Experiences and perceptions of dietitians for obesity management: a general practice qualitative study

Short title: Dietitians for obesity management

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Abstract

Background: Multi-component lifestyle interventions are the first line treatment for obesity. Dietitians are ideally placed healthcare professionals to deliver such interventions. However, only a small proportion of patients with obesity are referred by general practice to dietitians, and the reasons for this are not clear. The aim of this study was to explore general practice healthcare professionals' (GPHCPs) experiences and perceptions of dietitians in the context of obesity management.

Method: A convenience sample of GPHCPs practicing in the UK was recruited via a targeted social media strategy, using virtual snowball sampling. Data were collected using semi-structured interviews and analysed using framework analysis.

Results: 20 participants were interviewed (11 General Practice Nurses and 9 General Practitioners). Experiences of referring patients with obesity for dietetic intervention resulted in two main themes: (i) access barriers; (ii) the dietetic consult experience. Three themes emerged from participants' perceptions of a role for general practice dietitians: (i) utilising dietetic expertise; (ii) access to dietitian; (iii) time. Participants experienced barriers to accessing dietitians for obesity management and felt that having a dietitian working within their general practice team would help address this. Having a dietitian embedded within their general practice team was perceived to have the potential to alleviate GPHCPs' clinical time pressures, offer opportunities for upskilling; and may improve patient engagement with obesity management.

Conclusion: GPHCPs perceived that embedding a dietitian within their general practice team would be valuable and beneficial for obesity management. Our findings provide support for the funding of general practice dietitian roles in the UK.

Keywords: General practice, primary care, obesity, weight loss, dietetics, qualitative research

Introduction

In the UK, general practice is the first point of access for the diagnosis and management of chronic diseases [1], including obesity and obesity related co-morbidities. The UK has the third highest rate of obesity in Europe [2], with 67% of males and 62% of females in the UK being classified as being overweight or having obesity (body mass index (BMI) ≥25kg/m^2) [3].

General Practitioners (GPs) have a key role in the co-ordination of patients' treatment [4], and can be described as the 'gatekeepers' for referrals to other healthcare professionals. The National Institute for Health and Care Excellence (NICE) recommends that healthcare professionals should refer patients with obesity for multi-component interventions as a first-line treatment [5]. Dietitians are ideally placed healthcare professionals with the expertise to deliver such interventions and dietetic interventions are effective for weight management [6–8]. However, general practice healthcare professionals (GPHCPs) in the UK refer only 3% of patients with a BMI ≥25kg/m^2 for a weight management intervention [9], and the reasons for this are unclear.

The NHS Long-Term Plan [10] outlines the most significant reforms to GP services in 15 years, with GP practices working together as part of local Primary Care Networks (PCNs), which can now benefit from having access to funding for additional staff, including dietitians, to form an integral part of an expanded multidisciplinary team (MDT) [11]. The value of integrating dietitians into the general practice team is supported in the Canadian [12–14] and Australian [15,16] observational literature. However, dietitians working within a general practice MDT is in its infancy in the UK.

Therefore, this semi-structured interview study aimed to explore GPHCPs' experiences of referring patients with obesity to dietitians, as well as GPHCPs' perceptions of the value and practicalities of embedding dietitians within the general practice team, for obesity management.

Methods

Study Design

This study explores the experiences and perceptions of GPHCPs on an under-studied topic, and as such utilised an exploratory qualitative research design [17].

Researcher Positionality

Reflexivity acknowledges the influence of researcher positionality on the research process [18]. In this study, the influence of the researchers' own experiences of obesity management and their professional

identities (SA as a secondary care obesity dietitian, HP as a GP and SG a medical sociologist) have been considered within the research process.

Participants and Recruitment

General Practice Nurses (GPNs) and GPs were eligible to take part in this study. A convenience sample [19] of GPHCPs were recruited using online social networks using a method known as virtual snowball sampling [20], whereby a small pool of social media followers nominate other participants who meet the eligibility criteria [20]. Recruitment took place between August and September 2019, via online advertisement on the platforms of Facebook, Twitter and LinkedIn. Readers of the advertisement were encouraged to forward the advertisement to eligible participants within their networks to support virtual snowball sampling [17]. After reading the online participant information sheet, participants confirmed their consent electronically, provided demographic screening information and their contact details, and were contacted to arrange a convenient interview time.

Data Collection

Semi-structured interviews [21] were carried out by one interviewer (SA), using an interview topic guide (Supplementary Table 1). The topic guide was developed by the research team following a standard process [22], informed by existing literature, the clinical experience of SA and HP and the study aims. The topic guide was piloted with two GPs, which led to some minor modifications to the wording of some questions. Participants were given the choice for the interview to be conducted by Voice over Internet Protocol (VoIP) [23] using Skype, or face-to-face. Interviews were audio-recorded and transcribed verbatim by a professional transcription service. Each recording and subsequent transcript was assigned a participant numerical number to ensure anonymity and confidentiality. Each transcript was checked for accuracy by the interviewer (SA) prior to analysis.

Demographic information on each participant's job role, gender and experience (years) in general practice was collated via the online consenting process. Participants disclosed the name of their employing GP practice during interview, and information about the demographic of each participant's GP practice was obtained using the National General Practice Profiles database [24], including data on: GP practice size [25], deprivation level [26] and estimates of non-white ethnicity groups [27]. GP practices were defined as urban or rural locations using the Rural Urban Classification of Wards [28].

Data Analysis and Synthesis

Data was analysed using framework analysis [29] which is used widely in healthcare research [30]. Framework analysis allows for the conceptual framework to be developed from codes based upon the

key areas of the topic guide as well as newly emerging themes [30], using a systematic five stage process [29]: 1. Familiarisation, 2. Identifying a thematic framework, 3. Indexing, 4. Charting, and 5. Mapping and interpretation. The research team (SA, HP, SG) independently read through three transcripts (stage 1), then met to develop an initial framework using emergent data and key areas of the topic guide (stage 2). One researcher (SA) independently indexed and summarised the remaining transcripts (stage 3 and stage 4), adapting the framework as necessary, using QSR NVivo 12 [31]. Finally, the key characteristics of the data were mapped and interpreted by the research team (SA, HP, SG) (stage 5) and verbatim participant quotes were extracted to illustrate themes and enhance interpretive validity [32].

Results

Twenty-four GPHCPs consented to participate in the study. Two participants withdrew their consent due to lack of availability and a further two participants were not contactable. Therefore, a total of 20 GPHCPs (11 GPNs and 9 GPs) participated in the study. All participants elected to be interviewed using VoIP. Interviews lasted an average of 41 minutes (range 24 – 61 minutes). The data were considered to have reached saturation [33] with 20 participants, as no new insights were revealed.

Most participants were female (18/20) and held a variety of job positions (see Table 1), with the extent of experience in general practice ranging from 3 to 30 years. Participants worked across small, large, urban and rural general practices with diverse patient demographics across England and Scotland (Index of Multiple Deprivation (IMD) 2019 [26] scores ranged from 6.8 to 50.8, and of non-white ethnicities ranged from 1.5% to 61.1%.) Full characteristics of the participants and their employing GP practices are presented in Table 1.

The thematic results are presented in two parts: part 1) explores GPHCPs' experiences of referring patients with obesity to a dietetic service, and part 2) explores GPHCPs' perceptions of a general practice role for dietitians for obesity management.

1) Experiences of referring for dietetic interventions

All participants had to refer their patients to secondary or tertiary care dietetic services. None of the participants had access to a dietitian within their general practice. However, five participants (GP1, GPN3, GPN6, GPN8, GPN11) could recall a time in the past where they used to be able to refer to a general practice dietitian. Two main themes with six sub-themes emerged from the data. The sub-themes underpinning the main themes are supported by the illustrative participant quotes in Table 2.

Theme 1: Barriers to access

Within this theme, GPHCPs described the barriers they had experienced when accessing dietetic services for their patients with obesity. All five GPHCPs participants who used to have access to a general practice dietitian felt that they had better and easier access to a dietitian when they were based in their general practice, compared to now, where access is via a secondary care referral.

Geographical disparity: GPHCPs acknowledged that access to dietetic services varied by locality, with almost all GPHCPs reporting limited access. Some participants recalled patients actively requesting referral to a dietitian. GPHCPs felt guilty upon informing their patient that dietitian services were not available in their geographical area.

Rejected referrals: GPHCPs experienced a high number of rejected or *'bounced'* referrals, which discouraged them from making further referrals to dietitians. GPHCPs felt that communication from dietetic services about rejected referrals was lacking, meaning they were unable to understand why their referral had been rejected.

Referral criteria: GPHCPs believed dietetic services would only accept referrals for patients with obesity who were clinically complex. Some GPHCPs believed that dietitians would only accept referrals for patients who were underweight and needed to increase their weight and would not accept patients with obesity for weight loss.

Theme 2: The dietetic consult experience

GPHCPs' experiences of the dietetic consult itself were mixed. Experiences were informed entirely by verbal reports from their patients, or written feedback from a dietitian, as they did not have any direct experiences.

Weight stigma: GPNs described stigmatising statements made by patients about dietitians, based upon dietitians' body sizes. Patients' weight biases were directed toward dietitians who were both *'very, very overweight'* or '*really thin'*. Patients told GPHCPs that they felt that dietitians with obesity were *'hypocrites'*, referring to the proverbial idiom *'pot calling the kettle black'*; meanwhile *'thin'* dietitians could not relate or sympathise with having obesity, and thereby they felt *'judged'* by their dietitian.

Dietitian's interest: Patients told GPHCPs that they preferred to see specialist dietitians, as opposed to dietitians working in general services, as they felt that specialist dietitians had greater knowledge of, and interest in, obesity and displayed greater empathy towards them.

Continuity: GPHCPs expressed a lack of communication from dietetic services about the dietetic support they have provided their patient. This led GPHCPs to assume that dietetic interventions were brief, short-term and consisted of seeing a patient for a *'one off'* single intervention; and felt that this level of follow-up was insufficient and ineffective.

2) The General Practice Dietitian Role

Three main themes and seven sub-themes emerged from the data around the potential of a role for a general practice dietitian and are supported by the participant quotes, shown in Table 3.

Theme 1: Utilising dietetic expertise

GPHCPs felt that dietitians were *'experts'* in managing obesity and perceived that dietitians' expertise could be utilised by general practice teams in several ways, as described in the sub-themes below.

Patient contact: GPHCPs felt it was important for dietitians to work within general practice surgeries to provide *'expert advice'* directly to patients with obesity. GPHCPs also believed that having access to *'in-house'* dietitians would increase screening for obesity. GPHCPs did not want the dietitians to work in silos. GPHCPs wished to be able to book direct appointments with dietitians and view dietitians' entries in GP medical records, to aid continuity of care.

Upskilling peers: GPHCPs wanted guidance on how they can support patients of lesser complexity themselves and felt that dietitians could *'upskill'* the general practice team. GPHCPs acknowledged that GPNs and healthcare assistants (HCAs) currently provide first line dietary advice, despite being *'nutritionally ill-informed'*.

'Curbside consultation': GPHCPs perceived that having a dietitian within their team would offer natural opportunities to seek informal dietetic advice about patients– a term referred to in medical practice as a 'curbside consultation' [(34)]. The opportunity for informal discussions would enable GPHCPs to feel more supported, and less *'isolated'* when managing obesity.

Theme 2: Access to dietitian

Within the theme of access, there was a common perception that integrating dietitians into general practice would improve physical access for patients, as well as referral access for GPHCPs.

Physical access: GPHCPs felt that patients with obesity would be more *'willing'* to attend an appointment with a dietitian if it was held in general practice, as this is less burdensome for patient travel. Further, secondary care environments were perceived to be *'scary'* for patients, while general practice was described as a familiar environment.

Referral pathways: GPHCPs proposed a *'simple'* referral pathway for referring to general practice dietitians, that did not involve referral forms and patients could be booked directly into dietitians' clinics. Making internal referrals to *'someone in the building'* was perceived as an enabler to increasing referrals to dietitians for obesity management.

Theme 3: Time

Time was cited by GPHCPs as being crucial for managing obesity, and it was perceived that integrating dietitians into general practice would provide timely access to treatment for patients whilst also *'freeing up'* GPHCPs' clinical time.

Referral to treatment time: GPHCPs perceived that obesity management interventions needed to be initiated quickly, likening obesity to a point of *'crisis'*. Immediate access to dietitians was deemed important for a successful weight management outcome, and it was perceived that embedding dietitians into general practice would enable a shorter referral-to-treatment time.

Health professionals' time: Dietary advice was perceived to be clinically time consuming for GPHCPs, who felt *'under pressure'* to deliver dietary advice within short appointments. GPHCPs felt that giving dietary advice did not *'suit their skill set'* and was not the best use of their clinical time. GPHCPs believed many of their patients could be referred to a dietitian, and that this would be *'invaluable'* in *'freeing up'* their clinical time.

Discussion

Summary

GPHCPs experience barriers in accessing dietitians for obesity management and perceived that having a dietitian working within the general practice team would contribute to remedying some of the barriers to access. GPHCPs perceived dietitians' expertise to be valuable for the management of obesity, but emphasised dietitians would need to be embedded within the team and would need to

have a specialist interest in obesity for their dietetic expertise to be utilised effectively. Recruiting a dietitian to the general practice team was perceived as an enabler to overcoming challenges that GPHCPs face relating to obesity management; such as alleviating time pressures and offering opportunities for dietitians to provide training. GPHCPs believed that appointments with a general practice dietitian would be appealing for patients and may improve patients' engagement with obesity management. GPHCPs raised concerns about a bi-directional weight stigma between patients with obesity and dietitians, suggesting that patients held a weight bias about the dietitians who treated them, and patients felt that dietitians had a judgemental attitude towards their obesity.

Strengths and limitations

This is the first study to explore GPHCPs' experiences and perceptions of dietitians for obesity management in the UK. Participation was not incentivised, yet there was no difficulty in recruitment. We believe this can be attributed to the virtual snowball sampling method, which enabled lateral communication that had a 'multiplier effect' [35,36]. However an inherent limitation of convenience sampling is selection bias [37], which may mean that the GPHCPs electing to take part in this study were those who held strong opinions regarding obesity management. Using VoIP for data collection allowed data to be collected from a diverse demographic of participants and from multiple geographic areas [36] across the UK, increasing transferability of the findings. However, the limitations of VoIP are acknowledged, such as the loss of intimacy as a result of technical difficulties [38] and hindrance to the detection of non-verbal cues [39].

Comparison with existing literature

Although this is the first study to explore GPHCPs' experiences and perceptions of dietitians for obesity management in the UK, findings are consistent with the limited literature available internationally. A prior systematic review [40] explored dietetic referral practices for obesity management, and concluded that lack of accessibility to secondary care dietitians was an important barrier to dietetic referral. Meanwhile, GPs who did have access to dietitians within primary care benefited from frequent contact with dietitians, which enabled dietetic referrals through enhanced communication and relationship building [40]. While these findings were akin to our own, only two studies in the systematic review [40] study were qualitative, the viewpoints of GPNs were not sought and no studies were conducted within the UK.

Our findings relating to utilising dietetic expertise in general practice, are also comparable to studies evaluating the role of primary care dietitians in Canada [12,13]. Dietitians upskilled GPs, leading to GPs being better able to manage patients that did not require a formal referral to a dietitian [12,13]. Both

formal and informal face-to-face communication between dietitians and GPs were important opportunities for inter-disciplinary learning [12,13]. While curbside consultation practices between physicians in primary care is well documented as an integral part of medical culture [34], 'informal hallway chats' have been found to take place between GPs and dietitians in the Canadian primary care context [12] and within this study. Although there are parallels between our study and the Canadian literature, these studies [12,13] were not conducted within the context of obesity management, and moreover their findings may not be generalisable to the context of the structuring and financing of UK general practice.

Our data found that GPHCPs perceived obesity management to be time consuming and proposed that obesity management could be directly referred onto general practice dietitians, thus alleviating GPHCPs' clinical time pressures. Time is known to be a barrier for healthcare professionals in raising the topic of weight during appointments. The ACTION International Observation (ACTION-IO) study [41] found that more than half of all healthcare providers surveyed indicated that a perceived lack of time in consultations was a factor in not discussing weight loss with their patients. Time was also a significant barrier in a UK qualitative study [42], in which both GPs and GPNs expressed a perceived lack of clinical time as a barrier to the initiation of discussion about weight loss with patients with obesity.

Low self-efficacy has also been reported in the literature as a barrier among healthcare professionals in both raising the topic of weight with patients initially [42] and managing obesity [43,44]. This has been attributed, in part, to a lack of training [45]. In our study, GPHCPs perceived dietitians to be the experts in obesity management and felt that having a dietitian working with their general practice would offer opportunities for upskilling of the wider general practice team. It may be that GPHCPs welcoming dietitians into general practice may partly be due to their lack of confidence in their own obesity management competencies.

Our present study found that GPHCPs believed that a two-way weight bias existed between dietitians and patients with obesity, and that this negatively influenced patients' satisfaction with a dietetic consultation concerning obesity management. It is clear from the literature that obesity is a stigmatising condition that impacts negatively on the relationship between patients and healthcare professionals [46–48], including dietitians [49,50]. A qualitative study from the perspective of patients has previously shown that patients make judgements about the health of their GP based upon their GP's physical appearance, particularly weight status, whereby patients expressed that the advice given by their GP is more credible, motivating and trustworthy if they perceived their GP to be healthy [51].

Our data also shows that patients with obesity vocalise a weight bias towards dietitians, which has not previously been reported in the literature.

Implications for research and/or practice

This study has provided valuable exploratory data that suggests that GPHCPs are dissatisfied and frustrated with current referral pathways to refer patients with obesity to dietitians. GPHCPs welcome the expertise that dietitians can bring to their general practice teams to support obesity management, and the integration of dietitians into the general practice team is seen to be key. The findings are opportune for UK practice, given that dietitians have now been added to the Additional Roles Reimbursement Scheme in the recent update to the GP contract agreement for 2020/21 - 2023/24 [(11)]. Our findings suggest the future role of general practice dietitians should, alongside providing patient consultations, incorporate formal and informal obesity training for GPHCPs. Dietitians and GPHCPs should also work together to formulate simple and pragmatic internal referral pathways. Further qualitative work which focuses on the design and specification of a general practice dietitian role should be undertaken, and should include input from important stakeholders, including patients and GPHCPs. Future research should examine the impact of embedding a dietitian in general practice has in terms of improving GPHCPs' own nutritional competency and improving patient engagement in obesity management.

This study has also raised concerns about a two-way weight stigma between dietitians and patients with obesity. Weight stigma in healthcare is widespread and addressing this requires a multi-strategic approach both within healthcare and across society [(52)]. Lack of education about the biological causes and controllability of obesity has been shown to contribute towards weight stigma among student healthcare professionals in the UK, including student dietitians [(50)]. Targeted educational training on the causation and controllability of obesity may be beneficial in addressing weight stigma. However, whether such educational training can improve the explicit and implicit attitudes that are conducive to weight stigma among qualified dietitians is yet to be determined and is an area that requires further research.

Transparency: The lead author affirms that this manuscript is an honest, accurate, and transparent account of the study being reported. The lead author affirms that no important aspects of the study have been omitted and that there are no discrepancies from the study as planned.

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Table 1: Participants' demographics and employing GP practices' patient population demographics

Participant	Individual				GP practice			
	Profession	Gender	Experience (years)	Position	Size of practice*	Deprivation level (IMD 2019)	Non-white ethnicity (%)	Location
GP1	GP	Male	20	Salaried	Small	11.6	2.6	Rural
GP2	GP	Female	14	Locum	**	**	**	**
GP3	GP	Female	20	Partner	Large	32.5	16.5	Urban
GP4	GP	Female	12	Locum	Large	17.7	24.6	Urban
GP5	GP	Female	9	Partner	Small	12.2	8.8	Urban
GP6	GP	Female	19	Partner	Large	33.8	23.9	Urban
GP7	GP	Female	11	Partner	Small	***	***	Rural
GP8	GP	Male	4	Salaried	Large	23.5	7.8	Urban
GP9	GP	Female	14	Partner	Large	21.8	1.7	Urban
GPN1	GPN	Female	28	GPN Manager	Large	17.4	14.5	Urban
GPN2	GPN	Female	30	GPN Manager	Large	17.7	6.8	Urban
GPN3	GPN	Female	18	GPN Manager	Small	33.7	3.8	Urban
GPN4	GPN	Female	5	GPN Manager	Large	7.8	2.6	Rural
GPN5	GPN	Female	3	GPN	Small	33.7	1.5	Urban
GPN6	GPN	Female	13	ANP	Large	28.4	5.5	Urban
GPN7	GPN	Female	24	ANP	Large	50.8	61.1	Urban
GPN8	GPN	Female	7	GPN	****	****	****	Rural
GPN9	GPN	Female	17	GPN Educator	Small	15.1	4.9	Urban
GPN10	GPN	Female	29	GPN	Large	18.5	2.5	Urban
GPN11	GPN	Female	19	ANP	Large	6.8	3.9	Urban
Summary	9 GPs 11 GPNs	2 Males 18 Females	Mean 16 (range 3 – 30)	GPs: 2 salaried, 2 locum, 5 partners GPNs: 3 GPNs, 3 ANPs, 4 GPN managers, 1 GPN educator	6 Small 12 Large	Mean 21.3 (range 6.8 – 50.8)	Mean 11.4 (range 1.5 – 61.1)	4 Rural 15 Urban

GP, general practitioner; GPN, general practice nurse; ANP, advanced nurse practitioner

* small practices = <6000 registered patients and large practices = ≥6000 registered patients, **Locum at >1 GP practice, ***Data not available for Scotland, ****Data not available for military GP practices

Table 2: Illustrative quotes from general practice healthcare professionals regarding their experiences of referring patients to dietitians for obesity management

Themes and Sub-themes	Participant Quotations
1. Barriers to access	
1a. Geographical disparity	"…and if people want advice on weight reduction, we can refer them to a dietitian quite easily in our area, but I appreciate that isn't always available in every sort of, every area of the country." (GP5) "INT: In your experience, how would you describe referring a patient to a dietitian for obesity?" Impossible… It's just that there's no, there's just no service available… patients have asked, "Can I be referred to a dietitian?" and I have to say, "Actually they're not available." (GPN3)
1b. Rejected referrals	"There are some patients which are not quite heavy enough, but you feel that they need perhaps a little bit more intensive input." (GP6) "I have done referrals to different, you know, dietitian services within the area and it's been declined, depending on the long term conditions and things that they've got… it just comes back and says they don't meet the criteria. And unless you have the time to actually then write another letter saying, "Well can you tell me why they didn't meet the criteria?", normally you don't tend to because, you know, doing it within clinical hours, it sometimes can be a bit hard." (GPN5)
1c. Referral criteria	"…we can refer, but I know the service is so oversubscribed, that as far as I know, they don't just accept referrals for obese patients… they're very, very short, that we can really only refer patients that we're struggling with, not necessarily just the obese patients, but you know, others with dietary needs as well." (GPN10) "…you refer in the underweight [to dietitians], when they've got muscle loss, but it's not for over. It's not for-[overweight]." (GP4)
2. The dietetic consult experience	
2a. Weight stigma	" …we've had others who've come back and said, "Well what do they know?" and I've said, "Well, they've got all that knowledge and they do know," but they can't get through that barrier of 'she doesn't know because she's really thin' and that's bias. It's perceived bias but it's not a true one because the dietitians are lovely." (GPN2) "So we did have a dietitian that was very, very overweight. That, you could guarantee, every one of my patients would say, "Well you know pot calling kettle black." And I was like, "Yeah, but that's her role to advise you." But that made it difficult." (GPN6) "A lot of the patients who went, came back saying – they fell into very two clear distinct halves – they really liked it, they found it useful, they learnt loads, or they felt they were being judged, and they didn't find it helpful or constructive at all. There was no happy medium. I've always had these two extremes." (GPN9)
2b. Dietitian's interest	"I think mixed experiences, and I think some of that, I think the biggest determinant of that tends to be the interest of the dietitian on obesity because I don't think a lot of them are that interested with obesity. Some are very interested and some are less interested." (GP1) And I sometimes wonder if that's who they saw, when they went to see the dietitian… I think a lot of ours might be general dietitians, and I think if they see our specialist dietitians, they absolutely seem to love them… they get far more out of it. I think they think that the person understands them, and has experience of what they're doing, and what they're going through." (GPN9)
2c. Continuity	"Generally the experience has been poor really. They tend to see people once or twice outside of an obesity clinic and then it doesn't seem to actually make any difference to the weight." (GP1) "…but in terms of the feedback that we get, I don't think it's particularly good here so I don't really know what, you know, I just assume that they maybe just see them once and give them advice and then that's the end of it cause we don't, I don't hear that they keep on repeatedly seeing them and monitoring their weight. I assume it's like a sort of one off intervention rather than a regular thing like a physiotherapist does." (GP5)

Table 3: Illustrative quotes from general practice healthcare professionals regarding their perceptions on the role for a general practice dietitian for obesity management

Themes and Sub-themes	Participant Quotations
1. Utilising dietetic expertise	
1a. Patient contact	"… in the same way that they've really focussed on trying to prevent diabetes before it's really happened, I think we should exactly the same with obesity and to have an in-house dietitian who has the expertise in that area, I think it would make a huge difference… it's actually to have someone who is an expert in that area and giving them the correct advice to help them lose weight and to improve their health." (GP5) "You're much more likely to be on the lookout, scanning for those people, if you know that you've got somebody to go and help. I think sometimes, you don't want to open up that can of worms, when you know there's nothing to help you, once you've done the weight and BMI bit." (GPN8) "I think it would be brilliant. They could enter into the clinical system and use the same system as us, so we can see when they've made an entry, or seen a patient and what the advice is. They'd be a part of our team. They would know the patients like we get to know them. And we'd get to know that member of staff as well. So it would just be a brilliant partnership." (GPN7)
1b. Upskilling peers	"What would be really helpful, is some kind of guidance about how you manage the patients who are not going to fit that criteria, because I'm thinking a majority aren't going to need a dietitian. But then, how do you manage them, because at the moment, I don't think that the guidelines for nursing, well for anybody, are fantastic." (GPN8) "I think that particularly for nurses and healthcare assistants who are often the first port of call for dietetic advice it is better that they get the right advice and at the moment I suspect, well I know some of the stuff that's churned out is questionable… doctors, nurses and healthcare assistants are pretty nutritionally naïve or ill-informed. (GP1)
1c. 'Curbside Consultation'	"So we did, we once had a dietitian back in the day, this is about 20 years ago… who came to the practice and that was a very positive experience… she had a halo effect with other members of staff who could have informal chats with her…"(GP1) "I think having someone to go to and have that conversation about somebody… having that MDT moment with someone, because you may not actually need to refer the patient entirely… And they can say, actually, what we're going to do is, have you thought about this? Have you thought about that? I think it's quite lonely in general practice." (GPN8)
2. Access to dietitian	
2a. Physical access	"We used to have dietitians that used to come into the practice and they did their clinics. And so they were part of the team. And the patients, you could say, they come on a Tuesday and, they're like, Oh Well we know the practice. We know where we've got to come. It's nothing new or scary for them." (GPN6) "If there was a clinic in our practice and we can directly book them in… we'd now know that they'll be seen locally, they don't have to travel. People would be a lot more willing cos they'd see it as part of us rather than a completely separate secondary care thing." (GP7) "… the patients would come in for it, because they wouldn't have to go too far… and it's travel that bothers a lot of them, and lack of buses, and what have you." (GPN9)
2b. Referral pathways	"And we can actually book the appointment there and then… It would make things much more seamless… it would just be ease of doing that referral. Potentially it may just be that I can simply send a task through the SystmOne, the actual patient record." (GPN7) "If it's at the forefront of your mind that you've, you know you've got a dietitian in the building, I might be more inclined to say, oh let me just check your height and weight… then I might then say, oh it might be worth booking an appointment with the dietitian to have a chat. It would encourage me more to actually measure it [BMI] and then knowing that it's an option to just refer someone in the building." (GP5)
3. Time	
3a. Referral to treatment time	"I think the dietitian's role has been quite vital, to that, when they [patients] need the help, they can get the help, at the point of diagnosis, or the point of a crisis, immediate access, rather than saying, well, 'I'll refer you to a dietitian, you'll see them in 4-5 weeks', if we're lucky, by then that window of opportunity has gone." (GPN11) "…it's about setting that commitment, they might make the commitment that day, but by the time they get the appointment six weeks later, they haven't… Again, that's where that time, you know, the time from referring to being seen, the longer it is, the more likely they are to change their mind." (GPN6)
3b. Health professional's time	"I think for me personally from a clinical point of view, it would take a lot of the pressure off me to be able to have to do everything and feel like I'm giving the right advice because things change so frequently as well… but you don't have the time to go through all that [dietary advice], so certainly it would free my time up to look at more things that will suit my skillset more… it would be invaluable really in a lot of ways." (GPN3) "They would take a lot of my work though [laughter]! Because there is quite a lot of dietary advice, even people with high cholesterol levels, do you know, all of that could be incorporated into the role of somebody who was a dietitian." (GPN4) "…basically it would save practice nurse time, that if we found a patient when we're doing chronic disease management, or for anything else, that was willing and wanting to make those changes, we could refer them straightaway, and they could have the follow up, the support that they needed." (GPN10)

Table S1: Topic guide used for semi-structured interviews with general practice healthcare professionals

Questions
1. Do you have a dietitian working within your general practice?
2. What do you think is the role of dietitians in the context of obesity?
3. Have you ever referred a patient to a dietitian for obesity management? If yes, tell me about your experience. If no, why do you think this is?
4. If a dietitian worked within your general practice team, to what extent do you think they would be useful?
5. If a dietitian worked within your general practice team, do you think would this influence obesity assessment? If yes, how? If no, why not?
6. If a dietitian worked within your general practice team, do you think this would influence obesity management? If yes, how? If no, why not?
7. If a dietitian worked with your general practice team, what would encourage you to refer a patient with obesity to them?
8. If a dietitian worked with your primary care team, what would prevent you referring a patient with obesity to them?