



University  
of Glasgow

Wyke, S., Hunt, K., Anderson, A.S., Benzeval, M. and Gray, C.M. (2010) *Response to Being Informed of Weight Status and Body Fat Composition: Understandings, Reactions and Motivations to Achieve a Healthy Weight*. Project Report. Cancer Research UK. (Unpublished)

<http://eprints.gla.ac.uk/57811/>

Deposited on: 31 January 2012

**Cancer Research UK**

**Final report – February 2010**

**Project title:** Response to being informed of weight status and body fat composition

**CRUK grant reference:** C10877/A 15032

**Start date:** 01/12/2008

**End date:** 30/11/2009

**Grant holders:**

Sally Wyke (Joint P.I.)	Department of Nursing and Midwifery, University of Stirling
Kate Hunt (Joint P.I.)	MRC CSO Social and Public Health Sciences Unit, Glasgow
Annie S Anderson	Centre for Public Health Nutrition Research, University of Dundee
Michaela Benzeval	MRC CSO Social and Public Health Sciences Unit, Glasgow
Cindy M Gray	Department of Nursing and Midwifery, University of Stirling

**Researchers:**

Cindy M Gray	Department of Nursing and Midwifery, University of Stirling
Karen Lorimer	MRC CSO Social and Public Health Sciences Unit, Glasgow, now at Institute for Applied Health Research, Glasgow Caledonian University

## **Contents**

1. Background.....	1
2. Objectives and key milestones .....	1
3. Overview of significant changes to overall objectives/key milestones .....	2
4. Additional leverage .....	2
5. Particular challenges faced/overcome .....	3
6. Overall 'results' and recommendations .....	3
6.1 Methods .....	3
6.2 Results .....	4
6.3 Conclusions and implications of findings for cancer prevention communications .....	8
7. Changes in funding or non-funding partners.....	8
8. Financial information .....	8
9. References.....	9

## **List of tables**

Table 1 Common weight status terms used to assess response in the current study .....	11
Table 2 Key milestones.....	11
Table 3 Context given in Twenty-07 feedback letters .....	12
Table 4 Overview of planned research methods and participant numbers .....	12
Table 5 Revised research methods and participant numbers.....	12
Table 6 Overall response to study invitation .....	13
Table 7 Knowledge of the health risks associated with overweight/obesity.....	13
Table 8 Financial summary .....	14

## **Appendices**

Appendix 1 Coding framework.....	15
Appendix 2 Interview topic guide .....	16

## **1. Background**

Excess body weight is one of the most important preventable causes of cancer in non-smokers<sup>1,2</sup>, but, as the prevalence of obesity rises in the UK<sup>3-5</sup>, many people (especially men) remain unaware that the terms 'overweight' and 'obese' apply to them<sup>6-8</sup>. In western societies people who are viewed as 'fat' have traditionally been devalued, even among those who are overweight themselves<sup>9-11</sup>. This societal stigmatization means that terms describing excess weight may have strong negative connotations<sup>12-17</sup>. Nevertheless, a recent study reported that, despite its undesirability, some men found the term 'obese' highly motivational to lose weight<sup>18</sup>, and suggested that current knowledge about people's response to different weight status terms may be inadequate. Improved understanding is essential if advice aimed at encouraging people to lose weight and thereby decrease their personal risk of ill health is to be targeted effectively. This study used qualitative interview techniques to explore the full range of people's responses to a number of terms commonly used to describe excess weight (Table 1).

## **2. Objectives and key milestones**

### **2.1 Original aim and research questions**

The main aim of the research was to gain an understanding of people's response to weight status terms such as 'overweight' and 'obese', and to investigate whether using different terminology to describe weight status affects motivation to lose weight. A qualitative study was planned using focus groups and individual interviews with 102 volunteers who had recently learned their body mass index (BMI) and body fat composition through participation in the West of Scotland Twenty-07 Study: Health in the Community<sup>19</sup>. With previous evidence indicating gender differences in response to weight status terms<sup>18,20,21</sup>, gender was a key focus in the analysis. Specific research questions were:

1. How are terms such as 'overweight' and 'obese' interpreted and understood in relation to body image and health risk?
2. What is the response to being told one's weight status in relation to self image and motivation to lose weight (if necessary)?
3. Is response affected by information on one's body fat composition?
4. How, if at all, do responses to these questions vary by gender and weight status?
5. What are the implications of the above findings for cancer prevention communications concerning overweight/obesity?

The aim was met and the research questions answered (see 6.2 'Results').

### **2.2 Key milestones**

Key milestones in the project related to recruitment, fieldwork and data analysis (Table 2). These milestones were all met and, despite unforeseen early recruitment problems (see 6.1.4 'Change to design') leading to short delays in completing various stages of fieldwork and data analysis, the project was completed on time.

### **2.3 Dissemination objectives**

There were four specific objectives that aimed to achieve widespread dissemination of the project findings as they emerged:

#### *i. To use the findings to inform the design and targeting of health information campaigns and weight management programmes*

This project has recently informed the design and implementation of a new gender-sensitive weight management and healthy living programme to be delivered to male football fans through their local Scottish Premier League (SPL) club. First, the SPL programme's lower age limit (35 years) reflects the finding that from their mid to late 30s men appear to become more concerned about their health and may therefore be receptive to the potential benefits of lifestyle changes. Second, the SPL programme will only target men who are obese or who are at high risk of becoming obese (BMI  $\geq 27\text{kg/m}^2$ ), as many men appear to be comfortable with being somewhat overweight.

The results (see 6.2 'Results') will also help to inform the recruitment approaches used in Professor Anderson's NPRI-funded BeWell study and, together with the recommendations (see

6.3 'Conclusions and implications of findings for cancer prevention communications'), can be used by CRUK and other agencies to inform future overweight/obesity health promotion initiatives.

*ii. To prepare and circulate an accessible summary of the findings*

A one page plain English summary of the main project findings is being prepared for publication on the Twenty-07 and Alliance for Self Care Research (ASRC) websites ([http://www.sphsu.mrc.ac.uk/studies/2007\\_study/index.php?Page=8&mitem8=1](http://www.sphsu.mrc.ac.uk/studies/2007_study/index.php?Page=8&mitem8=1) and <http://www.ascr.ac.uk/>) from where it can be downloaded. Hard copies of the summary will be circulated through ASRC information packs, made available to delegates at relevant conferences and practitioner meetings, and sent to all those who took part in the current study.

*iii. To present the findings at practitioner and scientific conferences*

Emergent findings have been presented at five conferences over the course of the project: **Practitioner:** Paper presented at Obesity and Health 2009, Birmingham<sup>22</sup>. **Scientific:** Papers presented at European Public Health Association Annual Conference 2009, Lodz, Poland<sup>23</sup> and British Sociological Association: Medical Sociology Group Annual Conference 2009, Manchester<sup>24</sup>. Posters presented at National Cancer Research Institute Cancer Conference 2009, Birmingham<sup>25</sup> and Society for Behavioural Medicine 5th Annual Scientific Meeting 2009, Southampton<sup>26</sup>. The investigators will continue to present the project findings at **future meetings:** Poster accepted for International Conference on Support for Self Management of Health, May 2010, Stirling<sup>27</sup>. Abstracts submitted for Scottish School of Primary Care Conference, April 2010, Crieff<sup>28</sup> and Nutrition Society Annual Summer Meeting, June 2010, Edinburgh<sup>29</sup>.

*iv. To publish two peer-reviewed papers in highly cited journals.*

Three papers are currently being prepared for submission to peer-reviewed journals in 2010: Paper 1 is aimed at health professionals, and explores the views of people who are overweight/obese on weight status terminology, motivation and the context in which the terms are used; Paper 2 considers the implications of feeding back weight-related (and other) measures to research participants; Paper 3 examines differences in people's understanding of, and response to, weight status terms according to gender and age. Stirling University's Communications and Development Office in liaison with the MRC and Glasgow University press offices will issue press releases to local and national media to coincide with the publication of each paper in peer-reviewed journals. The papers will also be highlighted in the Medical Research Council's Social and Public Health Sciences Unit's (MRC SPHSU) Annual Report, which is circulated to around 2000 individuals and organisations.

**3. Overview of significant changes to overall objectives/key milestones**

None

**4. Additional leverage**

This project relied heavily on close collaboration with the MRC SPHSU, where the West of Scotland Twenty-07 Study is managed. The MRC SPHSU provided a researcher (0.3FTE) at no cost to the project to oversee recruitment, conduct half of the fieldwork, attend project meetings and contribute to the analysis. Professors Wyke, Anderson, Hunt, and Ms Benzeval's time on the project was funded by the Universities of Stirling and Dundee, and the MRC SPHSU, respectively. The MRC SPHSU also financed the Communicare system (<http://www.argyll.uk.com/services/communicare.html>) to ensure researcher safety during fieldwork.

Collaboration with Professor Anderson has also allowed closer contact with research on cancer prevention (risk reduction) and screening through the Centre for Research into Cancer Prevention and Screening ([http://www.dundee.ac.uk/medschool/disease-prevention/crips\\_research](http://www.dundee.ac.uk/medschool/disease-prevention/crips_research)). New working partnerships were developed with project advisory group members Dr Helen Sweeting (MRC SPHSU), Dr Vivian Swanson (Psychology, Stirling University) and Vicky Lawson (Weight Concern). These advisors' insightful comments informed the redesign of the study following the initial recruitment difficulties (see 6.1.4 'Change to design'), and all will continue to collaborate on future outputs.

Finally, a recent application to the National Institute for Health Research from Profs Wyke, Hunt, Anderson and Dr Gray for funding to evaluate the gender-sensitive weight management and healthy living programme for supporters of Scottish Premier League football clubs (see 2.3 Dissemination objectives) has been heavily informed by the current findings.

### **5. Particular challenges faced/overcome.**

See 6.1.4 'Change to design'.

## **6. Overall 'results' and recommendations**

### **6.1 Methods**

#### **6.1.1 Ethics**

Ethical approval for this study was obtained from the Faculty of Law, Business & Social Sciences ethics committee at the University of Glasgow.

#### **6.1.2 Respondents**

Respondents in this study were drawn from the West of Scotland Twenty-07 Study: Health in the Community, a 20-year longitudinal investigation of the social processes producing or maintaining inequalities in health<sup>19</sup>. The Twenty-07 study collected data from three age cohorts, each born 20 years apart, at five time points between 1987 and 2008. After the final round of data collection in 2007/08, Twenty-07 respondents were given the option to receive a personalized feedback letter of physical and clinical measures, including BMI and body fat percentage. This feedback afforded us a unique opportunity to access a population that had recently learned their BMI and body fat composition, and had been given some context (Table 3) to facilitate understanding of personal weight status.

#### **6.1.3 Original design**

A qualitative study was planned in order to explore people's interpretations and reasoning, as well as their self-reported behaviours. It was envisaged that 12 focus groups (each with around 6 participants) would encourage discussion of issues that people had not already considered<sup>30</sup>, and 30 individual interviews would encourage discussion of sensitive issues. Table 4 shows the original research design. We aimed to recruit the 102 volunteers according to: i) weight status - 'normal', overweight, obese; ii) gender – men, women; iii) age – mid-late 30s (35+), mid-late 50s (55+). Random sampling was used within each respondent group (e.g. overweight 35+ men; obese 55+ women) according to a 4:1 ratio (expecting a 25% response rate).

#### **6.1.4 Change to design**

Early recruitment problems [15 responses to 137 postal invitations (11% response rate) between November 2008 and March 2009, with numerous telephone calls to people who had not responded only managing to produce a further 9 volunteers] forced a change to the study design (approved by CRUK 03/04/09). The 12 focus groups were replaced by 24 individual telephone interviews and the 30 face-to-face interviews reduced to 24. These changes aimed to ensure that potential participants were not deterred by the thought of having to travel to a focus group venue and to reduce the total number of respondents required. The introduction of telephone interviews also addressed the concern raised by project advisory group members that respondents' responses might be influenced by visual comparison of their own weight status and that of the interviewer in face-to-face situations. The decision to abandon focus groups was also informed by a pilot focus group with 3 'normal' 35+ men, which failed to produce any novel data that had not emerged in pilot individual interviews with this age group. Table 5 shows the amended research design.

A second, minor change to design involved the recruitment of two further overweight 35+ men. These additional interviews (1 face-to-face and 1 telephone) were conducted because all four original volunteers in this group had a normal body fat composition. As 50% of 35+ men with overweight BMI in the Twenty-07 study had an elevated body fat percentage, the additional interviews with overweight men whose body fat percentage was also high aimed to capture the full range of people's experiences.

These changes led to short delays in the completion of recruitment and fieldwork (Table 2). In addition, the fieldwork was more condensed than anticipated. This meant that transcript checking and data analysis, which should have been ongoing during fieldwork, did not get fully underway until all interviews were completed. However, both researchers were able to allocate more time to the project at this stage than originally proposed, thus ensuring that it was completed on schedule.

#### **6.1.5 Recruitment**

Invitations were sent to 377 out of the 535 Twenty-07 respondents eligible for inclusion in the study. The inclusion criteria were: respondents' final Twenty-07 interview had taken place less than 6 months prior to the invitation to join the current study; they had received their Twenty-07 feedback letter within 3 months of that interview; they had consented to follow up; they lived in within reasonable (approx 0.5 day) travelling distance of Glasgow. The exclusion criterion was: receipt of a 'special' Twenty-07 feedback letter that provided additional information because one or more of the measures indicated a possible cause for concern. Overall, replies were received from 21% of those invited (n=80). However, as Table 6 shows, response was uneven across the groups. Only 12.5% of 35+ obese men and women volunteered to take part in the study, whilst response among the 55+ 'normal' groups was high (44.4% of invited men replied; 30.6% of invited women).

#### **6.1.6 Data analysis**

Interview tapes were fully transcribed and checked for accuracy. NVivo 8 software was used to sort and retrieve data. Data were analysed according to the thematic framework approach<sup>31</sup>. Scientific rigour was ensured through: a) detailed reading of transcripts and discussion of potential themes between investigators; b) coding of the transcript being undertaken by more than one analyst; c) checking of analyses between investigators; d) constant comparison of issues raised within each theme to ensure that the analysis represented all cases. We investigated anticipated themes and sought links between them based on previous research<sup>11,12</sup>, but unanticipated issues also arose.

The main themes identified that were relevant to this report included: perception of own weight status; views on weight status terms; mention of health professionals; knowledge of health problems; links between weight and moral judgments; mention of body fat. When themes were identified and summarised we investigated gender and weight status differences in accounts. As analysis progressed we also investigated unanticipated differences in accounts by age, and explored links between age, perception of physical health and motivation to lose weight. The full coding framework used is contained in Appendix 1.

## **6.2 Results**

Interviews with 50 respondents contributed to the data analysis (Table 6 N.B. data from three 35+ men who took part in the pilot focus group were not included). The interviews were semi-structured and lasted between 33 and 90 minutes during which respondents were either handed a list of the weight status terms shown in Table 1 (face-to-face interviews) or wrote down each term as the interviewer read it out (telephone interviews). The interview topic guide is contained in Appendix 2. There appeared to be no systematic differences in respondents' accounts between telephone and face-to-face interviews in relation to discussion of issues surrounding weight status and attitudes towards excess weight. This suggested that respondents' views were not influenced by comparisons between the interviewer's weight status and their own.

### **6.2.1 Knowledge of health risks associated with overweight/obesity (Research questions 1 & 4)**

All respondents were aware to some extent of the potentially negative impact of excess weight on health. Respondents were asked "What health risks, if any, are associated with being overweight or obese?". Table 7 shows the number of respondents who mentioned one of the 11 medical complications listed in the Foresight Tackling Obesities: Future Choices report<sup>3</sup>. Respondents appeared to be most confident about the association between excess weight and coronary heart disease. All but two people mentioned heart disease, it was the only health risk associated with overweight or obesity that three people could think off, for many others it was

the first condition that came to mind and some spoke both knowledgeably and confidently about the causal mechanisms through which excess weight might increase risk:

*“Heart attack’s the one I think of mostly. Thrombosis? That’s the main ones I kind of think of, you know [...] I just think if you’re overweight, then your heart’s got to work a whole lot harder to pump blood round your system. And also wouldn’t you get the kind of fatty build up in your arteries which would constrict the blood flow and consequently could lead to heart attacks?”* – Int17 (‘normal’ woman, 55+)

People were much less certain about the link between raised bodyweight and cancer. Eight respondents mentioned cancer in direct response to the health risks question, and only two of these, one of whom was rather tentative, were in the 55+ age group. :

*“It’s the whole body contents, it [obesity] can affect... it could cause... I don’t know if it causes cancer, but it doesn’t help it, you know”* – Int16 (‘normal’ woman, 55+)

Two other respondents talked about associations between cancer and weight elsewhere in the interview:

*“... the other night my husband... he’s putting on a wee bit round the middle, nothing like me, and we were just sitting chatting and he said, ‘Oh, you and I are going to have to lose this.’ He’d been watching something on the television. He said, ‘You know, we’ve got this right where people get cancer’”* – Int9 (obese woman, 55+)

One 35+ man mentioned cancer when prompted, but it was not obvious whether he was aware that increased risk of cancer was associated with raised bodyweight. None mentioned causal mechanisms. Another younger man was convinced that cancer and excess weight were not related:

*“I don’t associate any cancers with being overweight”* – Tel5 (overweight man, 35+).

#### 6.2.2 Weight status terminology, body image, health and motivation to lose weight (Research questions 1 & 4)

‘Overweight’: Many respondents were comfortable with the term ‘overweight’: it was seen as one of the *‘kindest’* ways to describe excess weight. However, a number of people (many of them men) felt that being overweight was not necessarily a problem. Therefore, although using ‘overweight’ might be an acceptable way to discuss health risk, something more direct might be needed to motivate people to lose weight:

*“... overweight wouldn’t be too bad because there’s not many people that’s not overweight, you know, it’s kind of part and parcel of life, but if you want to get a point across to somebody you’ve got to hit the...”* – Int10 (obese man, 55+)

*I think if they used the unhealthy one maybe that would encourage people to maybe lose weight rather than just saying ‘You’re overweight’. So maybe if they used the unhealthy word in front of it, I dunno, that might encourage people”* – Int21 (obese woman, 35+)

‘Obese’ and ‘fat’: Most respondents felt that ‘obese’ and ‘fat’ were extremely negative terms. ‘Obese’ was described as *‘offensive’, ‘unacceptable’, ‘degrading’, ‘not very nice’, ‘an insult’, ‘rude’, ‘derogatory’, ‘hurtful’, ‘upsetting’*; ‘fat’ was described as *‘hurtful’, ‘insulting’, ‘derogatory’, ‘cutting’, ‘rude’, ‘shocking’, ‘horrible’*. ‘Obese’ was also strongly associated with negative moral judgements – *‘you’re not looking after yourself’, ‘fat, fat bugger’, ‘disgusting’, ‘poor soul’, ‘unfortunate people’, ‘slovenly’, ‘somebody that’s really, really let themselves go’, ‘beast’*:

*“That, the word obese, em [6 second pause] very emotional. Because I know that’s what I am [tearfully] and it conjures up terrible things in my head about what that means, ‘Am I just a fat, lazy slob?’ And I know that I’m not, I work very hard”* – Int9 (obese woman, 55+)

Nevertheless, there was the recognition (particularly among younger respondents) of a distinction between medical and social understandings of ‘obese’:

*“Obese to me sounds... it’s totally abnormal basically. However, I’m educated enough now to know that being clinically obese actually is a lot less than what you would... the word strikes for me”* – Tel5 (overweight man, 35+)

*“I think fat is a social term, and obese is a medical term. So you would be socially fat. ‘You’re fat.’ Whereas ... again, in the street, nobody would say ‘You’re obese’. And I’m talking about like negative phrases here, like in name calling, or when people are judging you”* – Int6 (obese woman, 35+)



And many respondents (particularly 35+ men and women) suggested that 'obese' might be useful to raise awareness of personal health risk and/or motivate lifestyle change:

*"... you're not going to get a cultural change with being nice, just saying to someone, 'Look, you're overweight', when they're actually clinically obese and they're going to kill themselves" – Tel7 (overweight man, 35+)*

*"As long as they've got some compassion about them. If they're just reading it out of a text book and not even looking at you, then that's not so good. But I think you have to use the... yeah, the medical words so that it's not just a fashion thing, it's a medical condition, to scare people" – Int24 ('normal' woman, 35+)*

However, wide variation in response to 'obese' means that it is essential that great sensitivity is exercised in its use:

*"I think the last time I had done my BMI before I had [daughter], I think it was like twenty seven something. So I think I was quite surprised, or quite shocked, that it had went up quite so much in quite a short space of time. [...]*

Interviewer: So do you think that's what motivated you then to...?

*Mm-hmm. 'Cos there was no way I was going to [become] that obese" – Int12 (overweight woman, 35+)*

*"I mean if I was obese, right, and I went to a doctor and he said that to me, I would be, look I'm saying to you I would come out and I'd start crying, right. So I would probably go and eat, you see. Do you know what I mean, I'd go into depression for a day and then I'd probably say 'Okay, sod him, I'm having something. I'm having my sweeties, my crisps or whatever it is" – Tel2 (overweight woman, 35+)*

**'BMI':** 'BMI' was viewed as contemporary, professional and a term that would be appropriate for health professionals, particularly when used in conjunction with 'unhealthy'. Nonetheless, many people (particularly men) felt that impact might be limited by people's poor understanding, or lack of acceptance, of BMI:

*"I don't think people would understand the BMI much. You don't equate it with anything. It's just a figure, and the difference between twenty and thirty is only ten points, you know. They don't understand that's quite a large parameter" – Tel7 (overweight man, 35+)*

*"The BMI doesn't take into account your overall shape. I know you can do these electrode things and it tells you your fat content. I know my fat content was quite low, but the BMI is just a ridiculous way of doing it" – Int20 (obese man, 35+)*

**'Weight problem':** Opinion was divided about 'weight problem': a number of people felt it would be good to encourage people to lose weight:

*I think probably just saying that, you know, 'I think if we agree that you've got a weight problem'.*

Interviewer: Why that one?

*Because it is a problem. It's something they have to address so if they want to encourage them to lose weight, I just think that they've got to look at the problem" – Tel14 ('normal' woman, 55+)*

But others felt the term lacked definition, and some overweight men felt uncomfortable about the word 'problem':

*"To me weight problem seems to suggest a psychological problem rather than a physical problem" – Int2 (overweight man, 35+)*

**'Heavy' and 'large':** Both these terms were also seen as rather vague:

*"It's just too generic. It's like from the medical profession it's a bit of a copout, I think. It's not measuring it against anything, I think. But heavy, what does that mean? Because you could be, I don't know... what are they measuring that against? And large... it's the measurement side of it that I am not quite clear about" – Tel5 (overweight man, 35+)*

### 6.2.3 Response to weight status in relation to self image and motivation to lose weight (Research questions 2 & 4)

These analyses focused on overweight and obese respondents who were told in their Twenty-07 feedback letter that their BMI "... suggests that you might be overweight" (see Table 3). Given this wording, it is perhaps not surprising that there were more overweight respondents

accurately describing themselves as 'overweight' than obese respondents accurately describing themselves as 'obese'.

Women were generally more aware of their weight status than men. Most overweight women accepted that they were 'overweight' (except one in the 35+ age group who thought she was probably "*clinically obese*"), and four obese women recognised that this term applied to them. Overweight men in the 55+ group were accurate about their weight status, but those who were obese all described themselves as 'overweight'. Younger men were largely inaccurate about their weight status. Most 35+ obese men preferred to think of themselves as 'overweight', while those who were overweight generally viewed themselves as 'normal':

*"I'm classed as overweight although I don't really feel overweight. I don't see myself as being overweight but according to the statistics I'm overweight – Int2 (overweight man, 35+)*

It is important to note that most of the overweight 35+ men who considered their weight to be 'normal' had a body fat percentage that was in the normal range. The one 35+ man who did accept his overweight status also had an elevated body fat percentage, suggesting that body fat may be an important component in some men's self-perceived weight status.

Apparent motivation to lose weight was higher among those whose self-image reflected their actual weight status:

*"I know I'm grossly obese, em... I don't want to remain that way" – Int6 (obese woman, 35+)*

Than among those who underestimated the extent to which they were overweight/obese:

*"I wisnae worried or nothing [about his BMI result]. I don't think I'm going to have a heart attack or anything like that you know, because I think I'm quite fit, you know.*

Interviewer: Why do you say that?

*Well, when I was in the army I was a physical training instructor and I've only put on about two stone fae [when] I left the army 30-odd year ago.*

Interviewer: So you've always been quite sort of heavy.

*Well, heavy boned as they say" – Int11 (obese man, 55+)*

#### 6.2.4 Response to body fat composition (Research questions 3 & 4)

The Twenty-07 feedback letter included a section on body fat composition. Respondents were given the normal body fat percentage range for men or women, as appropriate (see Table 3), to help them interpret their own result. Nonetheless, people's comprehension remained poor: many did not appear to understand, and others appeared to have limited understanding of, what their body fat percentage meant. Many respondents seemed to have little recollection of the result:

*"... it couldn't have been that significant to me or I would have remembered" – Tel12 (overweight woman, 35+, high body fat)*

And others appeared confused about the distinction between BMI and body fat percentage:

*"I cannae remember what the figures were but I know it was quite high because of my height" – Tel21 (obese woman, 35+, high body fat)*

Of the 16 respondents who did appear to be aware of the relation between their body fat percentage and weight status, most were men, most were 35+ and most had normal body fat percentage readings. This pattern of findings supports the view that body fat may be salient for some younger men.

#### 6.2.5 Age, perception of physical health and motivation to lose weight

Age emerged as an important influence during the initial detailed reading of the transcripts. There was recognition among many respondents that physical health becomes increasingly relevant as you get older, as well as the view that some weight gain may be inevitable. A number of men and women in the 55+ group (including some who were overweight and obese) considered that they were doing well for their age, but many respondents in the 35+ group expressed concern about approaching middle age. This view was particularly prevalent among 35+ overweight and obese men (one 'normal' weight man who had a raised body fat percentage also talked about having to start looking after his body), who almost without exception talked about the deterioration of their body or increasing concerns about their physical health:

*“My body’s starting to break down and I’m 38 this year. There you go, you don’t live forever”*  
– Tel25 (overweight man, 35+, recently diagnosed with diabetes)

*“... that’s one of the reasons why I’m trying to make the change at the moment so I’m reducing the risk and kind of stopping any deterioration that might have already taken place and to kind of make sure I’m healthier as I get that bit older”* – Tel13 (obese man, 35+)

Some women aged 35+ also viewed mid-life as a watershed:

*“Just I’ve got to the point where I’m not happy with my weight. I’m just not happy at all. It’s starting to affect my life in the sense that I’m just miserable and it’s making me a bit more tired, and just I want to really try and do something about it before I get much older. Before I hit the big 4-0”* – Tel26 (overweight woman, 35+)

But continuing to take an active part in family life was another important motivation to lose weight for younger (and some older) women:

*“I’ve got three perfect wee healthy boys. I want to chase my grandkids up the beach. I want to enjoy my marriage with my husband when my kids are up a wee bit and I get him back. I don’t want to be up and down to hospitals and having heart attacks and strokes and diabetes. I really would avoid that at all costs if I can”* – Int6 (obese woman, 35+)

### **6.3 Conclusions and implications of findings for cancer prevention communications**

Cancer awareness: There are clear indications of low awareness of the implications of excess body weight for cancer risk, particularly in older age groups. This is in contrast to awareness of the implications for coronary heart disease, for which respondents also expressed an understanding of causal mechanisms. Cancer prevention initiatives should highlight associations between overweight and particular cancers and consider clarifying the causal mechanisms through which they might operate. Additional efforts should be made to target this message to older age groups.

Weight status terminology: Although some people (particularly those in younger age groups) consider that the term ‘obese’ might be acceptable and motivational in a health context, it is still viewed as highly negative and sensitivity is required when considering using ‘obese’. The impact of ‘BMI’ might be limited by poor understanding of the body mass index measure and the extent to which some people (particularly men) think it applies to them. ‘Overweight’ appears to be broadly acceptable, but may need to be qualified (e.g. with ‘excessively’ or ‘unhealthily’) in order to convey associations between excess weight and ill health and motivate lifestyle change effectively. ‘Weight problem’, ‘heavy’ and ‘large’ may be too vague for use in cancer prevention communications, whether personal or public, and ‘fat’ is a social term that would be considered to be inappropriate and insulting if used in a health context.

Self image and motivation to lose weight: Women appear to be more realistic about their weight status than men, and younger men in particular seem prone to underestimation. Nevertheless, bearing in mind the need for sensitivity, it is important to ensure that people are aware when they are overweight or obese, as accurate knowledge of personal weight status may be a factor in motivating weight loss.

Age, physical health and motivation to lose weight: People approaching mid-life (particularly men) appear to become more concerned about their physical health. This increasing awareness may make this age group more receptive to communications aimed at conveying health risk messages and motivating lifestyle changes.

Response to body fat composition: People may struggle to understand the relationship between their body fat composition and personal weight status. This relation, and the implications of having elevated body fat, must be made clear to people if the measure is to be useful for cancer prevention communications.

### **7. Changes in funding or non-funding partners**

None

### **8. Financial information**

Table 8 provides a financial summary of the project.

## 9. References

- (1) Martin-Moreno JM, Soerjomataram I, Magnusson G, 2008. Cancer Causes and Prevention: A Condensed Appraisal in Europe in 2008. *European Journal of Cancer*, 44(10), 1390-1403.
- (2) Renehan AG, Soerjomataram I, Tyson M, Egger M, Zwahlen M, Coebergh JW, et al., 2010. Incident Cancer Burden Attributable to Excess Body Mass Index in 30 European Countries. *International Journal of Cancer*, 126(3), 692-702.
- (3) Government Office for Science, 2007. *Foresight Tackling Obesity: Future Choices - Project Report 2nd Edition*. London: Department of Innovation Universities and Skills.
- (4) Scottish Government, 2009. *The Scottish Health Survey 2008*. Available online from: <http://www.scotland.gov.uk/Publications/2009/09/28102003/0>.
- (5) NHS Information Centre Lifestyle Statistics, 2009. *Health Survey for England. Statistics on Obesity, Physical Activity and Diet: England, February 2009*. The Health and Social Care Information Centre.
- (6) Wardle J, Johnson F, 2002. Weight and Dieting: Examining Levels of Weight Concern in British Adults. *International Journal of Obesity*, 26(8), 1144-1149.
- (7) Johnson F, Cooke L, Croker H, Wardle J, 2008. Changing Perceptions of Weight in Great Britain: Comparison of Two Population Surveys. *British Medical Journal*, 337, a494.
- (8) Madrigal H, Sanchez-Villegas A, Martinez-Gonzalez MA, Kearney J, Gibney MJ, de Irala J, Martinez JA, 2000. Underestimation of Body Mass Index Through Perceived Body Image As Compared to Self-Reported Body Mass Index in the European Union. *Public Health*, 114(6), 468-473.
- (9) Stunkard A, Mendelson M, 1967. Obesity and Body Image: 1. Characteristics of Disturbances in Body Image of Some Obese Persons. *American Journal of Psychiatry*, 123(10), 1296-1300.
- (10) Harris MB, Harris RJ, Bochner S, 1982. Fat, 4-Eyed, and Female: Stereotypes of Obesity, Glasses, and Gender. *Journal of Applied Social Psychology*, 12(6), 503-516.
- (11) Puhl R, Brownell KD, 2001. Bias, Discrimination, and Obesity. *Obesity Research*, 9(12), 788-805.
- (12) Han TS, Morrison CE, Lean MEJ, 1999. Age and Health Indications Assessed by Silhouette Photographs. *European Journal of Clinical Nutrition*, 53(8), 606-611.
- (13) Bush HM, Williams RGA, Lean MEJ, Anderson AS, 2001. Body Image and Weight Consciousness Among South Asian, Italian and General Population Women in Britain. *Appetite*, 37(3), 207-215.
- (14) Ahern AL, Hetherington MM, 2006. The Thin Ideal and Body Image: An Experimental Study of Implicit Attitudes. *Psychology of Addictive Behaviors*, 20(3), 338-342.
- (15) Swami V, Neto F, Tovee MJ, Furnham A, 2007. Preferences for Female Body Weight and Shape in Three European Countries. *European Psychologist*, 12(3), 220-228.
- (16) Wang SS, Brownell KD, Wadden TA, 2004. The Influence of the Stigma of Obesity on Overweight Individuals. *International Journal of Obesity*, 28(10), 1333-1337.
- (17) Wadden TA, Didie E, 2003. What's in a Name? Patients' Preferred Terms for Describing Obesity. *Obesity Research*, 11(9), 1140-1146.
- (18) Gray CM, Anderson AS, Clarke AM, Dalziel A, Hunt K, Leishman J, Wyke S, 2009. Addressing Male Obesity: An Evaluation of a Group-Based Weight Management Intervention for Scottish Men. *Journal of Men's Health*, 6(1), 70-81.
- (19) Benzeval M, Der G, Ellaway A, Hunt K, Sweeting H, West P, Macintyre S, 2009. Cohort Profile: West of Scotland Twenty-07 Study: Health in the Community. *International Journal of Epidemiology*, 38(5), 1215-1223.

- (20) Leishman J, 2007. Working With Men in Groups: Experience From a Weight Management Programme in Scotland. In White A, Pettifer M, (eds.). *Hazardous Waist: Tackling Male Weight Problems*. Oxford: Radcliffe Publishing; pp. 75-86.
- (21) Weight Concern, 2008. *Obese and Fat Are the Most Hurtful Words a Doctor Can Use*. Weight Concern Press Release.
- (22) Gray CM, Wyke S, Hunt K, Benzeval M, Lorimer K, Anderson AS, 2009. *What's in a Word? How Response to Weight Status Terminology Affects People's Motivation to Lose Weight*. Obesity and Health, Birmingham.
- (23) Gray CM, Lorimer K, Anderson AS, Benzeval M, Hunt K, Wyke S, 2009. What's in a Word? Response to Weight Status Terminology and Motivation to Lose Weight. *European Journal of Public Health*, 19(S1), 66.
- (24) Lorimer K, Benzeval M, Gray CM, Hunt K, Wyke S, Anderson AS, 2009. *Providing Written Feedback of Weight and Cholesterol Measures in a Longitudinal Study: Exploring the Methodological Implications*. The British Sociological Association: Medical Sociology Group Annual Conference, Manchester.
- (25) Anderson AS, Gray CM, Lorimer K, Benzeval M, Hunt K, Wyke S, 2009. *What's in a Word? Implications of Response to Weight Status Terminology for Effective Health Promotion*. National Cancer Research Institute Cancer Conference, Birmingham. Abstract available at <http://www.ncri.org.uk/ncriconference/2009abstracts/abstracts/C5.htm>.
- (26) Anderson AS, Gray CM, Lorimer K, Benzeval M, Hunt K, Wyke S, 2009. *What's In a Word? How Response to Weight Status Terminology May Impact Health Promotion Strategies to Combat Overweight and Obesity*. UK Society for Behavioural Medicine 5th Annual Scientific Meeting, Southampton.
- (27) Gray CM, Lorimer K, Anderson AS, Benzeval M, Hunt K, Wyke S, 2010. *How Does Response to Weight Status Terminology Affect Motivation to Lose Weight?* International Conference on Support for Self Management of Health, Stirling.
- (28) Gray CM, Lorimer K, Anderson AS, Benzeval M, Hunt K, Wyke S, submitted. *What's In a Word? How Does Response to Weight Status Terminology Affect Motivation to Lose Weight?* Scottish School of Primary Care Conference: Focusing Our Research on Patients, Crieff.
- (29) Anderson AS, Gray CM, Lorimer K, Benzeval M, Hunt K, Wyke S, submitted. *Communicating Information About Bodyweight Status*. Nutrition Society Annual Summer Meeting 2010, Edinburgh.
- (30) Kitzinger J, Barbour RS, 1999. Introduction: The Challenge and Promise of Focus Groups. In Kitzinger J, Barbour RS (eds.). *Developing Focus Group Research: Politics, Theory and Practice*. London: Sage.
- (31) Ritchie J, Lewis J, 2003. *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London: Sage.

## Tables

**Table 1 Common weight status terms used to assess response in the current study**

<b>Weight Status Terms</b>
Overweight
Heavy
Obese
High BMI
Excessive weight
Fat
Excessive fat
Large
Unhealthily high body weight
Weight problem
Unhealthy BMI

**Table 2 Key milestones**

	Dec 08	Jan 09	Feb 09	Mar 09	Apr 09	May 09	Jun 09	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09
<b>Ethics</b>												
<b>Recruitment</b>												
<b>Fieldwork</b>												
<b>Data analyses</b>												
<b>Dissemination</b>												



Denotes delay due to early recruitment difficulties.

**Table 3 Context given in Twenty-07 feedback letters**

Measure	Context in feedback letter
<b>BMI<sup>1</sup></b>	
<19 kg/m <sup>2</sup>	<i>This suggests that you might be underweight.</i>
19-26.9 kg/m <sup>2</sup>	<i>This suggests that your weight is probably normal.</i>
≥27 kg/m <sup>2</sup>	<i>This suggests that you might be overweight.</i>
<b>Body fat composition</b>	
Men	Normal range given as 13-21%
Women	Normal range given as 20-31%

**Table 4 Overview of planned research methods and participant numbers**

	BMI 19-24.9kg/m <sup>2</sup> (told prob. 'normal' weight)	BMI 27-29.9kg/m <sup>2</sup> (told might be overweight)	BMI ≥ 30kg/m <sup>2</sup> (told might be overweight)	Total
<b>Focus group discussions</b>	4 (2 with men, 2 with women)	4 (2 with men, 2 with women)	4 (2 with men, 2 with women)	<b>12</b>
<b>Individual interviews</b>	10 (5 with men, 5 with women)	10 (5 with men, 5 with women)	10 (5 with men, 5 women)	<b>30</b>

**Table 5 Revised research methods and participant numbers**

	BMI 19-24.9kg/m <sup>2</sup> (told prob. 'normal' weight)				BMI 27-29.9kg/m <sup>2</sup> (told might be overweight)				BMI ≥ 30kg/m <sup>2</sup> (told might be overweight)				Total
	Men		Women		Men		Women		Men		Women		
	35+	55+	35+	55+	35+	55+	35+	55+	35+	55+	35+	55+	
<b>Telephone Interviews</b>	2	2	2	2	3	2	2	2	2	2	2	2	<b>25</b>
<b>Individual interviews</b>	2	2	2	2	3	2	2	2	2	2	2	2	<b>25</b>
<b>Total</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>6*</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>50</b>

\* Two additional interviews were conducted with overweight men aged 35+, who also had high percentage body fat.

<sup>1</sup> It is important to note that the Twenty-07 Study used the following BMI cut offs on the recommendation of its clinical advisors: <19kg/m<sup>2</sup> = underweight; 19-26.9 kg/m<sup>2</sup> = 'normal' weight; ≥27kg/m<sup>2</sup> = overweight.

**Table 6 Overall response to study invitation**

Category	Invited	Form returned	Response rate (%)	Interviewed
Normal BMI, Men, age 35+	27	7	25.9	7†
Normal BMI, Men, age 55+	18	8	44.4	4
Normal BMI, Women, age 35+	33	6	18.2	4
Normal BMI, Women, age 55+	36	11	30.6	4
Overweight BMI, Men, age 35+	38	8	21.1	6*
Overweight BMI, Men, age 55+	33	7	21.2	4
Overweight BMI, Women, age 35+	27	6	22.2	4
Overweight BMI, Women, age 55+	28	7	25.0	4
Obese BMI, Men, age 35+	32	4	12.5	4
Obese BMI, Men, age 55+	29	5	17.2	4
Obese BMI, Women, age 35+	40	5	12.5	4
Obese BMI, Women, age 55+	36	6	16.7	4
<b>Totals</b>	<b>377</b>	<b>80</b>		<b>53†</b>

† Three normal BMI males aged 35+ took part in a pilot focus group. These data were not included in the analysis for the report.

\* Two extra interviews were carried out with overweight men aged 35+, who also had high percentage body fat.

**Table 7 Knowledge of the health risks associated with overweight/obesity**

	Coronary heart disease	Diabetes	High cholesterol	Hypertension	Stroke	Respiratory problems	Arthritis	Cancer	Liver and gall bladder disease	Reproductive problems	Other (mental health)*
<b>Number of respondents</b>	48	24	21	20	19	18	15	10†*	5	1	7

† One 35+ respondent stated that he did NOT think cancer was associated with overweight or obesity.

\* Mental health problems are not highlighted in Foresight: Tackling Obesity. Depression was most often mentioned.



**Table 8 Financial summary**

	<b>Awarded (£)</b>	<b>Spent (£)</b>	<b>Balance +/- (£)</b>
<b>Salaries</b>			
Dr C M Gray	23660	23660	0
Mrs D Dixon	1945	1945	0
<b>Total Salaries</b>	<b>25605</b>	<b>25605</b>	<b>0</b>
<b>Running Expenses</b>			
Office expenses	686	29	657
General services	120	159	-39
Travel	3391	1463	1928
Transcription	2808	3668	-860
Focus group venue	2100	24	2076
Conference fees	590	530	60
Conference accommodation	300	300	0
<b>Total Running Expenses</b>	<b>9995</b>	<b>6173</b>	<b>3822</b>
<b>Equipment</b>	<b>1500</b>	<b>1306</b>	<b>194</b>
<b>Total</b>	<b>37100</b>	<b>33084</b>	<b>4016</b>

## **Appendix 1 Coding framework**

### FEEDBACK (Twenty-07)

- Expectations
- Emotional response
- Understandings
- Behavioural response (including none)

### WEIGHT

- Self perception of weight and body fat composition (including statements about self)
- Own story about weight changing (including ideal weight)
- Previous weight management advice

HEALTH (current and past personal health status, including physical and mental health, and family health history)

### WEIGHT STATUS TERMS (including who said them)

- Obese
- Overweight
- Other

### LINKS BETWEEN WEIGHT AND MORAL JUDGMENTS

### PERCEPTIONS OF WEIGHT IN SOCIETY (including changes)

### KNOWLEDGE OF HEALTH PROBLEMS

- In relation to overweight or obesity
- Other

GENDER (including any mention of differences between men and women, gender roles e.g. food preparation, mother/father)

### POLICY/RECOMMENDATIONS

### FOOD AND DRINK/EXERCISE (including lifestyle)

### MENTION OF HEALTH PROFESSIONALS

### APHORISMS

### INDIVIDUAL RESPONSIBILITY/MOTIVATION

### TWENTY-07 (including any general reference to the Twenty-07 Study)

FREE CODE (anything that appears interesting, but doesn't fit into any of the above categories<sup>2</sup>)

---

<sup>2</sup> MENTION OF BODY FAT and MENTION OF AGE were coded here.

## TOPIC GUIDE CRUK TERMINOLOGY PROJECT

### SECTION 1: FEEDBACK

You took part in the Twenty-07 Study and received a feedback letter of key physical measures, such as your weight, height, BMI, body fat and blood results.

- 1 Whilst waiting to receive your results, did you have any **expectations** of what your results might have been?
- 2 When you got your letter through, and you read over it, what was your initial **reaction** to your results?
  - a. BMI
  - b. Body fat
  - c. Cholesterol
- 3 (Explore **interpretation** of each of their results)
- 4 Did you discuss your results with anyone?

**PROMPT** show the letter to anyone?

*If appropriate – GP letter*

- 5 Did your results make you think differently about yourself?

**PROMPT** about your body/health?

- 6 Have you taken any action (done anything) in reaction to your results?

**PROMPTS** got advice from a 'slimming group' like Scottish Slimmers or from GP, family, friends, about weight management?

started dieting (immediately or after talking it through with someone)?

if R did not take action or get advice. ask why?

---

### SECTION 2: TERMINOLOGY, SELF-IMAGE AND MOTIVATION TO LOSE WEIGHT

**EITHER** hand respondents the list of weight status terms (face-to-face) **OR** read the terms out (telephone) and ask respondents to write them down.

1. How would you feel if someone used any of these terms about you?
  2. Would it make a difference who it was?
  3. What about if it was a doctor or a nurse?
  4. Would it make a difference if the doctor or nurse was under- or over-weight themselves?
  5. Which of these terms do you think doctors or nurses should use if they want to encourage people to lose weight?
  6. Would any of these terms demotivate you (or other people)?
  7. What springs to your mind when you think of obese people?
  8. What springs to your mind when you think of overweight people?
  9. How if your view influenced by what you see in the media (morbidly obese and anorexic)?
  10. **Either:** How would you know when you were becoming overweight? When would you start to become concerned?  
**Or:** What is your ideal weight? When would you feel that you needed to start doing something about your weight?
-

### SECTION 3: KNOWLEDGE AND HEALTH

- 1 What health risks, if any, are associated with being overweight or obese?
- 2 Where did you learn about these risks?
- 3 (If appropriate) How much do you yourself worry about them?
- 4 Thinking back to the terms we discussed earlier, which do you think doctors and nurses should use if they want to get the message across to people that their current weight could be damaging their health?
- 5 Do doctors and nurses have a duty to tell people they are overweight or obese? If yes, then when?

**PROMPT** always, or just when someone is consulting about a health problem that is related to being overweight or obese?

- 6 (If appropriate) Have you ever been given weight management advice by anyone? If so, who? What terms were used? What was your reaction to these terms?

---

### SECTION 4: RECOMMENDATIONS

- 1 Where do you think advice about weight management should come from if people don't go to their doctor?
- 2 What do you think are good ways to help people lose weight?

**PROMPTS** support from family and friends?

knowing that others (i.e. friends, family, colleagues) are also trying to lose weight?  
joining a weight loss group?

- 3 Overweight and obesity is becoming a major problem in Scotland. What do you think the government should do to tackle it?

#### **PROMPTS**

##### *Information/Health Promotion Initiatives*

- Advice from doctors and nurses to support people's weight loss attempts
- Personally-relevant advice about diet, exercise, and how to change eating and exercise habits.

##### *Services*

- Better public transport
- Easier access to sports facilities

##### *Regulation*

- Decreasing the availability of high calorie foods
- Increasing availability of healthy food options
- Advertising restrictions on high calorie foods along with promotion of healthier foods
- Support from employers

---

### SECTION 5: TWENTY-07

- 1 Going back to your participation in the Twenty-07 Study, what are your **views** towards taking part in the Study?
- 2 What did you think about being offered the **feedback** after the last interview?
- 3 Any other comments to make on the Twenty-07 Study?