

## International research

# Managing type 2 diabetes and depression in primary care

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### ABSTRACT

**Aim** To examine the associations of diabetes with depression and stress, and to examine these factors in relation to self-care, using both quantitative and qualitative methods.

**Method** Fourteen general practices in Wandsworth, South London were selected for having high rates of patients with type 2 diabetes. A total of 389 questionnaires were returned from patients from these practices identified with type 2 diabetes. Questionnaires covered depression (Hospital Anxiety and Depression scale, HAD), severe life event (List of Threatening Experiences, LTE), and self-care activities (Summary of Diabetes Self-Care Activities, SDSCA). In addition, a subgroup of 16 patients identified as depressed on the HAD scale were approached for interview.

**Results** One-third of the sample had depression, and depression was associated with severe life events. In terms of self-care, poorer diet was associated with depression and the presence of a severe life event. Lack of exercise was similarly

associated with depression and severe life event. Interviews highlighted the difficulty of keeping to good self-care regimes when depressed and/or under stress. Interviewees also described their experience of having diabetes as stigmatising and isolating because of problems with socialising, especially drinking and eating restrictions. Respondents noted that coping with diabetes can be very stressful, particularly immediately following diagnosis, and this can increase feelings of depression. Some respondents felt that primary care professionals failed to meet the emotional needs they experienced as a result of their diabetes.

**Conclusions** Understanding the role of stress and depression in coping with diabetes is important in providing a full picture of prevention and treatment options.

**Keywords:** depression, diabetes mellitus type 2, primary care, stress

## Introduction

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### The diabetes epidemic

Diabetes is becoming more common in the UK.<sup>1</sup> Currently around 1.3 million people are diagnosed with diabetes (2.2% of the population), with potentially many more cases remaining undiagnosed.<sup>2</sup> By the year 2010 it is projected that the number of people in the UK with diabetes will rise to 3 million.<sup>2</sup> Of those patients with diabetes, approximately 85% have type 2 diabetes, previously known as 'non-insulin dependent diabetes mellitus' or 'adult onset diabetes'.<sup>2</sup> Type 2 diabetes reduces life expectancy by up to 10 years, and people with type 2 diabetes are at greater risk of coronary heart disease, stroke, kidney failure, and non-traumatic lower limb amputation, than people without.<sup>1</sup> Diabetes care costs around 5% of total NHS resources, and has high direct personal costs for the patient.<sup>1</sup>

Type 2 diabetes does not affect everyone equally. It is more common among obese people, physically inactive people, and those with a family history of diabetes, with onset occurring typically over the age of 40 years.<sup>1</sup> In addition, type 2 diabetes is six times more common in people of South Asian descent and up to three times more common in those of African or Caribbean descent.<sup>1</sup> It is also more prevalent in lower socio-economic groups.<sup>1</sup>

### Co-morbidity of type 2 diabetes and depression

There is widespread evidence that rates of depressive disorders are higher among patients with diabetes than the general population,<sup>3</sup> and some studies have found that people with diabetes have up to double the rate of depressive disorders compared to the general population.<sup>4-6</sup> The relationship between depression and both principal types of diabetes may differ, typically with type 1 diabetes preceding the onset of the first episode of depression, but the first episode of depression preceding the onset of type 2 diabetes.<sup>4</sup> The underlying physiological mechanisms linking diabetes to depression are not well understood; however, depression is associated with pathophysiological alterations that may contribute to the increased vulnerability of depressed patients to type 2 diabetes and/or complications from both type 1 and type 2 diabetes.<sup>7</sup> In addition, factors closely related to depression are also associated with poorer diabetic outcomes, including negative life events. Negative life events and stress are associated with the development of diabetic complications for both type 1 and type 2 diabetes.<sup>8,9</sup>

### Depression and diabetic complications

Depression impairs both mental and physical quality of life in patients with diabetes.<sup>10</sup> It increases the risk of diabetic complications, such as retinopathy, nephropathy, neuropathy, sexual dysfunction, and macrovascular disease.<sup>11</sup> Depressed patients have a more negative appraisal of their diabetes, perceiving more symptoms, more serious consequences, and less control over their diabetes.<sup>10,12,13</sup> Depression also has a negative effect on self-care activity and is associated with poor participation in education programmes, poor diet, and poor medication taking.<sup>14,15</sup> The overall effect is that depression interferes with good glycaemic control. Furthermore, poor glycaemic control may adversely affect mood and, thereby reinforce the relationship between diabetes and depression.<sup>16</sup> However, much of the research on depression and diabetes has been cross-sectional, and further prospective research is required to clarify the causal nature of the relationship between these two disorders.

### National policy context

Both diabetes and mental health are national priorities in the UK with their own National Service Frameworks (NSF), and the management of both disorders raises particular issues for primary care.<sup>1,17</sup> Nearly all of those with mental health problems (90%) are treated within primary care, and depression is the most prevalent condition treated.<sup>18</sup> The NSF for mental health places a strong emphasis on primary care professionals identifying mental health needs and ensuring access to effective treatments.<sup>17</sup> The NSF for diabetes encourages primary care, hospitals and community care, to work together to manage complications and improve outcomes for patients with diabetes.<sup>1</sup> Furthermore, topics including patient self-management of diabetes, complications associated with diabetes, and NHS service organisation and delivery of care for patients with diabetes, have all been identified as important areas of future research.<sup>2</sup> Overall, the evidence of the co-morbidity of diabetes and depression, combined with the national policy context, provides an impetus for specific attention to studying depression in patients with diabetes.

### Aims

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Cross sectional studies have provided a good understanding of the relationship between diabetes and

depression; however, there have been fewer studies exploring patients' experiences of coping with both these disorders. This study aimed to build upon existing cross-sectional work to explore patients' perspectives about coping with type 2 diabetes and depression. The overall aims were:

- to assess the relationship between type 2 diabetes, depression and self-care within a sample of primary care patients in Southwest London, UK
- to examine qualitatively the experiences of people living with type 2 diabetes and depression, with particular emphasis upon the role of primary care in meeting patients' needs.

Based on previous literature we identified the following hypothesis:

- respondents with high rates of depressive symptomatology, and respondents who have experienced threatening events will have poorer self-care activity.

## Methods

This was a mixed quantitative and qualitative study. Questionnaires were administered to patients with type 2 diabetes registered with general practices in Wandsworth, Southwest London, UK. A subsample of respondents with high levels of depressive symptomatology was approached for interview.

### Sample

Fourteen general practices in Wandsworth Primary Care Trust were approached to take part. These were chosen using a purposive sampling procedure. They were selected because they used electronic patient records (EMIS), and they had a relatively large number of registered patients with type 2 diabetes (as identified using a database of disease prevalence for the area). We could not use a random sampling procedure because only a small number of practices had all their patients' notes recorded electronically. The implications of this sampling method for generalisability are discussed further in the Discussion. An information sheet describing the study, and an opt-in form were sent to the practice manager and senior partner at each practice. Non-responding practices were followed up via the telephone after two weeks. Seven general practices (50% response rate) agreed to participate.

A member of the research team visited each participating practice and undertook an electronic search to identify all registered patients aged between 25 and 65 years, and recorded as having type 2 diabetes. This age ceiling was chosen to avoid older-age mental health disorders. Each identified patient was posted a study pack containing the following documents:

- a cover letter from their practice introducing the study
- a study information sheet
- a questionnaire
- an interview opt-in form
- an information sheet about depression and local support groups.

Patients who had not returned a questionnaire or opted out of the study were sent one postal reminder two weeks later.

### Questionnaires

Questionnaires were distributed between June and August 2005. The questionnaire combined a number of validated measures and took between 10 and 15 minutes to complete. The following measures were included:

- Summary of Diabetes Self-Care Activities (SDSCA) questionnaire.<sup>19</sup> The SDSCA questionnaire measures four different aspects of diabetes self-care: diet, exercise, glucose testing, and diabetes medication taking. Raw scores are converted and reported as *z* scores
- the Hospital Anxiety and Depression (HAD) scale, depression items only.<sup>20</sup> We used a cut-off point of eight,<sup>21</sup> with the following categories: a score of seven or less was classified as falling within the normal range, eight to ten was classified as mild depressive symptoms, and a score of 11 or more was classified as moderate to severe depressive symptoms
- the List of Threatening Experiences (LTE).<sup>22</sup> Respondents were presented with a list of 12 threatening events and asked whether they had experienced any of these in the last six months. Responses were then grouped into respondents who had experienced a threatening event, and those who had not.

### Interviews

Interviews were undertaken between September and November 2005. A subsample of respondents who opted in to an interview and who were identified as

depressed (a score of eight or more on the HAD), were approached to take part in an interview. Sixteen respondents were interviewed. Interviews were semi-structured and undertaken by a member of the research team either in the home of the respondent, or in our offices. Each interview lasted between 30 and 60 minutes and was tape recorded and transcribed anonymously. The interviews asked about respondents' history and diagnosis of diabetes, their history of depression, their diabetes self-care regime, and their experiences of the co-morbidity of both disorders.

## Analysis

Questionnaire data were analysed using SPSS 14.0. Descriptive statistics were examined along with independent *t* tests and Pearson's chi-square tests. All statistical tests were assigned a significance level of 0.05. Interviews were analysed thematically using the framework approach,<sup>23</sup> with ATLAS.ti 5.0.

## Ethics and governance

Ethical approval for this study was obtained from Wandsworth Research Ethics Committee, London, UK, and it was registered with Research Management Committee at Wandsworth Primary Care Trust, London, UK, under research governance requirements.<sup>24</sup>

## Results

In total, 389 questionnaires were returned, giving an overall response rate of 33.8%. The response rates from individual practices ranged from 30.1% to 38.3%. There was no evidence of statistical differences between these sources, and all questionnaires were analysed together.

## Demographics

The demographics of this sample are shown in Table 1. This shows that there is a somewhat higher proportion of male respondents than at borough level. Our sample had a much greater proportion of black or black British respondents, and Asian or Asian British respondents than at borough level. This may reflect the fact that the incidence of type 2 diabetes is greater amongst black and Asian ethnic groups.<sup>1</sup>

## Depression and self-care

Based on the HAD scores, a total of 31.9% ( $n = 124$ ) of respondents were identified as experiencing depressive symptoms: 19.3% ( $n = 75$ ) attained mild depressive scores, and 12.6% ( $n = 49$ ) attained moderate to severe depressive scores.

The SDSCA advised that if a large number of respondents did not take medication, these items should not be examined. As more than 20% of our sample did not take tablets, and more than 70% did not take insulin injections, we did not examine the items relating to medication. Independent *t* tests were undertaken to compare self-care activity between depressed and non-depressed respondents, as shown in Table 2. Depressed respondents had lower self-care for diet and exercise. There was no difference for glucose testing.

## Stress and self-care

There was a link between stress and depressive symptoms, and stress and poorer self-care among our sample: 64.6% ( $n = 250$ ) of respondents had experienced at least one threatening event in the last six months. These respondents scored a higher mean HAD score (6.33 vs. 4.42,  $t(383) = -4.41$ ,  $P = 0.00$ , 95% confidence interval (CI) -2.76 to -1.06) and were more likely to report depressive symptoms (using Pearson's chi-square  $\chi^2(1) = 8.57$   $P = 0.00$ ).

**Table 1** Demographics of this sample compared to Wandsworth borough

	This survey ( <i>n</i> )	Wandsworth census 2001
Male (%)	54.0 (199)	48.2
Ethnicity (%)		
White British, Irish and other	31.1 (114)	78.0
Black or black British	35.7 (131)	9.6
Asian or Asian British	24.0 (88)	6.9
Chinese or other	9.0 (33)	2.1

**Table 2** Independent *t* tests of HAD scores and self-care scores

	Mean	<i>t</i> (384)	<i>P</i> (one tailed)	95% CI
Diet		2.43	0.01	0.04 to 0.35
HAD not depressed	0.06			
HAD depressed	-0.14			
Exercise		2.10	0.02	0.01 to 0.38
HAD not depressed	0.05			
HAD depressed	-0.14			
Glucose testing		-0.32	0.38	-0.23 to 0.17
HAD not depressed	-0.02			
HAD depressed	0.02			

**Table 3** Independent *t* tests of threatening events and self-care scores

	Mean	<i>t</i> (383)	<i>P</i> (one tailed)	95% CI
Diet		1.77	0.04	-0.01 to 0.27
No threatening events	0.08			
At least one threatening event	-0.05			
Exercise		1.84	0.03	-0.01 to 0.35
No threatening events	0.10			
At least one threatening event	-0.70			
Glucose testing		1.28	0.10	0.32 to 0.32
No threatening events	0.07			
At least one threatening event	-0.06			

Respondents who recorded at least one threatening event had lower self-care scores for diet and exercise, but not glucose testing, as shown in Table 3. However, these findings were not as robust as the relationship between depression and self-care and the 95% CI crosses zero.

### Interview responses

Three important themes relating to diabetes and depression were identified from the interviews: the effect of depression and stress on diabetes, the effect of diabetes on depression, and support from primary care for patients with diabetes and depression.

### The effect of depression and stress on diabetes

There were indications that experiencing depression made respondents view their diabetes in a

more negative light than when they were not experiencing a depressive episode.

'I kind of feel slightly persecuted at the moment, which again might be a common emotional response to this, but I don't feel I'm being allowed to get on and live with [diabetes] ... every time I think I've sussed it and I know what to eat, and I, you know I feel that my levels will be fine something happens, or that's how I perceive it. I'm sure in reality it's not as bad as that, but in my current frame of mind I do feel absolutely persecuted.'

(white British, Irish or other, female)

In addition, respondents viewed the social impact of diabetes in more negative terms when experiencing a depressive episode, particularly the impact upon their ability to socialise and the impact upon their wider family.

'I've got to say, it's not every day but, you know, sitting by yourself sometimes you think about it, you think ... OK, to go out and like to have a drink and I'll have a beer ... and then you think you can't because, you know, you just maybe have to have a

bottle of water or something, so why bother? Or with, you know, people and they expect you to, to have a drink and ... even though you say you're a diabetic, they're, they're not diabetic. They don't understand.' (black or black British, female)

'I think my children have suffered just because I'm quite distracted, I'm constantly thinking about it ... and also because I am so short with my children at the moment, I don't feel that I've been there for them emotionally, you know. I just feel that I'm always thinking about what am I going to eat, what are my levels going to be, I don't feel that I've engaged with them properly for the last year, so I do worry about, as we go forward, my relationship with them and how this might affect them in the future.' (white British, Irish or other, female)

Depression also directly affected respondents' self-care patterns. The vast majority of respondents identified stress and depression as making it more difficult to adhere to good self-care practices.

'When you are a little stressed or, and something's worrying you, right, and you're feeling down, to do the exercise or to keep a diet, you, I mean your mind, well to hell with it, what's, what's the point of living this kind of a life? Yeah, you do get that kind of stuff messed up in your mind.' (Asian or Asian British, male)

'I've been under so much pressure because I haven't been able to work for years now, and I just go from worse, bad to worse, with bills that I've owed for so many years ... So every time I'm stressed my blood, my blood sugar just goes up and, of course, I've put on weight because I'm stressed.' (black or black British, male)

'There was a difficult time, about two or three years ago and, break up of marriage and things, and I just gave up, felt down. [I was] stuffing myself, that sort of thing and I might be feeling a bit down, you just turn to food ... Chocolate, biscuits, you know, the normal stuff, sweet stuff, anything cheap, you know, things like that. (black or black British, female)

Typically respondents stated that during periods of depression they 'couldn't be bothered' adhering to self-care regimes, and lacked motivation. Comments such as 'comfort eating isn't called that for nothing' is typical of why respondents felt they didn't adhere to their diet when depressed. Other respondents felt that they lacked willpower when depressed.

A small number of respondents stated that experiencing depressive episodes or high levels of stress did not affect their self-care. In these instances, a fear of diabetic complications encouraged good self-care practices.

'[Good self-care] was always uppermost in my mind. I mean I knew that if I neglected my health it would have, it would be worse. At the moment my, my physical health ... I have to make sure that it was OK. Mental health is something else.' (white British, Irish or other, female)

'I don't want it to affect, you know, my eyes, and limbs really. It would be horrible, to be honest. I dread it ... Just sticking to my diet now, and taking my tablets now, you know, and going for my check up, you know.' (Asian or Asian British, male)

## The effect of diabetes on depression

Respondents typically stressed that being depressed worsened their experiences of diabetes and their self-care, but also having diabetes or poor self-care regimes often made respondents stressed and depressed. Many respondents viewed their diagnosis of diabetes, and learning to manage and cope with diabetes, as stressful life events that, in some cases, acted as a catalyst for a depressive episode.

'I wasn't comfortable. I knew a little that older people had diabetes, and then I thought I was pretty young ... but I did cry and say "why me?" and this stuff. (black or black British, female)

'I think you go through this process. I don't know what other people feel but it's just the, the anger. I think the anger and then the just the ... absolute just grief you get. You know, your life is irrevocably changed, [my diabetes] won't go away ... I can't quite believe that I won't wake up one day and it won't have gone. I still have problems accepting that I have it now for life. (white British, Irish or other, female)

Anxiety regarding diabetes was based around what impact it would have on a respondent's long-term health, and the lifestyle restrictions associated with self-care. Many respondents feared diabetic complications that may arise, including blindness, becoming insulin dependent or having a hypoglycaemic attack.

'I was aware that ... if I don't keep [my type 2 diabetes] under control then later, then the kidney and liver, eyes, all start packing up because it's like a slow poison to your body ... And I have a sweet tooth as well, you know, so that was worrying, that I would be able to control it. (Asian or Asian British, male)

'With diabetes, you know, I've seen people they've wet themselves, urinated on their self and all that. And I tried so much that I can hold my urine for all day, because I, you know, I just think that part of me wetting myself so I, I practise myself that I can hold it for all day ... There will be days when I eat those sweetie food or something,

then I'll end up going two or three times really but I try to hold myself from, you know, rushing every minute to the toilet.' (black or black British, female)

Respondents also described feelings of guilt and disappointment whenever they deviated from their self-care regimes.

'I had one very bad afternoon with my mother, and one of my daughters was playing up in a café and I just said I want one of those custard tarts and I, and I'm going to eat it, and then of course the minute I had, sat there almost in tears ... I sit there fretting afterwards for two hours thinking "oh God what's the reading going to be" ... I just can't bear the, the feeling afterwards.' (white British, Irish or other, female)

### Support from primary care for patients with diabetes and depression

Respondents indicated that although their physiological needs were well catered for within primary care, the emotional needs arising specifically from being diagnosed with diabetes and living with diabetes, were not addressed adequately by primary care.

'The one thing I don't have and I feel is absolutely the missing link is, is day-to-day support and help on the emotional side ... I just feel that side is completely missing ... I wouldn't really want to see a general counsellor, what I'm lacking is someone with specific experience of diabetes because that's what I need help with, it's learning to, to live with diabetes, not learning to live with depression, because I kind of know about that.' (white British, Irish or other, female)

Whilst some respondents had approached their general practitioner (GP) to discuss their mental health and received adequate interventions and support, these were in the minority. One respondent described receiving what she felt was an inadequate response from her GP when she discussed her emotional distress.

'I talked to my GP yesterday [about diabetes and depression]. She told me to relax ... listen to music, or go out, or go for a walk or something like that.' (Asian or Asian British, female)

Other patients who experienced depressive episodes that influence, and are influenced by, their diabetes fail to present to primary care because of cultural barriers and stigma attached to mental health disorders.

'I never [consulted a GP about depression], you know I think it's a, it's a cultural thing where you say it's taboo to think about, about the stress and

when it, that, that touches the boundary of mental stress, you know about your mentality, you know ... in our culture you, you don't even go there.' (Asian or Asian British, male)

Similarly, another respondent expressed concern that her GP surgery would consider her 'crazy' if she approached them with her concerns, and she was worried that this would undermine the treatment and respect she received.

## Discussion

Respondents with depression and type 2 diabetes present particular challenges for the care and management of both disorders. Our findings indicate that experiencing diabetes and depression produces worse outcomes in both disorders, and that primary care may need to provide more emotional support to help people cope with diabetes.

### Depression and diabetes self-care

Our study categorised 32% of respondents as depressed using the HAD scale, compared to a rate of 16% among the general population of Wandsworth.<sup>25</sup> This confirms previous studies that found higher rates of depressive disorders among patients with diabetes than the general population.<sup>3</sup> Furthermore, we also found that patients with high rates of depressive symptomatology and high levels of stress had worse self-care patterns, again mirroring previous findings.<sup>8,14</sup> Therefore, we were able to accept our hypothesis identified at the start of this study.

### The relationship between type 2 diabetes and depression

From the qualitative research, respondents described how depression and stress present difficulties for adhering to diet, exercise and medication regimes. They also described how failure to adhere to good self-care practices caused feelings of guilt and stress. This may be one important factor in understanding the relationship between diabetes and depression, along with the influence of poor glycaemic control previously established.<sup>16</sup> Depression leads to worse outcomes in self-care, and poor self-care appears to have a negative effect on people's mood. In the minority of cases where respondents reported that poor mental health did not affect their self-care regimes, this was typically because respondents

were anxious about developing health complications associated with diabetes. Fear of diabetic complications and the progression of the disease encouraged some patients to follow good self-care practices, even when experiencing periods of depression and stress.

Respondents noted that they perceive the symptoms and effects of diabetes in a more negative light when they are depressed. This is a similar finding to previous research,<sup>10</sup> and establishes the additional emotional needs of this group in managing their diabetes. Respondents also viewed diabetes as a negative life event, and the diagnosis of diabetes in particular caused some patients distress. In some instances, respondents developed strategies to learn to cope with diabetes, but in other cases the emotional need relating to diabetes was ongoing. Viewing diabetes as a negative life event, combined with the fact that depressed patients are more likely to view their diabetes in a negative light,<sup>10,13</sup> may also reinforce the relationship between diabetes and mood and depression.

### Depression, type 2 diabetes and primary care

Given that the vast majority of mental health problems are presented to, and treated in, primary care,<sup>18</sup> responding to the emotional needs of patients with diabetes may be best undertaken in primary care settings. We found that some respondents felt that primary care was successful in managing diabetes but failed to meet the emotional distress associated with diabetes. Similarly, previous research described a tension between the practical care provided for diabetes management and caring for emotional distress.<sup>26</sup> Remission of depression has a positive impact on glycaemic control, and potentially improves the course and outcomes of diabetes;<sup>27</sup> however, there are high rates of relapse among patients with diabetes.<sup>28</sup> As such, the effective treatment of depression within diabetic populations is of great importance. Our findings further reinforce the importance of developing appropriate treatment and support options.

Our study found that there are important barriers to patients seeking treatment, of which primary care practitioners should be aware. Some respondents felt that the stigma associated with mental health disorders within their cultural reference groups prevented them from discussing emotional distress with their GPs. This reflects previous research that found that stigma was a barrier to seeking mental health treatment amongst African-American male patients with diabetes.<sup>29</sup> This becomes especially

pertinent given the high incidence of type 2 diabetes amongst black and South Asian ethnic minorities in the UK.<sup>1</sup> In addition, previous research has found that women are less likely than men to have talked to their GP about their diabetes in the last 12 months.<sup>30</sup>

The need for support from primary care for coping with type 2 diabetes, combined with the need to overcome barriers to access, highlights the importance of developing appropriate responses in primary care. Further research is needed with both patient groups and primary care professionals, especially diabetic and mental health specialists, to explore what services should be developed and how to reach out to patients in need.

Based on our research, important initial steps may include raising awareness of the higher incidence of depression amongst patients with type 2 diabetes and the challenges this presents. This should be facilitated by the Quality and Outcomes Framework which now awards points to GPs for screening patients with diabetes for depression. Some possible treatment options to consider may include group counselling specifically for patients with diabetes, expert patient support groups or computer-based treatment programmes. Previous studies have found that group counselling and patient support groups are promising and potentially effective methods of improving health outcomes in patients with diabetes.<sup>31–33</sup> Furthermore, many patient education programmes for chronic disease are now available as computer programmes and internet-based support programmes. Internet-based support programmes for patients with diabetes show early promise, including increasing patients' sense of support,<sup>34</sup> and some improvements in health outcomes.<sup>35</sup> While it may seem that internet-based support may offer a way of addressing stigma preventing consultation, some research has cautioned against internet programmes reinforcing a sense of isolation and not being a substitute for face-to-face consultations.<sup>36</sup>

### Strengths and limitations of this study

The questionnaire stage of our study successfully demonstrated that depressed and stressed respondents in our sample had poorer levels of self-care, replicating the findings of previous cross-sectional studies. Our finding of the relationship between impaired self-care and experiencing stress needs to be treated with some caution because of the limits to this finding noted earlier. Whilst our purposive sampling procedure may limit the generalisability of our quantitative findings, the main purpose of the quantitative work was to locate our sample within

previous findings and to identify and approach suitable respondents for interview.

Both the survey and the interviews were completed by an ethnically diverse sample. This is particularly important when studying factors such as type 2 diabetes and primary care mental health, because people from minority ethnic communities typically have worse health outcomes in these areas. However, our response rate indicates that a large proportion of people with type 2 diabetes may not have taken part in this study. We were unable to explore if there were any differences between those who opted-in to this study and those who chose not to take part. It may be that patients who did not opt-in to this study are from particularly hard-to-reach groups with additional health challenges. Additional qualitative research with patients who experience diabetes and depression and who are from hard-to-reach groups is important to explore this further.

This study introduced an important qualitative dimension to this field and included patients' voices and experiences. However, we did not approach professionals working within primary care and specialising in diabetes. Such professionals may be able to add valuable insights into the challenges and potential benefits of developing appropriate services within primary care to ensure that the emotional needs of people with type 2 diabetes are met.

## Conclusions

Primary care practitioners should be aware of the high rates of depression and stress as experienced by people with type 2 diabetes and they should be prepared to respond to the additional challenges this raises. Many patients may experience emotional distress upon their diagnosis with type 2 diabetes, and for some patients this may lead to a depressive episode. In addition, coping and managing type 2 diabetes involves an ongoing degree of emotional distress for many patients, and they may require specialised help to deal with these problems. A successful treatment intervention will improve outcomes in both disorders. Primary care is well placed to monitor levels of emotional distress among people with type 2 diabetes, to identify cases of depression and to offer interventions that could greatly benefit patients with type 2 diabetes and depression.

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#### CONFLICTS OF INTEREST

None.

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