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Clinicians' attitudes to depression in Europe: a pooled analysis of Depression Attitude Questionnaire findings

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Background. Depression in primary care is common but under-recognized and suboptimally managed. Health professionals' attitudes are likely to play an important part in their recognition and management of depression.

Objectives. To pool findings from studies using the Depression Attitude Questionnaire (DAQ) to provide greater detail of clinicians' attitudes and the measure's psychometric properties.

Methods. Electronic databases and grey literature were searched for relevant studies. Data from eligible studies were requested and pooled analysis conducted.

Results. Twenty studies were eligible and data were obtained from 12 of these involving GPs (n = 1543) and nurses (n = 984). Responses showed strong disagreement that depression is due to ageing or weakness. European GPs were more positive about depression treatments than UK GPs; nurses were more favourable about psychotherapy than GPs. UK GPs especially strongly opposed notions that depression is best managed by psychiatrists. Trends over time indicated increasing acknowledgement of psychological therapies and the nurse's role in depression management. Factor analysis indicated that many DAQ items fitted weakly within an overall model. The most parsimonious solution involved two factors: a positive view of depression and its treatment response and professional confidence in depression management.

Conclusions. Individual DAQ items appear to measure key aspects of clinicians' attitudes to depression, and item responses indicate important differences between professions and geographical settings as well as changes over time. There are problems with the DAQ as a scale: its internal consistency is weak, and several items appear specific to particular professions or service structures, indicating that this questionnaire should be revised.

Keywords. *Attitude, depression, primary health care, review, stigma.*

Background

Depression is a common mental disorder, with a community prevalence of 5–10%[1]. This condition is a major cause of suffering and disrupted function accounting for 12% of all years lived with disability globally, the largest proportion of non-fatal disease burden[2]. The majority of depression is managed within primary care; however, there is substantial under-treatment of this disorder, with less than half of those people with a recent or current episode seeking medical help, and a similar proportion of those presenting being neither explicitly recognized as depressed nor offered appropriate treatment[3]. There are a number of inter-related factors that influence help seeking for depression and its recognition and adequate management. These may be conceptualized as related to patient and societal variables such as health beliefs, past experiences, stigma and support networks; to provider knowledge and attitudes; and to organizational and capacity issues. A range of interventions have been developed to influence these factors, including mass campaigns[4], clinician education programmes and clinical guidelines[5], the implementation of case finding[6] and the use of broader service reorganizations which may include incentives to facilitate changes[7].

The attitudes of clinicians are likely to be an important factor influencing the way that they assess and respond to patients' psychosocial problems and their willingness to adopt new approaches to this part of their work. Previous studies conducted in a range of settings have indicated that clinicians' attitudes are associated with willingness to explore symptoms, diagnostic ability and treatment decisions[8–10]. Developing a clearer grasp of health professionals' attitudes to depression is important to understanding and so influencing their recognition processes and subsequent treatment decisions, as well as in evaluating interventions to improve these activities.

There are relatively few instruments used to measure clinicians' attitudes to common mental disorders and their management. McCall et al.[11], in a paper detailing the development of a new measure of GPs' attitudes, note seven instruments, although two of these are shortened versions of a prior instrument[12] and one measured medical students' attitudes to psychiatry. Orrell et al.[13] report the development of a measure of GPs' attitudes to depression and its treatment in older people and its use with English GPs, while researchers have recently constructed a questionnaire to examine depression attitudes in health professionals and community workers in nine European countries[14]. Other measures have been developed for the purposes of measuring attitudes to depression and common mental disorders within the general public[15,16] and among depressed patients[17,18]. The measure most widely used in studies of qualified health professionals is the Depression Attitude Questionnaire (DAQ)[19]. This is a self-report measure composed of 20 items that explore conceptualization of the disorder, experience of working with depressed patients and views on different types of treatment.

The DAQ was designed and initially used to examine the attitudes of GPs to depressive illness; subsequently, it has been used with psychiatrists[20], district nurses[21,22], general practice nurses[23,24] and NHS Direct (a UK 24 hour nurse-led telephone advice and information service) nurses[25], as well as with general medical and nursing staff[26]. Adapted versions of the DAQ have been developed to study the views of physicians in Taiwan[27] and of pharmacists in Belgium[28] and to examine GP's attitudes to somatization[29].

The psychometric properties of the DAQ are underreported. The initial study by the instrument's authors identified a four-component solution involving treatment preference, professional ease, potential for illness course to be modified and confidence in recognizing and differentiating depression from unhappiness. Later studies have found differing factor-structures including three-[10], four-[30] and five-component models[25] and several authors have questioned the validity of the original components, in particular the depression recognition component[9,31]. With the exception of a study by Haddad et al.[32], previous works have not reported the variance explained by factor models or measures of the internal consistency of derived subscales.

Inconsistent findings may be related to weak psychometric properties of the DAQ measure or to methodological limitations in the previous studies, in particular with regard to the adequacy of the sample size to enable robust analysis. For factor analysis, the number of participants is variously suggested as between 5 and 10 per item, with between one and two hundred usually noted as necessary[33]. A pooled analysis of existing DAQ data will help to resolve these difficulties, as well as allowing comparison of responses between professions and settings.

Methods

Data sources

A systematic literature search of relevant databases for published works (MEDLINE, PsycINFO, CINAHL, Cochrane databases—Central Register of Controlled Trials and Database of Abstracts of Reviews of Effects) was performed. Search terms for databases were Depression AND Attitude$ AND Questionnaire. Searches were limited to 1992 (when the DAQ was first published) to 2010. Grey literature was searched using ISI Proceedings and the Department of Health National Research Register and contacts with academic institutes were also used to find unpublished or ongoing investigations.

Procedure

The corresponding authors of identified publications and the investigators working on ongoing projects were contacted to obtain their databases. In addition to DAQ responses, information about study participant's gender, age and time in practice was requested.

Statistical analysis
On receipt of data, the authors compared findings to published results to ensure data accuracy. Usually, DAQ items responses are scored on a 100 mm visual analogue scale between 'strongly disagree' (0 mm) and 'strongly agree' (100 mm). Some studies transformed this to a 5- or 7-point Likert Scale in which case these discrete anchor points were converted to a 0–100 scale score. Assumptions of normality and heterogeneity of data were explored by examining item values and confidence intervals within and between health professional groups and nations, and numerical (skewness and kurtosis values) and graphical (histograms, deviation from the fitted line in P–P and Q–Q plots) tests of normality test were viewed. Levene's test for homogeneity of variance was conducted for DAQ items within the whole sample and selected subgroups, and where equality of variance was absent, the separate variance t-test was applied. Cohen's d measure of effect size was used to show the extent of differences between mean DAQ scores. Linear regression was used to further examine associations between participant and attitude variables: respondent profession, gender and age and setting (nation) and date of study were used as covariates.

Exploratory factor analysis [principal axis factoring (PAF)] was conducted using scree plots and promax rotation. These analyses were conducted for specific subgroups by health professional and by nation, in order to identify common and recurrent factors. Subsequently, coefficients of reliability were calculated for the subscales derived from factor analysis.
This study received approval from the Joint South London and Maudsley NHS Trust and the Institute of Psychiatry Research Ethics Committee.

Results
Twenty-six publications detailing the use of the DAQ were identified relating to 24 unique studies. In 16 studies, the DAQ was administered to a sample of GPs; one of these papers reported a comparison between GPs and psychiatrists. Six studies reported DAQ findings with nurses, one study was conducted with medical and nursing staff from a medical ward and one with pharmacists. Most studies (15) were conducted in UK countries. Four published studies made substantial modifications to the instrument[27–29,34] and were not eligible for this review.

Data collection
Data were provided by the authors of 12 studies. Ten of these were from works published (or in press) in peer-reviewed journals, one from a health authority web publication and one from conference proceedings (**Table 1**).

Characteristics of respondents
DAQ responses for 2527 health professionals were obtained for analysis, 1543 GPs and 984 nurses (**Table 2**). Details of staff gender, age and length of practice were not available for the complete sample. Available data for 2003 respondents indicated that GPs were predominantly male (66%) - the proportion of females ranging from 22% (France) to 48% (London). The nurse respondents were almost entirely female. Respondents' ages ranged between 24 and 78 years, with median ages of 48 years for GPs and 45 years for nurses. Examination of DAQ item scores revealed varying but generally moderate levels of kurtosis and skewness, and although Kolmogoroff and Shapiro-Wilk tests of normality were significant for many of the items, examination of histograms and plots (PP and QQ) indicated limited substantial deviation from normality.

Table 1: Search results ordered by publication date

Study	Professional group	Nation study conducted	Number of respondents	Published	Data obtained for analysis
1 Botega et al.[19]	GPs	England	72	Y	N
2 Kerr et al.[20]	GPs and psychiatrists	Wales	139 (74 GPs)	Y	N
3 Botega and Silveira[35]	GPs	Brazil	78	Y	N
4 Gask et al.[36]	GPs	England	20	Y	Y
5 Ross et al.[10]	GPs	Scotland	407	Y	Y
6 Dowrick et al.[9], Gask et al.[37]	GPs	England	38	Y	Y
7 Waller and Hillam[26]	General hospital nurses and doctors	England	30	Y	N
8 Thornett et al.[31]	GPs	England	156	Y	Y
9 King et al.[38]	GPs	England	84	Y	N
10 Oladinni[39]	GPs	England	61	Y	N
11 Payne et al.[25]	NHS Direct Nurses	England	527	Y	N
12 Abas et al.[34]	Primary care nurses	Zimbabwe	52	Y	Excluded
13 Naji et al.[23]	Practice nurses	Scotland	442	Y	Y
14 Richards et al.[30]	GPs	Australia	420	Y	N
15 Haddad et al.[22,32]	District Nurses	England; Channel Islands	217	Y	Y
16 Rosendal et al.[29]	GPs	Denmark	43	Y	Excluded
17 Butler and Quayle[21]	District Nurses	Ireland	73	Y	Y
18 Menchetti et al.[40]	GPs	Italy	266	Y	Y
19 Cape et al.[41]	GPs	England	50	Y	Y
20 Liu et al.[27]	GPs	Taiwan	375	Y	Excluded
21 HPA NI[42]	GPs	Northern Ireland	139	Y (internet)	Y
22 Scheerder et al.[28]	Pharmacists	Belgium	200	Y	Excluded
23 Haddad et al.[43]	School Nurses	UK	252	Y	Y
24 Norton et al.[44]	GPs	France	468	Y	Y

Table 2: included studies: setting and participant details

Profession	Setting	n	%	Age mean (SD)	female respondents %
GPs	Manchester/Liverpool	38	1.5	41 (7.0)	47%
	Preston/Doncaster	20	0.8	41 (7.2)	35%
	Bologna/Rimini	266	10.5	52 (5.5)	31%
	Glasgow	407	16.1	42 (9.0)	44%
	Hampshire	156	6.2	N/A	N/A
	London	50	2.0	43 (9.0)	48%
	France	468	18.5	50 (7.6)	22%
	Northern Ireland	138	5.5	N/A	44%
Nurses	Jersey	106	4.2	47 (9.0)	97%
	Lewisham	63	2.5	41 (9.5)	98%
	Hertfordshire	48	1.9	44 (8.3)	100%
	Aberdeen	442	17.5	45 (7.0)	99.5%
	Limerick	73	2.9	47 (7.9)	100%
	UK	252	10.0	N/A	99%
Total		2527	100.0	47.0 (9.1) GPs 44.7 (9.3) Nurses	34% GPs 99% Nurses

Mean scores for each item are shown in **Table 3**: point estimates show responses between settings and professions, the 95% confidence intervals (95% CI) are narrow for all values and indicate significant differences between professions and geographical settings for many of the DAQ items.

Table 3: DAQ item scores by setting and profession

		GPs UK	GPs France & Italy	Nurses UK, Eire, Channel Islands
DAQ STATEMENT				
1	Increase patients with depressive symptoms	65.2 (63.9, 66.5)	69.7 (68.2, 71.2)	65.2 (63.7, 66.6)
2	Depression originates from recent misfortunes	53.1 (51.7, 54.5)	55.2 (53.6, 56.8)	47.8 (46.3, 49.3)
3	Most depressive disorders improve without medication	47.4 (46.1, 48.7)	35.2 (33.7, 36.7)	37.8 (36.5, 39.2)
4	A biochemical abnormality is basis of severe depression	63.5 (62.2, 64.9)	58.5 (56.5, 60.4)	54.1 (52.6, 55.7)
5	Difficult to differentiate unhappiness or depression	50.3 (48.8, 51.8)	45.6 (43.7, 47.4)	54.3 (52.7, 55.9)
6	Two main groups of depression: psychological & biochemical	41.0 (39.6, 42.3)	40.7 (38.8, 42.6)	49.6 (48.1, 51.0)
7	Becoming depressed is poor stamina	32.9 (31.3, 34.9)	37.7 (35.7, 39.8)	27.0 (25.4, 28.6)
8	Depressed patients more likely deprivation in early life	51.7 (50.2, 53.2)	43.9 (42.0, 45.9)	36.6 (34.9, 38.2)
9	I feel comfortable in dealing with depressed patients	63.1 (61.8, 64.4)	55.2 (53.4, 57.0)	40.3 (38.6, 42.1)
10	Depression is not amenable to change	29.5 (28.4, 30.6)	31.2 (29.5, 32.9)	30.9 (29.5, 32.4)
11	Becoming depressed is a natural part of being old	21.1 (20.0, 22.1)	25.4 (23.7, 27.1)	17.0 (15.8, 18.2)
12	The nurse is useful to support depressed patients	57.8 (56.4, 59.3)	56.7 (54.7, 58.7)	70.0 (68.4, 71.6)
13	Working with depressed patients is heavy going	64.0 (62.6, 65.4)	69.9 (68.0, 71.7)	65.4 (63.8, 67.1)
14	There is little to be offered to depressed patients who do not respond to GPs	28.7 (27.5, 29.9)	31.0 (29.2, 32.8)	31.4 (29.6, 33.1)
15	It is rewarding looking after depressed patients	62.5 (61.2, 63.8)	53.3 (51.4, 55.2)	57.1 (55.6, 58.6)
16	Psychotherapy tends to be unsuccessful with depressed patients	39.5 (38.2, 40.8)	31.8 (30.0, 33.6)	35.9 (34.6, 37.2)
17	If patients need antidepressants, better with a psychiatrist than a GP	23.3 (22.3, 24.4)	28.2 (26.4, 30.0)	48.6 (46.7, 50.5)
18	Antidepressants usually produce a satisfactory result	64.7 (63.6, 65.8)	74.2 (72.9, 75.5)	53.6 (52.2, 54.9)
19	Psychotherapy should be left to a specialist.	58.1 (56.6, 59.8)	56.4 (54.1, 58.7)	69.6 (68.1, 71.1)
20	If psychotherapy available, would be more beneficial than antidepressants	49.8 (48.3, 51.2)	53.1 (51.3, 55.0)	63.7 (62.3, 65.1)

DAQ items by professional group
The statement that *'Becoming depressed is a natural part of being old*'* (Item 11) *(*'Becoming depressed is a natural part of adolescence'* in school nurses' questionnaire) was the most strongly disputed of all items among GPs (23.3, 95% CI 22.4–24.4) and nurses (17.0, 95% CI 15.8–18.3). Differences were evident between professions for a number of items, with the largest differences seen for Items 17, 9, 18 and 20. For GPs, the view that antidepressants usually produce a satisfactory response (Item 18) received the most agreement of all items (69.3, 95% CI 68.4–70.2), while for nurses, the view that the nurse is a useful support for depressed patients (Item 12) was the most highly endorsed item (69.9, 95% CI 68.2–71.5). Nurses were more likely than GPs to regard psychotherapy as providing greater benefit than medication for depression (Item 20). GPs strongly rejected the notion that psychiatrists are better at managing depressed patients, while nurses appeared neutral on this (Item 17); GPs indicated that they felt comfortable in managing depression (Item 9) to a greater extent than nurses.

DAQ items over time
It is likely that clinicians' attitudes have been influenced by developments in the evidence base as well as by the more general changes in perceptions about depression and its treatment that have been identified in social surveys. Initial analysis of this variable was restricted to the UK GP sample, and responses were compared according to study date, with four studies conducted before 2000 (n = 621) compared with two conducted in 2006 and 2007 (n = 189). Several items revealed significant differences, the largest of which was the view that psychotherapy is likely to be more beneficial than antidepressants (Item 20), which attracted greater agreement from the more recent sample (mean difference 11.67, $t(793) = 6.46$, $P < 0.001$, $d = 0.561$). Similarly, the notion that psychotherapy is unsuccessful (Item 16) was more like to be disputed by the GPs surveyed most recently (mean difference 5.72, $t(787) = 3.70$, $P = 0.001$, $d = 0.325$), and the view that deprivation in early life is associated with depression (Item 8) was endorsed more readily by the recent GP sample (mean difference 6.25, $t(791) = 3.765$, $P < 0.001$, $d = 0.320$). The role of nurses in supporting depressed patients was also more favoured by the more recent sample (mean difference 5.97, $t(791) = 3.38$, $P = 0.001$, $d = 0.285$).

DAQ items by gender
Modest differences were evident for several DAQ items by gender (analysis restricted to GPs for reason of preponderance of female gender among nurses); but, these were generally of four points (i.e. 4/100 mm) or less on the DAQ scale and possibly of spurious significance. As reported later, multiple regression analyses clarify the extent association between gender and attitude scores. DAQ by age group The sample was examined by age group: GPs <40 years and GPs >40 years. Younger GPs expressed stronger disagreement with the notion that depression is an expression of poor stamina (Item 7: mean difference 9.6, $t(643) = 6.30$, $P < 0.001$, $d = 0.399$). GP age was similarly related to the extent of their rejection that depression was an 'understandable' part of ageing' (Item 11: mean difference 6.05, $t(727) = 5.347$, $P < 0.001$, $d = 0.329$)

DAQ by nation
DAQ responses for GPs were examined for differences in item scores according to nation. When UK GP responses (n = 810) were compared with those of their colleagues from Italy and France (n = 734), differences were most pronounced for items relating to antidepressant treatment: continental GPs expressed stronger disagreement with the idea that patients might improve without medication (Item 3: mean difference 12.1, $t(1519) = 12.10$, $P < 0.001$, $d = 0.619$), and more support for the view that antidepressants are a useful treatment (Item 18: mean difference 9.5, $t(1454) = 10.87$, $P < 0.001$, $d = 0.559$). Continental GPs also appeared more convinced of the efficacy of psychotherapy than their UK counterparts (Item 16: mean difference 9.5, $P < 0.001$) and less likely to view their work with depressed patients as rewarding (Item 15: mean difference 9.0, $P < 0.001$).

Multiple regression analyses
Differences in the attitude item responses across the entire sample were examined with linear regression analyses. As may be seen in **Table 4**, the differences evident in initial analyses generally remained after controlling for respondent and study variables. Although statistically significant, the variance accounted for by these regression models was mostly modest, except for items concerning perceived effectiveness of treatments (18 and 20) and professional roles (9 and 17), where the models shown accounted for between 10.5% and 21.4% of the attitude item variance. Responses

Table 4: DAQ item associations: multiple regression analyses

		Significance & standardised coefficient beta					Model summary, adjusted R square
DAQ STATEMENT		**Profession (GP or Nurse) †**	**Gender ‡**	**Age §**	**Nation**	**Study date ¥**	
1	Increase patients with depressive symptoms	P=0.001** 0.120	P<0.001** -0.150	P=0.010** 0.107	P=0.014* 0.102	ns	$F_{5,1323}$=8.474; 0.027
2	Depression originates from recent misfortunes	P=0.031* -0.082	ns	P=0.030* 0.069	ns	ns	$F_{5,1329}$=7.106; 0.022
3	Most depressive disorders improve without medication	ns	P=0.003** 0.111	P=0.007** -0.084	P<0.001** 0.182	ns	$F_{5,1321}$=19.556; 0.065
4	A biochemical abnormality is basis of severe depression	P<0.001** -0.183	ns	ns	P=0.033* 0.089	ns	$F_{5,1306}$=9.723; 0.032
5	Difficult to differentiate unhappiness or depression	P<0.001** 0.175	P=0.029* 0.082	ns	ns	ns	$F_{5,1323}$=5.680; 0.017
6	Two main groups of depression: psychological & biochemical	P<0.001** 0. 188	ns	P=0.005** 0.089	ns	ns	$F_{5,1296}$=11.027; 0.037
7	Becoming depressed is way people with poor stamina deal with difficulties	P=0.008** -0.099	ns	P<0.001** 0.167	ns	ns	$F_{5,1320}$=16.360; 0.055
8	Depressed patients more likely to have experienced deprivation in early life	P<0.001** -0.285	ns	ns	P<0.001** 0.175	P=0.023* 0.093	$F_{5,1315}$=17.993; 0.060
9	I feel comfortable in dealing with depressed patients	P<0.001** -0.384	ns	ns	P=0.001** 0.128	ns	$F_{5,1328}$=43.534; 0.138
10	Depression is not amenable to change	ns	ns	P<0.001** 0.146	ns	ns	$F_{5,1301}$=4.451; 0.013
11	Becoming depressed is a natural part of being old	P=0.001** -0.127	ns	P=0.001** 0.106	P=0.019* 0.096	ns	$F_{5,1328}$=16.135; 0.054
12	The nurse is useful to support depressed patients	P<0.001** 0.211	ns	ns	ns	P=0.014* 0.100	$F_{5,1323}$=17.969; 0.060
13	Working with depressed patients is heavy going	ns	ns	ns	P<0.001** 0.167	ns	$F_{5,1324}$=6.655; 0.021
14	There is little to be offered to depressed patients who do not respond to GPs	ns	ns	ns	ns	P=0.003** 0.125	$F_{5,1321}$=5.307; 0.016
15	It is rewarding looking after depressed patients	ns	ns	ns	P<0.001** 0.156	ns	$F_{5,1321}$=4.522; 0.013
16	Psychotherapy tends to be unsuccessful with depressed patients	ns	ns	ns	ns	P=0.001** -0.145	$F_{5,1306}$=5.172; 0.016
17	If patients need antidepressants, better with a psychiatrist than a GP	P<0.001** 0.389	ns	ns	P=0.016* 0.090	P=0.002** 0.114	$F_{5,1324}$=73.405; 0.214
18	Antidepressants usually produce a satisfactory result	P<0.001** -0.317	ns	P=0.002** 0.093	P=0.002** 0.117	P=0.020* -0.090	$F_{5,1321}$=49.197; 0.157
19	Psychotherapy should be left to a specialist.	<0.001** 0.227	ns	ns	ns	ns	$F_{5,1322}$=14.784; 0.049
20	If psychotherapy available, would be more beneficial than antidepressants	P<0.001** 0.171	ns	ns	ns	P<0.001** 0.245	$F_{5,1319}$=32.056; 0.105

† positive Beta value indicates nurses respondents more likely to agree with statement
‡ positive Beta value indicates female respondents more likely to agree with statement
§ positive Beta value indicates older respondents more likely to agree with statement
¥ positive Beta value indicates respondents from more recent studies more likely to agree with statement

from more recent studies as well as from nurses showed increased expectation of the effects of psychological treatment (Item 20), while the converse trend appeared in relation to views of antidepressant efficacy (Item 18). The view that depressed patients are better with a psychiatrist than a GP (Item 17) was much more strongly opposed by GPs than nurses, especially those from the UK as well as by respondents in less recent studies, and GPs from the UK expressed greater professional ease in their work with depressed patients than their European counterparts and more than nurse respondents.

Exploratory factor analysis

Exploratory factor analysis was conducted separately for the GP data and the nurse data, for reason of both heterogeneity of response between these professional groups and differences in item meaning and relevance in relation to their role and practice—such being most obvious for questions concerning the role of the nurse (Item 12) and patient management in relation to antidepressant treatment (Item 17). PAF was used. Within the GP sample, analyses were conducted for the whole group and separately for UK GPs and those from other European countries because of differences in practice in relation to specialist referral.

The individual measure of sampling adequacy for each item was examined and as in previous analyses of this measure, Item 1 was removed for reason of its showing the lowest sampling adequacy measure. The Kaiser–Meyer–Olkin measure of sampling adequacy for the resulting 19-item scale responses was 0.76 (GP data) and 0.69 (nurse data). Bartlett's Test of Sphericity was significant ($P < 0.001$), demonstrating adequacy to provide stable factor solutions.

Initial PAF analysis of the GP data revealed six factors with Eigen values >1 which explained 49.8% of the variance. Items that exhibited the lowest communalities and individual measures of sampling adequacy were removed from analyses (Items 2, 4, 12 and 3). Examination of the scree plot indicated a probable two-factor solution. Two- and three-factor solutions were examined, with oblique (promax) rotation applied to the extracted factors. After rotation, those items with weak (<0.25) or complex loadings were excluded to ensure that items exclusively contributed to particular dimensions.

The GP data indicated a probable two-factor solution **(Table 5)** which accounted for 41% of the variance of the nine retained items, with factors relating to: *'confidence in professional role'* (Items 9, 15, 13r and 19r, where r indicates item reversal for scoring) which accounted for 25.95% of the variance, and the Cronbach alpha test yielded an internal consistency value of 0.59; and a *'positive view of depression and its management'* (7r, 10r, 11r, 14r and 16r) which accounted for 14.96% of the variance, with alpha coefficient 0.61. The internal consistency value for these nine items combined was 0.64. Although they exhibited satisfactory loadings, the items concerning depression aetiology and typology (8 and 6) did not fit with this model. Most of the items relating to treatment types were characterized by weak or shared loadings. When restricted to UK GPs (n = 789), these analyses revealed a similar factor structure.

The same procedure was followed for exploratory factor analysis of data from the nurse sample. A four factor solution emerged as the most consistent with the data, with the first two factors similar to that for the GP sample: '*confidence in professional role'* (9, 12 and 15), Cronbach's alpha value 0.61, and a *'positive view of depression and its management'* (7r, 10r, 11r, 14r and 16r), Cronbach's alpha value 0.61. Additional factors concerned *'deferring depression management to specialists'* (17, 19 and 20) and a *'biological model of depression'* (4, 6 and 18).

Table 5: Structure Matrix GP sample

	Factor	
	1	2
9 I feel comfortable dealing with depressed peoples' needs	**-.692**	-.207
15 Rewarding to spend time looking after depressed patients	**-.539**	-.156
13 Working with depressed patients is heavy going	**.469**	.223
19 Psychotherapy for depressed patients should be left to specialist	**.388**	.227
18 Antidepressants usually produce satisfactory result for depressed patients in general practice	-.248	-.157
7 Becoming depressed is way people with poor stamina deal with difficulties	.225	**.557**
11 Becoming depressed natural part of being old	.275	**.483**
10 Depression not amenable to change	.226	**.474**
17 If patients need antidepressants, better with psychiatrist than GP	.456	.460
14 Little to offer depressed patients who do not respond to GP	.323	**.417**
6 Two main group of depression, psychological origin and biochemical	.077	.375
5 Unhappiness and clinical depression difficult to differentiate	.328	.343
8 Depressed people more likely experienced deprivation in early life	.042	.307
16 Psychotherapy tends to be unsuccessful with depressed patients	.201	**.276**
20 If psychotherapy available more beneficial than antidepressants for most depressed patients	.183	.240

Extraction Method: Principal Axis Factoring. Rotation Method: Promax with Kaiser Normalization.
Items comprising proposed two-factor solution shown in bold.

Discussion

Strengths and weaknesses

The attitudes of clinicians are important to their therapeutic response and clinical behaviour and as such form an appropriate target of training and professional development initiatives. The DAQ has been relatively widely used in this field of enquiry, but its use has been hampered by uncertainty about its psychometric properties and a lack of consensus concerning its factor structure. Sample size is a crucial consideration for studies that explore factor structure as these analyses are large-sample techniques with the subject to instrument variable ratio making a significant contribution, such that a general conclusion regarding sample size for such exploration is that 'more is always better'[46]
The current study examined the characteristics of this measure using a total sample of 2507. The sample was composed of adequate numbers of the different primary health care professionals to enable appropriate subgroup examinations of its psychometric properties.

Data were not obtained from all the identified studies, and for several studies, age and gender data were unavailable which limited some of the analyses. Incomplete data arising from failure to obtain findings from all DAQ studies is an important study limitation as these data are not randomly missing and so bias may have been introduced. Reported DAQ item values were examined in three papers for which original data were unavailable[19,20,35]: for two UK studies, all GP DAQ item scores were within 95% CIs of the pooled GP data, while for GPs in Brazil,[35] 15 of the 20 items were within these intervals. This provides some indication that missing data have not distorted findings.

Attitude measure findings
The results of psychometric testing indicate deficits in the design of the DAQ: importantly the modest internal consistency values indicate that the items are imperfect measures of a single construct and that the content representing this latent variable is more heterogeneous than is appropriate. Similarly, the variations identified in factor structure between professions indicate problems in the scale design and its use with different populations: some items obviously have differing meanings for the different professional groups (e.g. Item 12). It appears that, in trying to capture health professionals' views about depression aetiology and management approaches, as well as confidence in personal role, optimism about illness course, and stigmatizing or deterministic perspectives, the DAQ touches on a number of related constructs and that the territory encompassed by this scale is beyond the limits of a single measure.

The deficits in the total scale notwithstanding, responses to individual items indicate interesting and potentially important differences over time and across professions, settings and age groups. It should be noted that individual items are frequently used to describe attitudes to mental health problems and treatment approaches: investigators adopt this strategy even where scales have been developed[47]; and a statement-based approach to examining attitudes has been used in a Europe-wide population study[48] and studies in the USA[45], as well as examinations of UK psychiatrists' views[49].

The finding that younger GPs are less assured of the benefits of antidepressants may relate to the influence of more critical reviews of antidepressant efficacy that have been produced in recent years—it is conceivable that younger clinicians are more attuned to contemporary evidence and issues, and the association between study date and this attitude item supports this interpretation.

UK GPs were most resistant to the notion that psychiatrists were better placed to manage patients needing antidepressants, possibly indicating the well-developed role of UK primary care (rather than specialist care) as the central setting for depression management. It is possible that a less GP-regulated access system to specialist services in European countries
may have influenced clinicians in France and Italy to be more convinced of the effect of both psychotherapy and antidepressants than their UK colleagues, who may be more closely involved in the delivery and evaluation of these interventions. Certainly, UK GPs were more likely to consider depression to improve without antidepressant treatment. Nurses' preference for psychotherapy over pharmacotherapy may be seen in light of their training and role, which emphasizes personal relatedness and care rather than biomedical explanation.

Conclusions
This study had two aims—to examine the psychometric properties of the DAQ and to explore attitudes among health professionals by examining all available DAQ findings. The construct validity of the DAQ was evaluated in large numbers of GPs and nurses. The factor structure was only partly replicated in the two professional groups, and the most consistent and parsimonious structure involved only around half of the 20 DAQ items. Furthermore, the internal consistency of the identified combined and separate subscales was modest.

Despite these problems with the DAQ scale, it appears that individual DAQ statements capture important dimensions of practitioner's views about depressed patients and their treatment that are likely to be informative about their clinical behaviour, as well as practically useful in the evaluation of interventions to modify aspects of their care delivery. The psychometric testing undertaken indicates that a revision of the DAQ could enhance its usefulness: its performance is likely to be improved by modifying or replacing items that appear specific to particular professions or settings and that are not consistent with the principal factors identified. Such a modification seems necessary for the measure to function across the primary care workforce and beyond the confines of the UK. Addressing the limitations of this existing measure seems a more constructive approach than devising an entirely new instrument and will allow building on information ascertained by two decades of work with the DAQ.

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