NICE guidelines for the management of depression (2010), which advocate that physicians pursue a formal diagnosis, for example, using the gold standard DSM IV criteria, in patients exhibiting high levels of depressive symptoms. This should be complemented with physical examination and full explanation about the

diagnosis depression in order for the patient to comply with appropriate treatment. Second, nearly all GPs were of the opinion that depression interferes with patient self-management of COPD. This is in agreement with previous studies, which report that depression affects compliance with medical treatment (DiMatteo *et al.*, 2000) and precipitates early dropout from both pulmonary rehabilitation (Garrod *et al.*, 2006) and cardiac rehabilitation programmes (Yohannes *et al.*, 2007). Third, in all three vignettes, GPs were most likely to offer a combined anti-depressant drug and psychological therapy treatment. In our experience (Yohannes *et al.*, 2001) and that of others (Sirey *et al.*, 2007), merely offering anti-depressant drug therapy – without a proper explanation of the impact of the disease, educating patients about depression, encouraging patients to take their medication and ongoing formal or informal psychological support – is a recipe for patients to decline valuable treatment. The NICE guidelines for COPD emphasise the importance of psychological support (eg, cognitive behavioural therapy) and regular monitoring for side effects in patients who receive anti-depressant drug therapy (National Clinical Guideline on Management of COPD, 2010). Fourth, GPs acknowledged the importance of regular screening of COPD patients for depression. This may enhance physical functioning and quality of life while prompt action may reduce the impact of unrecognised depression. Finally, our findings show variation among GPs in terms of their chosen course of action (use of diagnostic tools, anti-depressant use and psychological therapy): the reasons for this remain unclear, although therapeutic decision-making depends on the severity of the problem, the GP's experience and the set up of the practice. These variations merit further investigation. In this study, PHQ-9 is widely used (78%) as a screening tool for diagnosing of depression in patients with COPD by GPs, which is slightly higher than a previous study (72%) in similar setting for chronic diseases (Kendrick *et al.*, 2009).

Study limitations

First, while vignettes are a well-established method for investigating doctors' clinical decision-making, they elicit ideal behaviour in artificial situations outside actual care settings. Observational studies of doctors' actual behaviour would be needed to corroborate the findings elicited in our study but are expensive to conduct on a large scale. Second, this survey response rate of 22% was relatively low compared with previous literature in a similar questionnaire survey the response rate was 51% by GPs (Gardner and Ogden, 2005), raising the likelihood that our sample was atypical of the wider GP population. Caution is regarded in interpretation of our findings because our response rate was very low. Indeed, a high proportion of responders reported a special interest in COPD/respiratory disease (67.4%), which suggests that our sample may have been enriched by doctors whose knowledge and management of COPD may be superior to that of GPs generally. However, we have recruited the participants from a random sample of general practices, wide range of practice locations and serving wide range of patients (from poor to affluent) as reported in Table 1. Third, we did not formally assess the validity of the survey questions against a 'gold standard' measure. However, we carried-out a pilot study in a convenience sample of GPs and received feedback in terms of the clarity of the questions and content of the vignettes. Further work is needed for future research.

Conclusions

The vast majority of GPs in this study were able to identify depression from the vignettes in patients with chronic diseases. This should be complemented with thorough physical examination by GPs to rule out other factors such as the impact of physical illness. Recognition of depression is the first step in its management, a very important step in light of GPs' approach that depression impairs the self-management of COPD and other chronic conditions.

Acknowledgement

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Appendix 1: Vignettes

Case one: Mrs Robinson

Mrs Robinson is a 65-year-old widow with moderately severe chronic obstructive pulmonary disease (COPD). You saw her two weeks ago for an exacerbation of her COPD which you treated with antibiotics. At that time, she was weepy and

distressed when describing her symptoms, saying she lost interest in the things that normally give her pleasure. Her symptoms included a cough that was disrupting her sleep and breathlessness on exertion that was interfering with her daily routine. You have brought Mrs Robinson back today for review. Her COPD symptoms have improved considerably but she remains weepy and distressed, saying that her chest problem is slowly destroying her enjoyment of life. She reports feeling tired all the time and having trouble with sleeping.

a) Review your management of Mrs Robinson's COPD with a view to improving her symptom control.
b) Reassure Mrs Robinson that her low mood is probably a reaction to her recent COPD exacerbation and that she is likely to feel better in a few weeks.
c) Explore the diagnosis of depression using clinical diagnostic tool.
d) Offer Mrs Robinson the diagnosis of depression and suggest anti-depressant drug treatment.
e) Offer Mrs Robinson the diagnosis of depression and suggest psychological therapy.
f) Refer Mrs Robinson for further assessment and treatment of her COPD.
g) Ask her to return in another two weeks for review.
h) Suggest that she return only if her symptoms do not resolve.

Case two: Mrs Jones

Mrs Jones is a 65-year-old widow with osteoarthritis of the right knee which you have treated with analgesics and non-steroidal anti-inflammatory drugs. She has refused other therapeutic options, notably knee replacement. Today she is weepy and distressed saying that the trouble with her knee is getting worse and slowly destroying her enjoyment of life. She is tired all the time and has trouble sleeping.

a) Review your management of Mrs Jones' osteoarthritis with a view to improving her symptom control.
b) Reassure Mrs Jones that her low mood is an understandable reaction to her the pain and

disability associated with arthritis and that she is likely to feel better in a few weeks.
c) Explore the diagnosis of depression using clinical diagnostic tool.
d) Offer Mrs Jones the diagnosis of depression and suggest anti-depressant drug treatment.
e) Offer Mrs Jones the diagnosis of depression and suggest psychological therapy.
f) Refer Mrs Jones for further assessment and treatment of her arthritis.
g) Ask her to return in another two weeks for review.
h) Suggest that she return only if her symptoms do not resolve.

Case three: Mrs Johnson

Mrs Johnson is a 65-year-old widow and frequent visitor to your surgery. Her presenting problems in the past have been wide ranging but non-specific, including such things as headache, abdominal pain, aches in her joints or breathlessness. On several occasions, you have referred her for further investigations but they have not revealed any abnormalities. Today Mrs Johnson is complaining that she can feel a lump in her throat, which she fears, is cancer. She is weepy and distressed about this possibility. On questioning, she reports that she is tired all the time and has trouble sleeping but has no other symptoms. Your physical examination reveals no abnormalities.

a) Reassure Mrs Johnson that she has no serious physical illness and that her throat problem will resolve on its own without treatment.
b) Explore the diagnosis of depression using clinical diagnostic tool.
c) Offer Mrs Johnson the diagnosis of depression and suggest anti-depressant drug treatment.
d) Offer Mrs Johnson the diagnosis of depression and suggest psychological therapy.
e) Refer Mrs Johnson for further investigation and assessment of her physical symptoms.
f) Ask her to return in another two weeks for review.
g) Suggest that she return only if her symptoms do not resolve.
h) Explore Mrs Johnson's health beliefs.