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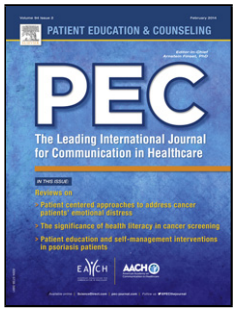

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An analysis of directly observed weight communication processes between primary care practitioners and overweight patients

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Highlights

- Weight discussion occurred in 25% of consultations with overweight patients
- 26% of weight discussions resulted in a weight-related consultation outcome
- Providing space to patient-initiated weight issues may facilitate weight discussion
- Longer weight discussion may produce weight-related consultation outcomes
- Contextualising weight as a problem may enable weight-related consultation outcomes

Abstract

Objective: To analyse weight-related communication prevalence and processes (content/context) between primary care practitioners (PCPs) and overweight patients within routine primary healthcare consultations.

Methods: Consultations between 14 PCPs and 218 overweight patients (BMI ≥25kg/m^2) were video recorded. Weight communication was coded using the Roter Interaction Analysis System (RIAS) and the novel St Andrews Issue Response Analysis System (SAIRAS). Communication code frequencies were analysed.

Results: Weight discussion occurred in 25% of consultations with overweight patients; 26% of these had weight-related consultation outcomes (e.g. weight-related counselling and referrals, stated weight-related intention from patients). Weight discussions were more likely to occur if PCPs provided space to patient attempts to discuss weight (p=0.013). Longer weight discussions (p<0.001) and contextualising weight as problematic when PCP/patient-initiated weight discussion (p<0.001) were associated with weight-related consultation outcomes.

Conclusion: Weight was rarely discussed with overweight patients, however PCP space provision to patient weight-discussion initiation attempts increased weight discussion. When weight was discussed, increased time and/or contextualising weight as a problem increased the likelihood of weight-related consultation outcomes.

Practical implication: PCP use of specific communication approaches when discussing, contextualising and responding to patient weight may facilitate weight-

related discussion and consultation outcomes and could lead to more effective patient weight management.

Keywords

overweight; obesity; direct observation; primary healthcare; weight management; primary care communication; weight-related communication; communication coding

1 Introduction

Obesity is a global public health epidemic with 1.9 billion adults considered overweight and 650 million adults considered obese worldwide [1]. The prevalence of overweight and obesity in the United Kingdom (UK) is amongst the highest in the world [2], and within Scotland 65% of adults are overweight and 29% are obese [3]. The health complications associated with overweight and obesity, such as type 2 diabetes [4], cancer [5], cardiovascular complications [6, 7] and mental health issues [8, 9], present a significant public health challenge to Scotland and the UK.

The National Health Service (NHS) primary healthcare system in the UK is well placed to identify overweight and obese patients and provide patients with weight management [10, 11]. UK-based research investigating the effectiveness of delivering patient weight management in primary care has shown mixed results [12-15]. However, additional studies in the UK have demonstrated primary care can have an effective role in *facilitating* patient weight management though discussion with patients about their weight and referring patient onto specialist weight management

services [16-18]. Despite this, weight discussion and weight management during primary care consultations are scarce [19-24]. Our previous research in Scotland found that patient weight was discussed in only 25% of routine consultations with overweight and obese patients in a single primary care practice [25].

To date, no other observational research in the UK exists that directly investigates the prevalence of weight discussion in routine primary care consultations. When weight discussion does occur in a clinical environment, the communication processes are poorly understood [26]. Previous research focused on select categories of primary care practitioner communication and omitted important aspects of weight discussion such as patient communication and weight outcomes for the patients[26]. The initiation of weight discussion and the context in which weight is discussed may also be important for effective weight discussion but have only been examined in small scale studies [25, 27].

Research into primary care weight communication is scarce, possibly due to the time intensive methodologies required to collect, code and analyse such communication data. Several established medical communication coding schemes exist. These include generic communication analysis tools such as the Roter Interaction Analysis System (RIAS) [28] and the Multi-dimensional Interaction Analysis [29], or more specific schemes such as the Verona Coding Definitions of Emotional Sequences (VR-CoDES) [30]. Whilst some of these systems have been used to investigate primary care weight communication [31-34], none are designed specifically to focus on weight communication processes and therefore may miss important weight-specific information. Given the poor understanding of primary care weight discussion

processes, the development of a coding system that focuses on weight communication processes is warranted.

The aim of the current research was to provide a focused analysis of weight related communication between PCPs and overweight and obese patients, and determine whether weight-related communication was associated with weight-related consultation outcomes (e.g. weight-related counselling and referrals from PCPs; explicit statements of intention from patients to take action about their weight). As part of this research, the St Andrews Issue Response System (SAIRAS), a communication coding system designed to analyse the primary care weight discussion initiation process, was developed and is presented alongside results utilising an established medical consultation coding scheme, the RIAS.

Specifically, we address the following research questions:

1. What is the prevalence of weight discussion during routine primary healthcare consultations?
2. How is patient weight discussed, in terms of communication content and context?
3. How are weight discussion initiation attempts responded to and does this vary depending on how weight discussions are initiated?
4. Does the weight discussion initiation process have implications for subsequent weight discussion in the consultation and the outcome of the weight discussion?

2 Methods

2.1 Design and procedure

This research adopted a cross-sectional and direct observational design. Multiple methods were applied including video capture of communication during *routine* primary care consultation, research questionnaires with PCPs and patients, and semi-structured interviews with PCPs. This paper will focus on data obtained from coding video recorded consultations.

The research took placed across seven NHS Scotland primary care practices. Routine primary care consultations between consenting patients and PCPs were video recorded. Immediately following the video recorded consultation, patient height (metres) and weight (kilograms) was measured by a researcher using calibrated scales and a stadiometer to allow calculation of body mass index (BMI). The research focus on weight discussion was not disclosed to any participants (PCP or patient) until all recording had finished in each practice to remove the possibility of biasing the communication within the consultations. Participants were informed via information sheets that the study was investigating medical communication in general. The data collection period for this research was between July 2015 and December 2017.

2.2 Recruitment

PCPs were recruited via two methods: 1) practice managers (or equivalent) were contacted by telephone and asked to disseminate research documents to the general practitioners (GPs) and practice nurses (PNs) in the practice; 2) directly at

two primary care focused continuing professional development events. A personalised communication feedback report and £100 recompense (Amazon.co.uk voucher) were offered to all PCPs who participated.

Patient recruitment was conducted by administration staff within each participating practice. When patients were offered an appointment during a recording clinic, staff verbally informed patients that the research was taking place during this clinic, using a script, and invited patients to participate. Patients were provided with an information sheet and a consent form at least 24 hours in advance of their appointment. Patients' under the age of 18, and/or with known difficulties communicating fluently in English, were not eligible to participate.

2.3 Communication coding

All communication during consultations with overweight and obese patients was coded using the Roter Interaction Analysis System (RIAS) Roter and Larson [28]. Additionally, all weight discussion during consultations with overweight and obese patient was coded using a novel coding system, the St Andrews Issue Response Analysis System (SAIRAS). Weight discussion was defined as any explicit mention of, or clear inference to, patient weight by either the patient or PCP, regardless of whether it resulted in subsequent weight discussion. All videos were coded using The Observer XT 12.5 software [35]. Codes were applied immediately after each communication was observed in the video and time stamped. Intra-rater reliability analysis was conducted in The Observer XT 12.5 by re-coding 10% of video recorded consultation that contained weight discussion, using the RIAS. A Kohen's kappa value of 0.80 indicated substantial coding reliability [36].

2.3.1 Roter Interaction Analysis System (RIAS)

The RIAS is a comprehensive medical communication coding system [28] that has previously been employed to investigate weight-related communication processes in primary care consultations [31-33]. It attributes a code to every utterance (i.e. the smallest discernible communication segment) according to the content and function of the utterance. RIAS codes were broadly categorised into five functional groups (Table 1).

[Table 1]

In this study, the RIAS was modified with an additional code, the "weight discussion initiated" or WDI code. The WDI code allowed the duration of each weight discussion to be recorded and was used to provide information about the context of weight discussion. A weight discussion was defined as *distinct* from another weight discussion (and a unique WDI code applied) if it was separated by communication that was not related to weight (i.e. separated by communication content rather than time). Whilst the WDI code was active, standard RIAS codes were applied to the communication occurring. The WDI code allowed communication during weight discussion to be easily isolated from other consultation communication for the purposes of analysis. The WDI code also allowed for the identification of the context of each weight discussion using three binary contextualising variables (Table 2). For

every WDI code applied, one option for each of the three contextualising variables was coded (e.g. Biomedical/Problem/Related).

[Table 2]

2.3.2 St Andrews Issue Response Analysis System (SAIRAS)

The SAIRAS was designed to investigate how weight-related issues were raised for discussion, how attempts to discuss weight were responded to, and what implications this initiation process had for further weight discussion and weight-related consultation outcomes. The SAIRAS was developed because the RIAS could not readily provide this information without significant modification to its coding structure and process, compromising the validity of the RIAS. The SAIRAS coding framework was based on the issue/immediate response format of the Verona Coding Definitions of Emotional Sequences (VR-CoDES) [30], but revised its focus using communication codes and definitions from the RIAS [28]. The SAIRAS contains three issue codes, biomedical, psychosocial and weight. Biomedical issues refer to a physical/somatic health problem and/or the treatments of physical health problems. Psychosocial issues refer to the psychological health of the patient, and/or issues concerning patient social or lifestyle factors. Weight issues relate to patient weight or the management of weight. Issue codes are applied to each speaking turn in which an issue was *initially* raised for discussion. Only weight issues codes were analysed in this research.

The SAIRAS contains eleven response codes that are categorised into two functional groups, providing space responses and reducing space responses (Table 3). Providing space responses encourage or facilitate the other speaker to continue

discussing an issue. Reducing space responses block or do not explicitly encourage or facilitate the other speaker to continue discussing an issue [30]. Response codes are applied to the speaking turn *immediately following* one of the three issue codes and define how the other speaker responds to an individual's attempt to initiate a discussion about an issue.

[Table 3]

The SAIRAS also codes whether each response code was followed by subsequent weight discussion and whether the consultation had a weight-related outcome for the patient. Subsequent weight discussion was determined by the other speaker's communication immediately following the SAIRAS response code (i.e. the response to the response). If the response to the response was still on the topic of weight, it was coded as subsequent weight discussion and if not, it was coded as no subsequent weight discussion. A weight outcome was defined as any direct counselling messages from the PCP that the patient was overweight or obese and/or the patient should act regarding their weight, a referral onto other services as a direct result of a weight issue, or any clear declaration from the patient that they intended to take action about their weight. Each consultation was coded as either having or not having a weight outcome, and the exact type of outcome was also recorded (PCP counselling, referral and/or patient statement).

2.4 Data analysis

The focus of this study was communication with overweight patients, therefore only videos with overweight patients (as defined by measured BMI) were coded and

analysed. Code frequency analysis was performed with RIAS and SAIRAS coded data using Microsoft Excel [37]. RIAS code frequencies during consultations containing weight discussion were divided according to communication during weight discussion only and all other consultation discussion. The differences in the proportion of PCP and patient communication frequencies for each RIAS functional group between weight-related and non-weight-related discussion was tested using chi-square analysis. Differences in mean discussion length according to the presence or absence of weight discussion or weight-related consultation outcomes was analysed using analysis of variance (ANOVA).

SAIRAS weight issue code frequencies were organised by speaker to determine who initiated each weight discussion. Response codes were divided into their functional groups (providing space or reducing space), to determine how weight discussion initiation attempts were being responded to by the other speaker. Combined frequency analysis of the responses and the ‘subsequent weight discussion’ variable identified how frequently PCP and patient providing and reducing space responses were followed by subsequent weight discussion. Chi-square analysis was conducted to statistically determine whether subsequent weight discussion was dependant on response type. All statistical analysis was performed in IBM SPSS 24.0 software.

3 Results

3.1 Research sample

The research took place within seven primary care practices in three NHS Scotland health boards (Fife, Tayside and Lothian). Fourteen consenting PCPs (12 GPs and 2 PNs) participated. Both PNs were female and eight GPs were male (66.7%). Three hundred and five consenting primary care patients participated (Table 4). Mean BMI of the patient sample was 28.75 kg/m^2 (overweight) and ranged from 18.91 to 61.95 kg/m^2. Two hundred and eighteen patients (71.5%) had an overweight BMI ($\geq$ 25 kg/m^2), and 94 patients (30.8%) had an obese BMI ($\geq$ 30 kg/m^2).

[Table 4]

3.2 Prevalence of weight discussion

Of the 218 video recorded consultations with overweight patients, 54 (24.7%) consultations contained weight discussion. Twenty-seven of these consultations were with overweight patients and 27 consultations were with obese patients. Throughout these 54 consultations, weight was raised for discussion on 100 distinct occasions, 35 times by patients and 65 times by PCPs. Discussion of weight was raised on 5 distinct occasions in 1 consultation, on 4 occasions in 6 consultations, on 3 occasions in 7 consultations, on 2 occasions in 10 consultations, and on 1 occasion in 30 consultations.

Consultations that contained weight discussion varied in length, from 260 to 1440 seconds. Mean consultation length was significantly longer for consultations containing weight discussion (680 $\pm$ 266 seconds) compared with those containing

no weight discussion (575 ± 260 seconds) [F (1, 216) = 6.46, p = 0.01]. The mean length of each distinct weight discussion was 30 seconds (ranging from 2 seconds to 330 seconds). Weight discussion accounted for an average of 8% of total consultation time. Additionally, mean time spent discussing weight within each consultation was significantly longer (149 seconds) in consultations that had a weight outcome compared with consultations that had no weight outcome (25 seconds) [F (1, 52) = 38.84, p < 0.001].

3.3 Content and context of weight discussion

PCPs used significantly more partnership and activating communications during weight discussion than they did during all other consultation discussion [χ^2 = 4.295 (1), p = 0.04] (Figure 1). Patients used significantly more information provision communications [χ^2 = 11.139 (1), p = 0.01] and significantly less emotional expression and responsiveness communication [χ^2 = 15.075 (1), p < 0.001] during weight discussion than they did during all other consultation discussion (Figure 2). See the supplementary material for a complete overview of PCP and patient RIAS coding.

[Figure 1 & 2]

PCPs almost exclusively contextualised weight as a biomedical issue when initiating weight discussion (95.4%), compared with only 60% of patients who initiated weight discussions [χ^2 = 20.188 (1), p < 0.001]. Patient-initiated weight discussions tended

to contextualise weight as a problem more frequently (71.4%) than PCP-initiated weight discussions (40%) [χ^2 = 8.992 (1), p = 0.03]. PCPs and patients were more likely (67.7% and 60% respectively) to initiate a weight discussion within the context of another health issues (e.g. the implication that weight may have for an existing health issue) rather than weight as a stand-alone issue.

3.4 Responses to weight discussion initiation attempts

PCPs provided space for subsequent weight discussion on 65.7% of occasions, whilst patients' provided space on 84.6% of occasions. PCP providing space responses resulted in subsequent weight discussion on 60.9% of occasions, whereas 16.7% of reducing space responses resulted in subsequent weight discussion [χ^2 = 6.21 (1), p = 0.013]. Patient providing space responses resulted in subsequent weight discussion on 67.3% of occasions, whilst 50% of patient reducing space responses were followed by subsequent weight discussion [χ^2 = 1.10 (1), p > 0.05].

3.5 Communication and weight-related consultation outcomes

Of the 54 consultations containing weight discussion, 14 (25.9%) had a weight-related consultation outcome for the patient. For 12 of these consultations, the outcomes were counselling messages from the PCPs, either directly telling the patient their weight was an issue and/or directing the patient to take specific action about their weight. In the remaining two consultations, patients were counselled (i.e. asked to take specific actions regarding their weight) but also referred onto additional services (NHS weight management service or referred for blood tests). The mean number of distinct weight discussions per consultation was higher in consultations

with a weight outcome (2.46) compared with consultations with no weight-related outcome (1.65) [F (1, 52) = 5.23, p = 0.02]. If weight issues were contextualised as a problem, when weight discussion was initiated by the PCP or patient, a weight related consultation outcome was more likely [χ^2 = 27.051 (1), p < 0.001].

4 Discussion and conclusion

4.1 Discussion

Analysis of consultation communication behaviour and weight discussion, between PCPs and overweight and obese patients, identified several key findings. Weight issues were not routinely discussed with overweight and obese patients. Patient and PCPs communication differed during weight discussion, and PCPs contextualised weight issues differently from patients. How PCPs responded to patients who attempted to discuss their weight appeared to be important for facilitating further weight discussion. Few weight discussions resulted in a weight-related consultation outcome, however spending more time discussing weight and/or contextualising weight issues as problematic was associated with weight-related consultation outcomes.

To our knowledge this current research is the first multi-practice study to conduct a directly observed assessment of routine primary care weight discussion prevalence in Scotland. Our research took steps to ensure that findings were as representative as possible of routine primary care consultations. Thus, we defined weight discussion broadly (i.e. any mention of patient weight), sampled from routine clinics (as they are the most common clinic type), and did not inform participants that weight discussion was the primary focus until after their participation. We found that only 1

in 4 consultations with overweight and obese patients in this sample were observed to contain any mention of patient weight. These findings are supported by previous work by our research group [25], highlighting that weight discussion does not appear to be a routine part of primary care consultations with overweight patients in Scotland. Our systematic review of directly observed primary care research found that weight discussion prevalence estimates are highly variable (ranging from 100% to 11%) and sometimes not even measured or reported [26]. This variance in prevalence may be due to inconsistent definitions of weight discussion and/or sampling from specific primary care clinic types (e.g. diabetes check-ups) rather than routine clinics [26].

PCPs view weight discussion as a time-consuming process, and potentially a barrier to weight discussion [38-40]. Our results suggest that, to discuss weight issues effectively in routine primary care consultation (i.e. produce a weight-related consultation outcome), more time should be spent on weight discussion than our observed average of 30 seconds. However, our results also highlight that weight discussion need not take large amounts of time to be effective. Spending an average of 2.5 minutes on weight discussion was significantly more likely to produce a weight-related consultation outcome, well within a typical 10-minute consultation. Research investigating the relationship between consultation length, process and outcomes in general practice found that longer discussion and consultations were associated with improved outcomes, including increased prescribing quality, patient satisfaction, and likelihood that the patient would receive preventative care [41]. These combined findings provide additional support to recent calls from the Royal

College of General Practitioners for longer primary care consultations to more effectively deliver patient care [42].

PHP use of partnership building and activating communication was found to significantly increase when discussing weight with patents. The fostering of shared decision making (partnership building) and actively involving patients in discussions (activating) are key components of behaviour change counselling [43]. Behaviour change counselling is an essential communication skill for PCPs, and current primary care guidelines recommend that behaviour change counselling is a key component in primary care weight management [10, 11]. Therefore, the observed increase in PCP partnership building and activating communication suggests that PCPs may be adapting their communication approach when discussing weight, consistent with behaviour change and weight management practice.

In this study, overweight and obese patients were found to reduce emotional expression and responsiveness communication and increase information provision during weight discussion. Overweight and obesity are associated with an increase in mental health problems and poorer self-esteem, self-confidence and body image compared with healthy weight individuals [44-47]. PCPs perceive weight issues to be an emotionally loaded issue for patients and cite this as a barrier to initiating weight discussion because they do not want to offend or upset their patients [38]. Our findings contradict this evidence. A recent UK based randomised trial of a brief obesity intervention found that 77% of obese patients accepted referral to a weight management intervention, when opportunistically offered by their GP [16]. Most obese patients thought PCPs addressing their weight was appropriate and were

open to weight discussion and management (Aveyard et al., 2016). This collective evidence suggests that overweight and obese patients may welcome weight discussion and interventions and PCP may be missing opportunities to discuss weight with patients due to misplaced beliefs that they will offend patients.

In our analysis, PCPs were significantly more likely to contextualise weight issues as biomedical (as opposed to a psychosocial), and significantly less likely to contextualise weight issues as a problem when compared with patients. PCPs are known to more often discuss weight issues with obese patients who have weight-related comorbidities compared with non-symptomatic overweight patients [22, 23, 48-50], and PCPs prefer to discuss weight within the context of other health issues [51, 52]. In a previous observational study of primary care weight discussion, it was found that PCPs medicalise weight by discussing it as a factor that exacerbated other medical problems, whereas patients tended to contextualise weight as a specific issue in need of treatment [27]. Differences in how patients and PCPs contextualise weight issues, when raising these issues for discussion, can potentially be explained by differences in patient and practitioner agenda and roles during consultation discussion. Patients consult primary care practitioners and raise health issues for discussion because they perceive a problem, therefore it is logical that patients who attempt to discuss weight during a consultation are more likely to contextualise their weight issues as a problem. Practitioners' communication may be more reactive and dependent on the health issues that the patient presents with, which is perhaps why they are more likely to initiate weight discussion in a biomedical context and within the context of health issues already being discussed during the consultation.

In this analysis, patient-initiated weight discussions were unlikely to continue past the first utterance when PCPs reduced space or did not explicitly provide space for patients to elaborate. However, patient reducing space responses to PCP-initiated weight discussions were much less likely to prevent subsequent weight discussion. This finding highlights the level of control and influence that PCPs can have with regards to if and/or when weight issues are discussed in primary care consultations. Most weight discussions remained closed when PCPs reduced space, but PCPs would re-open many weight discussions when patients reduced space.

Reducing space responses are not always explicit or intended to close a conversation, nor do reducing space responses always impact negatively on consultation discussion [53]. However, the results of the current study found that PCP reducing space responses are very effective at closing down patients when they attempt to discuss their weight. PCPs should be aware of how they respond to patients when patients seek to discuss their weight so as not to unintentionally close down a potential weight discussion.

Weight-related consultation outcomes were infrequently observed during this analysis, with only 25.9% of consultations that contained weight discussion resulting in any weight-related outcome for patients. Outcomes were mainly directive weight counselling messages from PCPs, with only two patients receiving weight-related referrals. This finding is consistent with existing research reporting low rates of weight-related counselling and referrals within primary care [19, 20, 23]. Additional evidence suggest that few weight-related consultation outcomes may be the result of

a lack of PCP training and/or confidence in the efficacy of weight management approaches [51, 54-56]. Furthermore, inconsistent and restrictive weight management referral pathways across NHS Scotland limit the available treatment options that PCPs can offer patients [57]. Further research investigating the implications of PCPs ambivalence to weight management and the lack of weight-related referral options for weight the weight discussion process (including the outcomes of these discussions) in primary care is warranted.

Weight-related consultation outcomes were more likely when weight discussions during the consultation were contextualised as a problem. This is consistent with work by Scott, Cohen, DiCicco-Bloom, Orzano, Gregory, Flocke, Maxwell and Crabtree [27], who found that when primary care patients and PCPs contextualised weight issues as a problem, weight advice and counselling were more likely to occur. Further evidence suggests that when PCPs do not explicitly contextualise weight as a problem, patients may be reassured about their weight and be less likely to pursue weight discussion further [58]. PCPs may wish to consider how to constructively and positively contextualise patient overweight as a problem, if they wish to improve weight-related consultation outcomes for their patients.

This research observed a cross-section of routine primary care consultation, therefore it is important to consider the limitations of our findings. It is possible that many of the overweight and obese patients who were not observed to discuss weight issues did so previously or in subsequent consultations. Research within this area would benefit from longitudinal observation and follow-up of overweight and obese patients. The Hawthorne or “observer” effect is a recognised limitation to

observational research, whereby individuals change their behaviour when they are under observation meaning that observed behaviour may not be a true reflection of unobserved behaviour [59]. As this research deployed video cameras into primary care consultation rooms to capture clinical communication behaviour, it is pertinent to reflect on the implications that the Hawthorne effect may have for this research. However, review evidence suggests that participants' knowledge of being observed in primary care had minimal impact on their communication behaviour [60]. Additionally, participants were unaware of the weight discussion research focus when being observed. Therefore, it is unlikely that the methodology of this research significantly influenced participants weight related communication.

The SAIRAS system was designed because no medical communication coding system existed that specifically described and analysed the short and transient communication process of initiating a discussion about patient weight in a primary care consultation. This is the first published application of the novel SAIRAS system, therefore we recommend that further research examining weight-related communication employ the SAIRAS to further tests the validity of this coding system.

Data clustering, due to the method of data collection during this study (i.e. several patients consulted one PCP and in most primary care practices more than one PCP participated), is a potential limitation to data analysis for this study. Due to the overall low prevalence of weight discussion across this sample there were insufficient data to properly control for clustering statistically.

4.2 Conclusion

Currently, patient weight does not appear to be regularly discussed with overweight and obese patients within routine primary care consultations in Scotland. If weight discussions do occur, they are often very short and seldom result in any weight-related consultation outcome for the patient. Despite this, PCPs appeared to adopt a more facilitative communication approach during weight discussion, and our results suggest that the use of specific communication approaches may enable more effective weight discussions.

4.3 Practice Implications

Our findings indicate that by providing space to patients who initiate weight discussion, by dedicating more time to weight discussion, and by contextualising weight issues as problematic when attempting to discuss them with patients, PCPs may have more effective weight discussions and facilitate weight-related consultation outcomes for patients.

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Author contributions

This research was part of Dr Calum T McHale's PhD, supervised by Drs Joanne E Cecil and Anita H Laidlaw. All authors contributed significantly to the conceptualisation and design of this research. Calum T McHale conducted all recruitment, data collection and data analysis. This paper is an adaption of a PhD thesis chapter, originally written by Calum T McHale. All authors contributed to the editing and reviewing of this paper.

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Ethical approval and informed consent

This research was approved by the NHS Research Ethics Committee (REC) London – Surrey Borders (Ref: 14/LO/1831) and by the University of St Andrews Teaching and Research Ethics Committee (Ref: MD11486). Calum T McHale personally obtained written informed consent from every patient and PCP participant using a patient consent form approved by the ethics committees. All data was anonymised prior to analysis.

Conflict of interest

All authors declare no conflict no interest.

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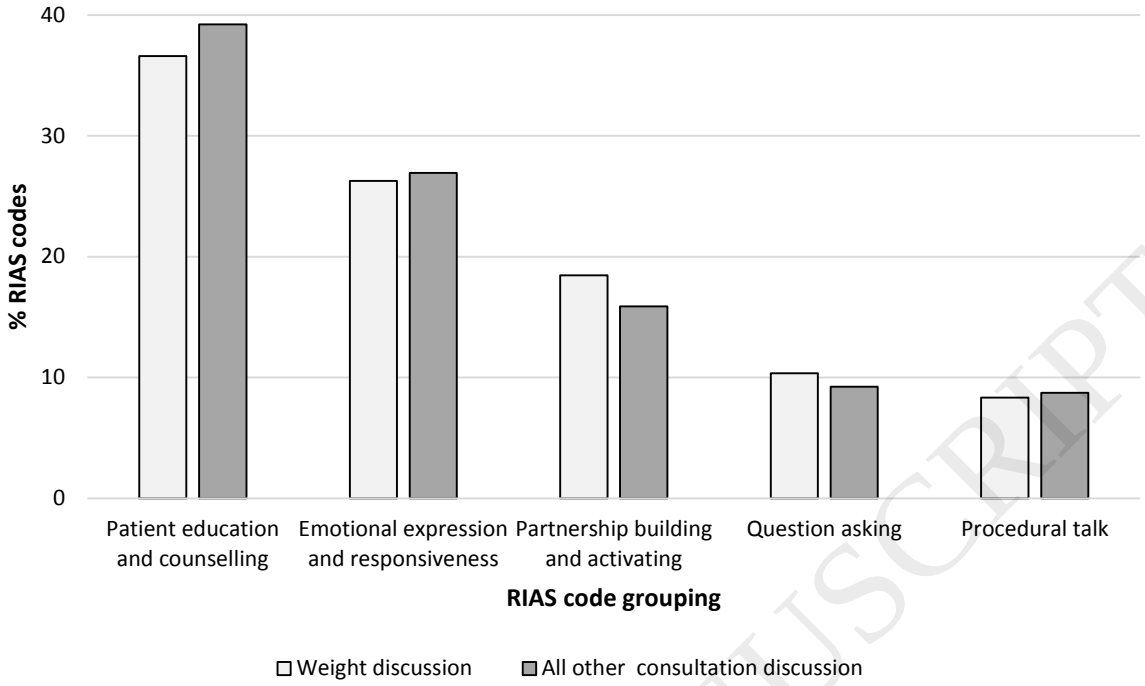

Figure 1: PCP use of communication during consultations containing weight discussion

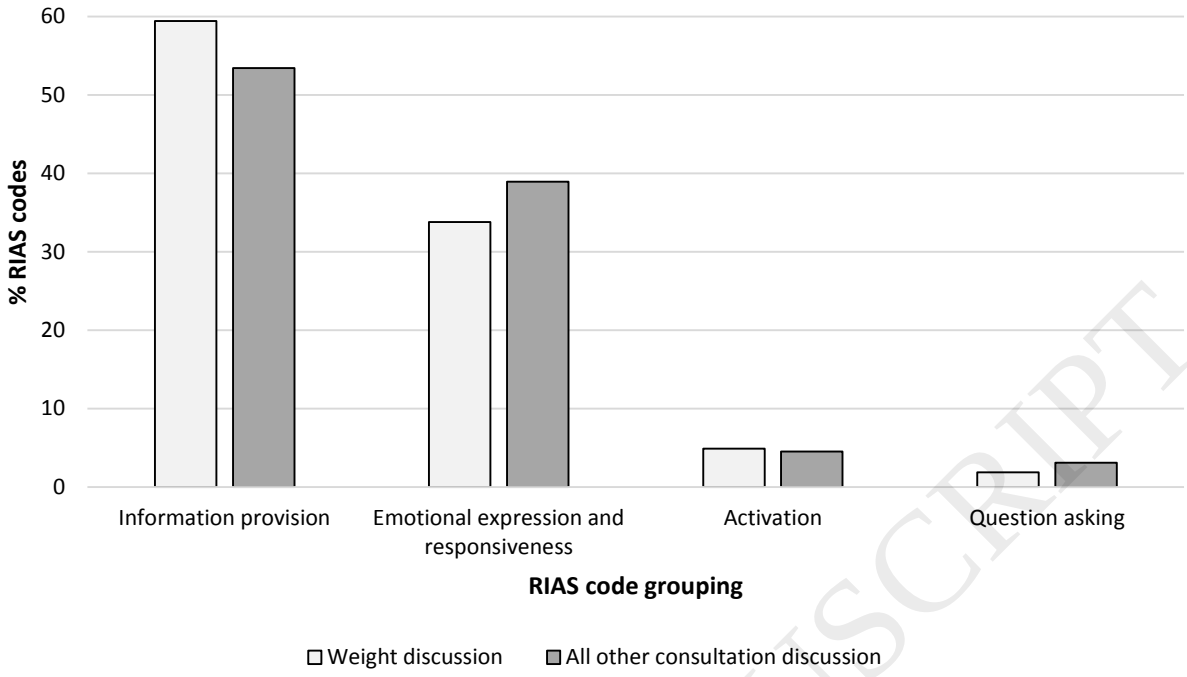

Figure 2: Patients use of communication during consultations containing weight discussion

Table 1: Summary of RIAS codes within their communication functional group

Communication functional group	RIAS codes
Information provision	• Gives information (medical condition, therapeutic regimen, lifestyle, psychosocial, other) • Counsels or directs behaviour (medical condition/therapeutic regimen/lifestyle/psychosocial)*
Data gathering	• Asks closed-ended questions (medical condition, therapeutic regimen, lifestyle, psychosocial, other) • Asks open-ended questions (medical condition, therapeutic regimen, lifestyle, psychosocial, other)
Partnership building and activating	• Asks for understanding • Asks for opinion* • Asks for permission* • Back-channel (e.g. uh-huh, mm hm, go on)* • Paraphrases, checks for understanding • Transitions⊕ • Request for service or medication ⊕ • Bid for repetition
Emotional expression and responsiveness	• Personal remarks, social conversation • Laughs, tells joke • Shows approval • Gives compliment • Shows agreement or understanding • Empathy • Shows concern or worry • Reassures, encourages or shows optimism • Legitimises • Partnership* • Self-disclosure* • Shows disapproval • Shows criticism • Asks for reassurance
Procedural statements	• Transitions* • Gives orientation, instruction*
*PCP only ⊕Patient only	

Table 2: Definitions of weight discussion contextualising variables

Contextualising variable	Context state and definition
Biomedical/Psychosocial	Biomedical: Attributed to any weight initiation communication that raises patient weight for discussion within the context of the patient's physical health. Psychosocial: Attributed to any weight initiation communication that raises patient weight for discussion within the context of the patient's mental health or social situation.
Problem/Not a problem	Problem: attributed to any weight initiation communication that directly inform, insinuate or attempt to lead the other individual to the conclusion that the patient's weight status is problematic or potentially problematic. Not a problem: Attributed to general and neutral weight initiation communications, usually procedural and/or part of diagnostic questioning. Do not seek to directly inform or insinuate that the patient's weight status is problematic or potentially problematic.
Related to other health issue/Stand-alone issue	Related to other health issue: Attributed to any weight initiation communication that is clearly facilitated or linked to another health issue that is currently being discussed or was discussed previously within the consultation. Example contexts include diabetes or high blood pressure leading into a discussion about the patient's weight. Stand-alone issue: Attributed to any weight initiation communication where patient weight is the primary reason for the patient attending and/or initiated without any direct link to other issues being discussed.

Table 3: SAIRAS response code definitions

SAIRAS response code	Code definition
Providing space responses	
Agreement and understanding	A response that non-specifically acknowledges the issue raised for discussion and/or indicates an understanding of why the issue was of importance to the individual who raised it for discussion.
Back channel	A non-explicit form of encouragement for further issue discussion, using minimal prompts or words. It indicated that the individual does not intend to take over from the speaker; rather they wish to indicate to the speaker that they are listening.
Empathy	A response that explicitly holds empathic content and provides space for further disclosure or discussion about the issue.
Explore	Any response that explicitly intends to explore the issue further. It may be in the form or a question or a statement.
Reducing space responses	
Blocking (Ignore)	Any response, verbal or otherwise, that does not acknowledge that a particular issue was raised for discussion.
Blocking (Excuse)	Giving information in response to an issue that attempts to lessen the blame attached to the self. It may also be information that attempts to justify a negative behaviour or attitude associated with the raised issue.
Blocking (Conclude)	A response that acknowledges an issue but where the issue is not subsequently discussed. This can either be explicitly (direct refusal) or implicitly (use of conclusive statements intended to change the subject).
Intervention	Any statement that mentions, counsels or directs the patient's behaviour in terms of the discussed issue, or therapeutic regimen, with the intention that alterations should be made to accommodate this advice immediately.
Planning	Any statement that mentions, counsels or directs the patient's behaviour in terms of the discussed issue, or therapeutic regimen, with the intention that alterations should be made to accommodate this advice in the future.
Advice	Any statement that mentions, counsels or directs the patient's behaviour in terms of psychosocial or lifestyle factors discussed within the consultation.
Explain	Statements of facts or opinions (medical or otherwise) relating to the issue raised. These responses do not include any exploratory content (e.g. questions), they are simply statements and provide no room for further discussion.

Table 4: Overview of patient sample demographics

	Patient weight classification (BMI)			
	Healthy weight (n = 87)	**Overweight (n = 124)**	**Obese (n = 94)**	**All patients (n = 305)**
Gender, n [%]				
Female	52 [59.8]	61 [49.2]	53 [56.4]	166 [54.4]
Male	35 [40.2]	63 [50.8]	41 [43.6]	139 [45.6]
BMI, mean [min; max]	22.82 [18.91; 24.99]	27.53 [25.03; 29.91]	35.84 [30; 61.95]	28.75 [18.91; 61.95]