Weight Management Experiences and Perspectives of People with Overweight/Obesity and Atrial Fibrillation: A Qualitative Study

by

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Abstract

Background: Overweight/obesity is a risk factor for the development of atrial fibrillation (AF) and associated comorbidities. While results from interventional quantitative studies have shown that weight loss can improve AF symptoms and slow disease progression, many participants in these studies did not manage to significantly reduce their bodyweight. Achieving and sustaining weight reduction can be challenging in most populations, but symptoms and comorbidities may pose additional obstacles for people with AF. Better understanding of the barriers to weight management in this population is needed to improve service design and delivery.

Objectives: To investigate barriers and facilitators of healthy weight management in people with AF and overweight/obesity.

Methodology and Methods: This thesis is presented in three parts: a literature review and thematic synthesis (Part 1); the research study (Part 2); and a reflexive report on the study process (Part 3).

The Capability, Opportunity and Motivation model of behaviour change (COM-B) was used as the theoretical framework for the literature review of the weight management experiences of people with cardiac disease, and a realist approach (what works for whom, when, under what circumstances) was used to interrogate the data (Part 1). COM-B provided the framework for the qualitative research study of interviews exploring the weight management experiences of 12 participants with AF (Part 2). The Peshkin Approach was used to structure a reflexive account of the research process, examining the role of the values, priorities and assumptions of the researcher in shaping the enquiry and its findings (Part 3).

Findings: A systematic literature search (Part 1) identified no existing research into the weight management experiences and perspectives of people with AF. Five studies exploring the weight management experiences of people with cardiovascular disease were identified. A qualitative synthesis identified four themes: *Wanting to Change*, which relates to the Motivation component of COM-B; *Building Capacity*, which relates to Capability; *Having Support* and *Having Control*, which relate to Opportunity.

The qualitative study (Part 2) investigated the previously unexplored weight management experiences of people with overweight/obesity and AF. Three major themes were identified. *Being Out of Rhythm* related to the physical and psychological impact of AF and linked to Motivation in the COM-B model. *Doing the Right Thing* explored participants' frustration when weight loss efforts were unsuccessful or went unrecognised, linking to Capability, Opportunity and Motivation. *Broaching the Subject* reflected participants' lack of awareness of the link between AF and overweight/obesity and their experiences of discussing weight management with health care professionals, linking to Opportunity and Motivation.

The examination of subjectivity in the reflexive report (Part 3) uncovered *Ambivalent I*, considering the clinical and ethical complexity of weight management. Apprehensions felt whilst undertaking a research study for the first time are explored in *Novice Researcher I*. The tension between *Healthcare professional I* and the role of researcher are examined. *Political I* explores the emotions engendered by health inequalities, perceived medical paternalism, and obesity stigma.

Conclusion: The barriers to weight management faced by patients with AF have to date been largely underexplored. Patients in the present study did not associate overweight/obesity with the development and progression of AF. Improved communication is needed between health care professionals and patients with AF on the subject of weight management.

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Part 1. Literature Review

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Abbreviations

ACS	Acute Coronary Syndrome
AF	Atrial Fibrillation
AFSS	Atrial Fibrillation Symptom Severity Scale
BMI	Body Mass Index
CASP	Critical Appraisal Skills Programme
COM-B	Capability-Opportunity-Motivation - Behaviour Change (model)
COREQ	Consolidated criteria for reporting qualitative research
COVID-19	Coronavirus Disease 2019
CR	Cardiac Rehabilitation
CRD	Centre for Reviews and Dissemination
CVD	Cardiovascular Disease
DM2	Diabetes Mellitus Type 2
EQ-5D-5L	Euroqol Quality of Life questionnaire
MI	Myocardial Infarction
NHS	National Health Service
NICE	National Institute for Health and Care Excellence
PICo	Population - Interest - Context
PPI	Patient and Public Involvement
PROSPERO	International Prospective Register of Systematic Reviews
RAMESES	Realist And Meta-narrative Evidence Syntheses: Evolving Standards
WHO	World Health Organisation

Part 1: Literature Review

Barriers and Facilitators of Weight-loss in Patients with Cardiac Disease and Overweight/Obesity: a Qualitative Synthesis

Introduction

Lifestyle and risk factor management advice for cardiac patients with overweight/obesity includes weight management (NHS, 2020) but evidence shows few achieve long-term weight-loss (Gomadam, *et al*., 2016; Wilkinson, Harrison and Doherty, 2021). Quantitative studies demonstrate weight-loss can improve atrial fibrillation (AF) symptoms and reverse disease progression but many participants' weight remains unchanged or increases despite undertaking prescribed weight-loss interventions (Abed, *et al*., 2013; Fioravanti, *et al*., 2017; Glover, *et al*., 2019; Javed, Gupta and Lip, 2020; Middeldorp, *et al*., 2018; Mohanty, *et al*., 2017; Pathak, *et al*., 2014; Pathak, *et al*., 2015). While general barriers to weight-loss are well documented (Fischer, Oberänder and Weimann, 2020) few qualitative studies explore the particular experiences of people with heart disease, and none consider AF. Better understanding of patient perceptions could improve services by enabling more effective weight programmes for this population.

This review uses a realist synthesis approach combined with the COM-B model (Michie, Atkins and West, 2014; Michie, van Stralen and West, 2011) as an analytical framework to explore weight-management experiences of cardiac patients with overweight/obesity.

Methods

Design and theoretical basis

This review uses the RAMESES guidelines for realist syntheses (Wong, *et al*., 2013) to systematically identify, evaluate and synthesise data from qualitative studies to answer the question "What are the views and experiences of people with overweight/obesity and heart disease regarding weight management?". By illuminating patients' perceptions of the relationship between weight and health, and better understanding which weight

management interventions are considered useful and desirable, the review aims to draw clinically-usable conclusions which could inform service improvement.
A realist review design was selected as particularly relevant for interrogating complex interventions such as weight management programmes. Realist philosophy views science as essentially a social activity investigating an objective existent reality (Bhaskar, 1978); it reconciles the *positivist* view that an objective, empirical reality exists, and the *constructivist* position that scientific knowledge is an artefact of our senses, cognitive processes, and socialisation (Wong, *et al*., 2012). Realist inquiry investigates the relationship between the context, mechanism and outcomes of health interventions with the aim of drawing usable, data-driven conclusions regarding what works for whom, how, and in which circumstances (Pawson, 2006; Rycroft-Malone, *et al*., 2012; Sayer, 2000; Thorne, *et al*., 2004). Here, the aim is to investigate the multifarious factors that inhibit weight management despite well-founded evidence of health benefits.

As behaviour change is central to weight management, the COM-B model (Michie, van Stralen and West, 2011; Figure 1) was chosen to guide the analysis. COM-B forms the hub of the Behaviour Change Wheel (BCW), an intervention design method which involves identifying sources of health risk behaviour to target. According to the model, behaviour change (B) is dependent on the target population's Capability (C), Opportunity (O) and Motivation (M). COM-B has become the conceptual model underpinning various national strategies in England for addressing obesity and health behaviour change (Public Health England, 2018, 2019, and 2020). In this review COM-B provides a framework to reveal facilitators and limitations of weight-loss interventions by comparing programme aims with participants' experiences.

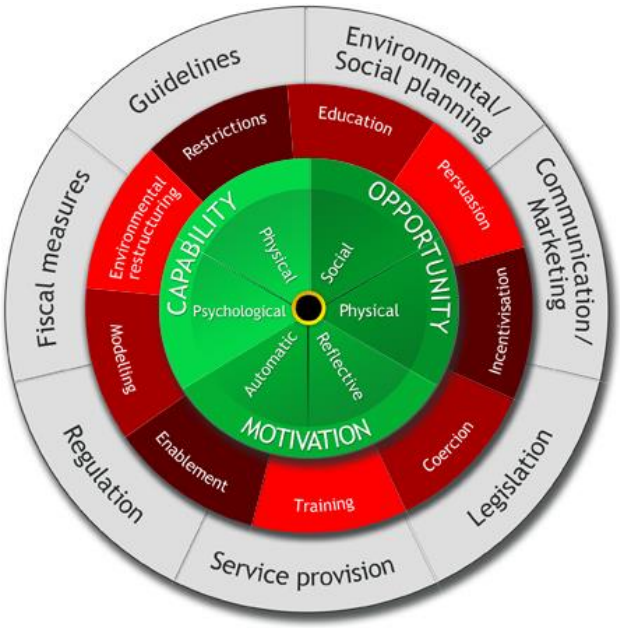

Figure 1. The Behaviour Change Wheel (Michie, Atkins and West, 2014)

Search strategy

Searches of the Centre for Reviews and Dissemination (CRD), Cochrane Database of Systematic Reviews, Joanna Briggs Institute and PROSPERO databases (conducted October 2019) retrieved no qualitative reviews of weight management experiences of people with cardiac disease.

Search terms were developed using the PICo tool for qualitative research (Lockwood, Munn and Porritt, 2015; Table 1). A strategy was developed to maximise identification of potential studies (Bramer, *et al*., 2017). The CINAHL, Medline, PubMed, PsycInfo, and GoogleScholar databases were searched (search conducted 04-Oct-2019). Few published studies were identified, so grey literature and conference proceedings were searched for non-peer reviewed studies which might contribute insight.

Table 1. PICo search terms

Population	Interest	Context
People with heart disease and obesity Search terms: Heart Heart disease Heart Condition Cardiac Cardiovascular Overweight Obese/Obesity/Obes* Arrhythmia High BMI	Views and experiences Search terms: Views Opinions Attitudes Perspectives Perceptions Barriers Obstacles Challenges Facilitators Experiences Want/desire Difficulty	Weight management Search terms: Weight management Weight loss Dieting Slimming Exercise Lose/losing weight Weight control Healthy weight Bariatric surgery Gastric band/balloon/bypass

Eligibility Criteria

The following predetermined eligibility criteria were applied:

- Original qualitative or mixed-methods design, reporting participants' views of weight management
- Studies conducted in western societies comparable to the UK in Europe, Australasia or North America were included
- Participants had acquired heart disease and were overweight or obese as defined by the study or had successfully lost weight
- Full-text available
- Studies not reporting participants' experiences were excluded

The selection process was overseen by the academic supervisory team. All papers were assessed by title (n=1011) and abstract (n=146); those not fulfilling the inclusion criteria were eliminated. Full-texts of the remaining papers (n=34) were assessed. Five papers were included in the final analysis (Figure 2), representing a total of 118 participants across four countries (Australia, Canada, France, USA). Two papers (Gallagher, *et al.,* 2012a, 2012b) reported the same patient cohort.

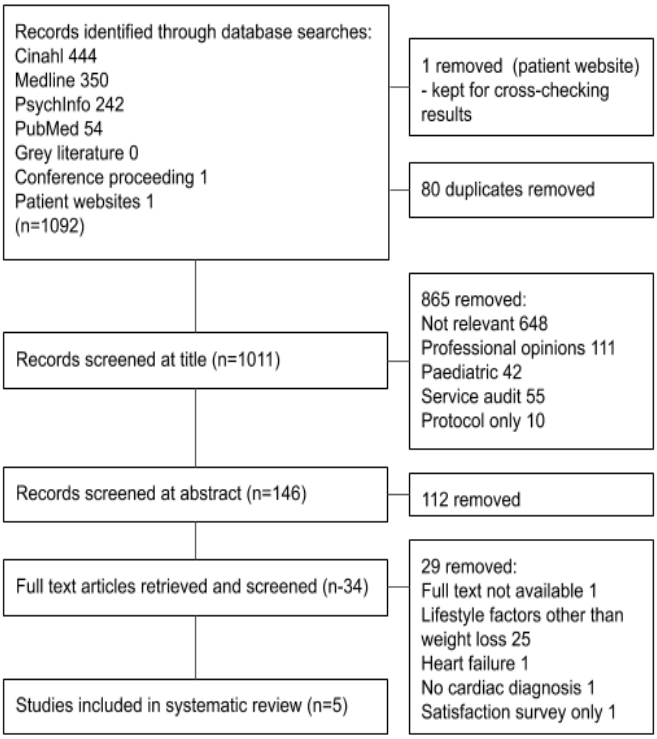

Figure 2. PRISMA flow chart (Moher, *et al*., 2009)

Quality appraisal

The CASP checklist (Critical Appraisal Skills Programme, 2018) was used to evaluate the selected studies so the credibility of their findings could be appropriately balanced within the review. CASP is recommended for novice researchers (Hannes and Bennett, 2017) and is endorsed by the Cochrane Qualitative and Implementation Methods Group (Noyes, *et al.*, 2018). Three papers met sufficient criteria to be considered of high value

(Gallagher, *et al*., 2012b; Kramer-Kile, 2013; Nadarajah, 2012), one medium (Gallagher, *et al*., 2012a), and one limited due to poor reporting detail (Génolini, *et al*., 2013; see Table 2). No studies were excluded on the basis of this evaluation as, despite lacking methodological rigour, all included important perceptions and rich, descriptive data (Carroll, Booth and Lloyd-Jones, 2012; Thorne, 2011). Rejecting such papers would impoverish the review.

Table 2. Findings of Critical Appraisal Skills Programme (CASP) evaluation.

Study	Are the results of the study valid?						What are the results?			Will the results help locally?
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Gallagher *et al* 2012a	Y	Y	Y	CT	Y	N	CT	CT	Y	Limited
Gallagher *et al* 2012b	Y	Y	Y	Y	Y	N	CT	Y	Y	Yes
Génolini *et al* 2013	CT	Y	CT	CT	N	N	N	N	CT	Very limited
Kramer-Kile 2013	Y	Y	Y	Y	Y	Y	Y	Y	Y	Yes
Nadarajah 2012	Y	Y	Y	Y	Y	N	Y	Y	Y	Yes

Key: Y=Yes, N=No, CT=Can't Tell

1. Clear aims 2. Appropriate methodology 3.Appropriate design 4. Appropriate recruitment strategy 5. Appropriate data collection 6. Consideration of researcher/participant relationship 7. Ethics considered 8. Rigorous data analysis 9. Clear statement of findings 10. Value of research

Data extraction and analysis methods

Initial data extraction identified weight management intervention types, numbers, demographics and diagnoses of participants (Table 3). Themes were identified by comparing the objectives of CR interventions with researchers' interpretations and participant quotes. Coding and analysis was carried out in NVivo 12. The analysis was structured using the framework method originally developed for applied policy research (Ritchie and Spencer, 1994) and increasingly used in health research for the analysis and management of qualitative data (Gale, *et al.*, 2013). The COM-B components Capability, Opportunity and Motivation were employed as pre-existing concepts to organise codes, and the realist review questions (what works for whom, how, to what extent and under what circumstances?) to search for new themes within the framework

(Table 4). This approach enabled systematic consideration of study findings from a theoretical behaviour change perspective, while providing flexibility to detect and characterise divergent themes and limitations (Dixon-Woods, 2011).

Results

All five papers included patients with cardiovascular disease (CVD) who had suffered acute coronary syndrome (ACS - heart attack or unstable angina) and subsequently joined a cardiac rehabilitation (CR) programme (see Table 3 for selected demographics). Nadarajah's (2012) focus on psychosocial healing is outside the scope of this review, but included useful data on participants' weight management experiences. One paper, included for its sociological insight, was of limited value due to a dual focus on cardiovascular patients and obesity in participants without cardiac pathology, lack of primary patient data, and very generalised reporting (Génolini, *et al*., 2013).

Principles of Cardiac Rehabilitation (CR)

The five studies included seven CR programmes. All aimed to reduce participants' cardiac risk-factors by affecting behaviour change through health education, increasing exercise capacity and improving psychological resilience. Although an explicit objective of intervention in only two studies (Gallagher, *et al*., 2012a and 2012b), participants often cited weight-loss as a desired outcome of CR.

Where CR interventions were reported, their intended mechanisms were categorised using COM-B (Table 3). Most focussed on capability, aiming to educate participants in nutrition, build physical exercise capacity, and develop strategies to overcome challenges. Service provision and referral to CR represented the opportunity for participants to engage in behaviour change. Only one programme included a specific motivational intervention (pedometers; Gallagher, *et al*., 2012a, 2012b) but many participants reported feeling motivated by staff and peers.

Table 3. Characteristics of included studies

Study and setting	Participants	Exclusions	Interventions and COM-B category	Outcomes	Study design	Theoretical basis
Gallagher *et al* (2012a and 2012b) Sydney, Australia. Group based weight-loss programme adjunct to CR.	N = 35. BMI 27-38 with CVD or multiple CVD risk factors. Mean age 62. 71% male, 89% caucasian. Recruited from CR by invitation letter.	Unable to exercise, unable to speak English, cognitive impairment	Biweekly exercise sessions (C, O). Four information sessions in 16 weeks (C). Three telephone calls over next 8 months (M). Promotion of healthy eating, exercise and problem solving to achieve sustainable weight-loss (C, M). Pedometers (M).	Completed at least 16 weeks of programme. 66% of participants lost weight.	Focus group. Thematic analysis.	Inductive, interpretive.
Génolini *et al* (2013) France. Cardiac risk-factor screening and CR.	N = 40 cardiac patients (57 obese patients and unspecified number of staff interviewed but not included in synthesis), BMI 30-40. Recruitment strategy not reported.	None listed.	No information on interventions reported.	Not reported	Observation and biographical interview. Thematic analysis.	Sociology of socialisation and social interaction
Kramer-Kile (2013) Toronto, Canada. Two outpatient and one home-based CR programme.	N = 33. Diagnosis of CVD and DM2. Age 52-79. BMI range not reported. 52% male. Recruited from CR by poster.	Unable to speak English.	Structured exercise (C, O). Education on dietary management, weight-loss, smoking cessation, psychological support, and the management of co-morbidities (C)	Not reported	Semi-structured interview. Thematic analysis.	Sociology of corporeal realism and social theory of the body (Shilling, 2003)
Nadarajah (2012) Maryland, USA. Outpatients CR programme	N = 10. Diagnosis of CVD. Age 46-75. BMI range not reported. Recruited from CR by invitation letter.	Psychometric test used to screen out patients with high stress and distress scores.	Twelve week programme of exercise (C, O), education, risk factor assessment and reduction, pharmaceutical therapy optimisation, counselling (C).	100% of participants lost weight.	Semi-structured interview. Thematic analysis.	Biopsychosocial model (Engel, 1977) adapted by researcher to psycho-social-spiritual healing

Abbreviations: BMI Body Mass Index – CR Cardiac Rehabilitation – CVD Cardiovascular Disease - DM2 Diabetes Mellitus Type 2 – C Capability – O Opportunity – M Motivation

Thematic Summary

Four main themes were identified: *Wanting to change*; *Building capacity*; *Having support; Having control*. These themes broadly correspond to the COM-B categories of Capability (*Building capacity*), Opportunity (*Having control* and *Having support*) and Motivation (*Wanting to change*). Various sub-themes emerged around the experience of ACS, the role of self-identity, social expectations, measuring progress, and the need to feel safe (Figure 3). These themes illustrate the interventions and circumstances which most benefit participants, where interventions could be improved, and identify external factors which CR struggles to counter.

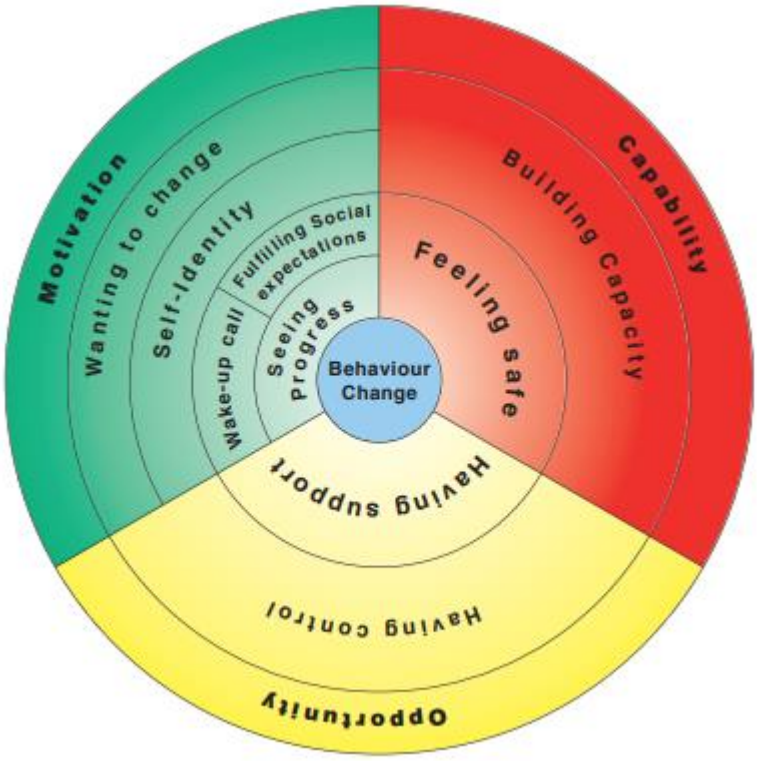

Figure 3. Diagram showing relation of themes to the COM-B model

Table 4. Examples of coding and framework analysis

Quote (Study)	Initial code(s)	Notes	Re-coded to	COM-B category	Who/what/how/circumstances	Theme
Straightforward strategies, such as reducing plate size, were not only effective for portion control and time management, but also gave participants control over dietary intake, without family and friends necessarily being aware (Gallagher *et al*, 2012b, p22)	Diet	Keeping advice simple and breaking down into do-able steps. Minimising inconvenience or discomfort of others.	Simplifying complexity; Social meaning of food; Disrupting relationships	Capability; Opportunity	How - making the task manageable. Circumstances - accommodating changes within the family	Building capacity; Having control; Having support
"Going back to Grandma times, when she used to do the cooking with the most basic of the stuff." (Gallagher *et al*, 2012b, p22)	Diet	Identifying previous, healthier eating habits with positive family associations	Maintaining identity	Motivation	Who - able to align personal values with those of CR	Wanting to change
He did not consider his first MI to be a serious event, but rather a mild warning sign that he needed to take his health more seriously. (Kramer-Kile, 2013, p103)	Understanding gravity	Several accounts refer to a heart attack not being serious, because treatment is quick and minimally invasive. This affects patients' estimation of gravity and subsequent motivation to change behaviour.	Conceptualising health and illness	Motivation	Who - able to accept diagnosis	Wanting to change
Rehabilitation immerses the patient and insulates them from the pressures of everyday life (stress, unhealthy lifestyle). (Génolini *et al*, 2013, p56).	Safe place	CR provides "safe" place to learn skills and form new habits. Residential CR takes further step by disrupting patient's social context.	Re-learning; Disrupting relationships	Opportunity	What works - having opportunity to break with old habits	Having control
“And yes, it (cardiac rehabilitation) is expensive if you think about four times a week, you know. That can cost $300 dollars a month." (Nadarajah, 2012, p74)	Cost	Many participants in private systems did not complete all stages of rehab because of cost. Insufficient time/support for new exercise/diet habits to become ingrained.	Socio-economic factors	Opportunity	What works - access to affordable services	Having support
The formation of autonomy differs greatly between institutions. During diagnosis, the cardiovascular risk “negotiations” are sensitive to the cultural similarity between the doctor and the patient. (Génolini *et al*, 2013).	Becoming independent	To maintain changes, patients need to develop independence. Degree to which they relate to medical staff affects acceptance of care/advice.	Developing independence; Maintaining identity; Socio-economic factors	Capability; Motivation; Opportunity	Who - able to align personal values with those of CR. How - assimilation of medical model by patient	Wanting to change; Having control

Theme 1. Wanting to Change

Unsurprisingly, participants who reported successful engagement with weight-loss interventions also expressed a desire to do so, correlating with the Motivation component of COM-B. Motivation frequently resulted from the shock of experiencing a life-threatening event that left participants re-evaluating their lives and choices (Gallagher *et al*, 2012b; Kramer-Kile, 2013; Nadarajah, 2012), forming the subtheme ***Wake-up call***. Referral to CR harnessed this fear-driven motivation.

> "Having a heart attack really scared me. I just wanted to feel better, see my kids grow up, and be more in control. I had tried so many things, but being in hospital really brought me to my senses." (Gallagher, *et al*, 2012b, p21)

The wake-up call was disruptive. It challenged the self-image of those who considered themselves healthy (Kramer-Kile, 2013). ACS impacted on many facets of self-identity, leaving people feeling vulnerable and acutely aware of aging and mortality. Some faced changing roles at work or within the family. ***Self-identity*** was developed as a subtheme incorporating the range of reactions to CR and participants' attempts to reclaim self-identity. Engagement with CR was greatest where advice aligned with the individual's values without further compromising their damaged sense of self, such as associating family traditions with nutritious home cooking (Gallagher *et al*, 2012b; Kramer-Kile, 2013). Conversely, participants who saw themselves as non-conformist sometimes sought to reclaim their autonomy by rejecting help:

> "Her diet fed into her larger identity as someone who was counter-cultural. ... At times she became more fixated on how health professionals did not understand her rather than focusing on how her specific food choices were contributing to her weight gain." (Kramer-Kile, 2013, p83/84)

Self-identity merged with another subtheme, ***Fulfilling social expectations***. Social acceptance is critical to self-identity; individuals internalise and replicate social

expectations and values (Shilling, 2003). In Western societies individuals are expected to look after their health to avoid becoming a burden and slimness is associated with healthiness (Goffman, 1990 in Shilling, 2003; Shilling, 2016). Weight-loss visibly demonstrates self-care to improve health in accordance with social expectations.

Internalised concepts of health and illness appeared to influence participants' interpretations of CVD (Génolini, *et al*., 2013; Kramer-Kile, 2013). Many failed to comprehend its chronic nature and described unrealistic expectations of what CR could achieve. Behaviour change was often seen as atonement for past transgressions, to reverse damage and regain a previous, healthy state (Gallagher *et al.*, 2012b; Kramer-Kile, 2013). By focussing on health benefits, CR could unintentionally mislead participants to likely outcomes (Kramer-Kile, 2013; Nadarajah, 2012).

> "CR participants described attempting to undo previous unhealthy behaviours by engaging in diet change. The final goal was often focused on removing the disease itself." (Kramer-Kile, 2013, p112)

Some accepted their diagnosis and reconceptualised health to work towards living well with chronic disease (Gallagher *et al.*, 2012b; Kramer-Kile, 2013; Nadarajah, 2012). Others became disillusioned with both CR, and their own bodies as the limitations to their recovery became apparent (Kramer-Kile, 2013). Seeing and measuring improvement through attainable goals appeared to maintain motivation (Gallagher *et al*, 2012b; Kramer-Kile, 2013; Nadarajah, 2012), hence the subtheme ***Seeing Progress***. Failure created despondency.

> "Weight-loss gave the participants a feeling of accomplishment in managing their cardiac disease." (Nadarajah, 2012, p78)

Weight-loss represented a highly visible and desirable measure of change, sustained motivation and brought social, psychological and health benefits.

Theme 2. Building Capacity

The second theme links to the Capability component of COM-B. CR aims to build participants' capacity to identify and enact healthy lifestyle changes in three ways: increasing exercise tolerance; improving nutritional knowledge; developing strategies to sustain changes.

Five of the seven CR programmes described in the studies included exercise sessions supervised by clinically-trained personnel (Table 3). The subtheme ***Feeling safe*** emerged from many participants' reluctance to exercise without supervision for fear of precipitating another event (Gallagher *et al*, 2012a; Kramer-Kile, 2013; Nadarajah, 2012). Exercise sessions were well received, with participants in all studies bar one (Génolini, *et al*., 2013) preferring to increase exercise-levels rather than make dietary 'sacrifices'. Some found the time commitment burdensome, and some female participants expressed reservations about the male-dominated gym environment, but these tended to be outweighed by the motivational benefits of exercising among 'cardiac' peers (Nadarajah, 2012).

> "Every one of the participants described CR as a safe place to exercise since their heart was monitored by the CR staff. The monitoring helped participants to be more self confident. Most of the participants benefited from the peer group support at the CR setting." (Nadarajah, 2012, p86)

The benefits of the exercise component of CR programmes were limited for those participants who struggled to develop the necessary self-confidence or motivation to continue beyond the programme (Gallagher *et al.*, 2012b; Kramer-Kile, 2013; Nadarajah, 2012).

Improving participants' knowledge of healthy eating was the generally the most contentious intervention, often considered "wrong" by participants who had received conflicting information from other sources, or who held lay beliefs about the

cardioprotective benefits of certain diets (Gallagher *et al*, 2012b; Kramer-Kile, 2013). To change behaviour, participants had to be open to recognising past behaviours as damaging. A non-judgemental, supportive environment facilitated openness to change (Génolini, *et al*., 2013). Personalisation appeared beneficial as advice was better received when aligned with health beliefs and social values (Génolini, *et al*., 2013; Kramer-Kile, 2013). Teaching about the body and causes of CVD also helped participants understand the requisite changes:

> "I had to accept what has happened and I had to make a lot more changes in my life. I was ready for it, I just didn't know what to do because I was already eating properly…. I was on a good diet program, but I've improved it since." (Kramer-Kile, 2013, p83)

Various interventions aimed to develop strategies and problem-solving skills. Some participants reported developing self-advocacy skills, linking the notion of ***Feeling safe*** as the supportive CR environment instilled confidence to speak up (Gallagher *et al.*, 2012b; Kramer-Kile, 2013). Participants who felt overwhelmed by the complexity of problems benefitted from breaking them into manageable steps (Gallagher *et al.*, 2012a, 2012b; Kramer-Kile, 2013), although this sometimes led to fixation on single aspects of their self-management, such as checking blood-sugar levels (Kramer-Kile, 2013).

Developing autonomy in self-management skills was not easy, with some participants becoming dependent on CR (Gallagher *et al.*, 2012a, 2012b). Their degree of success in incorporating recommended changes into their lifestyle was dependent - like their degree of engagement - on the extent of assimilation of the health model into their ***Self-identity*** (Gallagher *et al.*, 2012a, 2012b; Génolini, *et al*., 2013).

> "What we've got to do is undo many, many years of habit—the program that we have here is that we're sort of being re-programmed and it may take a little bit more time to do." (Gallagher, *et al*., 2012a, p31)

Developing autonomy required increased self-awareness of personal, cultural, social, and environmental factors. Friendships and family relationships were fundamental to success (Gallagher *et al.*, 2012a, 2012b; Kramer-Kile, 2013; Nadarajah, 2012).

Theme 3. Having Support

This theme corresponds with Opportunity in COM-B. As shown in ***Feeling safe,*** CR offers the opportunity to exercise, learn, and develop self-care skills with professional support. The peer group in CR programmes provides psychological support by normalising the experience of having had a heart attack and a safe space to voice the accompanying emotions. Friendly competition during gym sessions and weigh-ins boosted motivation.

> ". . . just be able to talk to other people who are facing the same issues—it makes such a big difference." (Gallagher, *et al*., 2012a, p32)

Participants whose families demonstrated proactive support reported an easier transition than others. Setting an example to help younger family members avoid future disease could be highly motivational (Gallagher, *et al.*, 2012b; Kramer-Kile, 2013; Nadarajah, 2012). Where other family members were not invested in change, mealtimes proved a big challenge to participants' compliance (Gallagher *et al.*, 2012b; Kramer-Kile, 2013; Nadarajah, 2012). Sabotage by family members of attempts to follow guidance was surprisingly common (Gallagher *et al.*, 2012b; Kramer-Kile, 2013; Nadarajah, 2012). This sometimes involved bonding over "forbidden" treats, but was more often linked to partners' own ***self-identities*** as family providers of food, or cultural identities connected to culinary traditions. Illness represented an assault on these identities if diet was identified as a contributory factor. Where self-identify could not easily adapt, diet change was resisted.

> “According to Anthony’s account, his wife also shared a similar idea that changing her family’s meal preparation would also dissociate her from her identity as an “Italian woman.” ... Although she initially tried to support her husband’s efforts, she also had to face the implications of new knowledge that implied her commitment to an Italian diet had contributed to her husband’s health issues.” (Kramer-Kile, 2013, p96)

Complex issues around the social significance of food sometimes led to re-evaluation of relationships (Kramer-Kile, 2013; Nadarajah, 2012). Some participants reported a tension between maintaining certain relationships at the cost of their health, or risking their loss by pursuing the lifestyle changes necessary for weight-loss. Problem-solving and self-advocacy skills could help participants to navigate these challenges. (Kramer-Kile, 2013; Nadarajah, 2012).

Socially-isolated participants sometimes formed dependency-like relationships with certain favourite foods which came to provide psychological support and could prove impossible to renounce (Kramer-Kile, 2013).

Theme 4. Having Control

This theme corresponds to the COM-B component Opportunity. It interrelates with autonomy and self-confidence inherent in **Building capacity**, but includes strong socioeconomic aspects over which individual CR programmes have no influence.

Control over work and economic pressures were very challenging for many participants. Attending CR incurred costs. Long working hours left little time or energy for exercise, and those in lower paid jobs lacked the flexibility of home gym equipment or health club membership (Kramer-Kile, 2013; Nadarajah, 2012). Financial insecurity increased stress (Kramer-Kile, 2013).

Participants had a desire to regain control after the vulnerability and disruption caused by ACS, beginning with control over their body (Gallagher, *et al.*, 2012b; Kramer-Kile, 2013). Perceived lack of self-control could prove a great source of frustration (Kramer-Kile, 2013). Participants avoided or overcame temptation by developing coping strategies, such as taking control of the shopping and cooking in their home environment (Gallagher, *et al.*, 2012b; Kramer-Kile, 2013).

Discussion

The purpose of this theoretically-driven realist review was to explore the weight management views and experiences of people with overweight and heart disease to better understand which interventions successfully help weight loss, which don't, and how services could be improved. The results extracted from the five qualitative studies exploring the experiences of 118 CR patients were synthesised and analysed using a COM-B framework. Interrogation of this data framework from a realist perspective generated four main themes reflecting the components of the COM-B model: *Wanting to change; Building capacity; Having support; Having control*. While fear of death and disease following an ACS event generated a desire to lose weight, both to improve health and to fulfil social expectations, the translation of motivation into tangible weight-loss was mediated by various personal, social and environmental influences. Self-identity, the nature of proposed lifestyle changes and speed of progress affected whether embarking on a weight-loss programme was deemed desirable. CR offered a safe place to develop physical fitness, and the knowledge and skills to make lifestyle changes. Social support and participants' capacity to control and manage their time and environment ultimately influenced the extent to which behaviour changes could be implemented in the real world.

A limitation of this review is its credibility, owing to the sparsity of qualitative data relating to weight-management in cardiac patients and quality of reporting (Génolini, *et al*.,

2013). Two larger systematic reviews of qualitative research exploring weight-loss experiences among people without specified comorbidities (Garip and Yardley, 2011; 17 studies, 290 participants; Greaves, *et al*., 2017; 26 studies, 710 participants) generated similar findings to this review, with some additions whose absence in these cardiac studies is worth considering.

As in the cardiac studies, self-identity and social expectations were significant for motivating participants, but Garip and Yardley (2011) found self-image could shift to accommodate positive new identities, such as “runner” or “home chef”, creating potential to focus on how participants would like to see themselves. Mental preparedness to integrate new behaviours into lifestyle, cognitive fatigue from the constant effort required, and the perpetual need to find new sources of motivation were psychological factors common to the cardiac and general reviews (Gallagher *et al.*, 2012b; Garip and Yardley, 2011; Greaves, *et al*., 2017; Kramer-Kile, 2013; Nadarajah, 2012).

Themes of family support and sabotage were present throughout. In addition to building capacity by developing strategies to regulate dietary intake or overcome temptation (Gallagher, *et al.*, 2012b; Garip and Yardley, 2011; Greaves, *et al*., 2017; Kramer-Kile, 2013), participants reported developing strategies to avoid emotional eating by finding alternative sources of comfort or reward (Garip and Yardley, 2011; Greaves, *et al*., 2017).

The reviews found some participants were reluctant to exercise because of neighbourhood security issues or perceived social judgement (Garip and Yardley, 2011; Greaves, *et al*., 2017), neither of which emerged as immediate concerns for CR participants with access to supervised gym facilities. While many participants valued the peer and professional support, some felt weight-loss groups reduced their personal control by imposing rules (Greaves, *et al*., 2017). Control, access, cost and flexibility all feature in the findings of a recent survey of AF patients which reported over half of participants would prefer a home-based/telerehabilitation weight-loss programme

(Delesie, *et al*., 2020), though evidence regarding compliance with such programmes was not considered (Maeder, *et al*., 2015). Higher socioeconomic status and social support were positively correlated with motivation to lose weight (Delesie, *et al*., 2020; Génolini, *et al*., 2013).

Another limitation of this review stems from study enrolment strategies – the views of those who did not attend CR are absent. This reinforces social health inequalities because those in more vulnerable socioeconomic situations are less likely to attend CR (Resurrección, *et al*., 2019) and so remain underrepresented in research which informs service development. Anxiety and depression, which strongly affect CR enrolment and completion (Herber, *et al*., 2017; Resurrección, *et al*., 2019) were rarely discussed – one study purposely excluded patients with higher anxiety levels (Nadarajah, 2012). This is surprising since symptoms may affect up to 65% of ACS patients, and are associated with worse prognoses (Feng, *et al.,* 2019) . Insight into the role of mental wellbeing on motivation and self-efficacy in cardiac patients could have significant implications for weight management.

The use of the COM-B model, itself a synthesis of behaviour change theories (Michie, van Stralen and West, 2011), arguably reduces ability to explain variability in behaviour by over-systemisation, leaving gaps in the narrative (Ogden, 2016). Used as a framework to seek out these gaps as avoidable “pitfalls” (Peters and Kok, 2016, p265), COM-B can illuminate areas where services are not achieving behaviour change. The outer rings of the Behaviour Change Wheel offer higher level options to influence behaviour – social policy, fiscal measures, etc. (Michie, van Stralen and West, 2011) - but remain inaccessible and of little practical help in altering harmful health behaviours at a patient-facing level.

Implications for practice

Given the significance of self-identity and bodily limitations throughout the findings, the development of personalised programmes which consider participants' needs, views and preferences could make weight management attractive to a broader population. Programmes should include individualised exercise programmes, consistent advice presented as easy-to-follow steps, and assistance to develop problem-solving skills and strategic thinking such as Motivational Interviewing techniques endorsed by Health Education England (2021). Health care workers should foster an awareness of the social context within which patients operate.

Further research

Risk assessment and clinical management of people with CVD has long included weight-management (Afshin, *et al.,* 2017) yet little research evaluates the success of interventions or patients' experiences. Mounting evidence for weight-management in the treatment of AF was acknowledged in recent draft NICE guidelines (NICE, 2020). Further research into patients' needs, preferences and perceptions could improve care.

Conclusions

Most cardiac patients with overweight/obesity express the desire to lose weight. Services to facilitate the necessary lifestyle changes are offered to patients with CVD, but are not widely available for patients with other cardiac pathologies such as AF. Services that accommodate the patient's self-identity and adapt to meet the needs of individuals are most acceptable, but have little influence over external social and socioeconomic factors affecting weight management. Qualitative research into the weight management experiences and needs of patients with AF would be beneficial in providing appropriate assistance.

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Part 2: Research Report

Experiences and Perspectives of Weight Management among Patients with Atrial Fibrillation and Overweight

Abstract

Objectives: To identify practical ways to enhance the design of risk factor management and weight loss services for people with overweight/obesity and atrial fibrillation (AF).

Background: AF is the most common cardiac arrhythmia, with serious consequences for health and quality of life. Some evidence indicates weight reduction in people with AF and overweight/obesity may improve symptoms. This population may require additional support with weight management due to factors associated with aging and health.

Design: Qualitative investigation based on semi-structured interviews.

Methods: 12 adult participants (4 female, 8 male) with diagnosed AF and a current or previous BMI>27kg/m^2 were recruited at a large tertiary cardiac referral centre in the south of England. Participants completed quality of life and AF symptom questionnaires using Think-Aloud technique and semi-structured interviews relating to their weight management experiences, needs and preferences. Interviews were audio recorded and analysed thematically using the COM-B behaviour change model as a theoretical framework.

Results: Three main themes were identified. *Being Out of Rhythm* explores the psychological and physical impact of AF on weight management; *Doing the Right Thing* discusses participants' weight management experiences; *Broaching the Subject* explores participants' perspectives on weight management conversations with clinicians.

Conclusions: General dissatisfaction was identified with weight management advice from health care professionals including cardiologists. Participants desired open, non-judgemental discussion of cardiac health implications of overweight/obesity supported by a referral to weight management services. Improved communication of research findings regarding weight loss as a factor in AF management could support health improvement in this population.

Introduction

The causative relationship between overweight and cardiovascular disease (CVD) is well-established (Powell-Wiley *et al*., 2021). Mounting evidence demonstrates the benefits of weight-loss for other acquired cardiac pathologies including atrial fibrillation (AF) in people with overweight (Powell-Wiley *et al*., 2021).

Despite convincing evidence of the health benefits, few cardiac patients achieve clinically significant weight loss (Gomadam, *et al*., 2016; Wilkinson, Harrison and Doherty, 2021). Weight-loss is a complex and onerous undertaking, subject to multifactorial biological, behavioural (Ghosh and Bouchard, 2017), socioeconomic, environmental and personal influences (Garip and Yardley, 2011; Greaves *et al.*, 2017). People with acquired cardiac disease are likely to be older and suffer more comorbidities than the populations of general weight management studies, contributing additional complexities. Better understanding of the lived reality of these factors could improve the design of weight management services for this population.

A previously conducted review of qualitative studies of barriers and facilitators of weight-management among acute coronary syndrome (ACS) patients in Cardiac Rehabilitation (CR) found their heart attack could serve as a “wake-up call” by revealing the extent of damage to health (Gallagher *et al.*, 2012; Nadarajah, 2012; Kramer-Kile, 2013). Individuals were often highly motivated to lose weight but felt overwhelmed and lacked the knowledge and strategies to enact the required changes (Gallagher *et al.*, 2012; Nadarajah, 2012; Kramer-Kile, 2013). Unrealistic expectations of the potential of weight-loss to reverse disease progression could ultimately prove demotivating (Kramer-Kile, 2013). Referral to weight-management services was valued and access to supervised exercise facilities allayed safety concerns (Gallagher *et al.*, 2012; Kramer-Kile, 2013). Class, education and gender influenced the type of services individuals preferred (Génolini *et al.*, 2013). A sense that services were personalised increased acceptability and compliance (Kramer-Kile, 2013).

The experiences of people with AF are different to those with ACS – AF is not acutely life-threatening, CR is not routinely provided, treatment success rates are highly variable (Andrade *et al.,* 2019). As a research nurse working on an AF study, several participants spontaneously stated that they knew they should lose weight but were prevented by their arrhythmia. No existing qualitative literature explores the experiences of people with overweight and AF, and no studies have been carried out in the UK where service provision is based around the NHS. As accumulating evidence indicates clinical advice to AF patients should include proactive weight-management (Abed, *et al*., 2013; Pathak, *et al*., 2015), a qualitative exploration of the difficulties they experience could enable the tailoring of advice and services to meet patients' needs.

This study was carried out for a postgraduate research master's degree project. The lead researcher is a Registered Nurse working in cardiology and clinical research at Oxford University Hospitals NHS Foundation Trust. In the interests of transparency this information was included in the participant information sheet (Tong, Sainsbury and Craig 2007). The study was carried out in accordance with the Declaration of Helsinki and the principles of Good Clinical Practice. Ethical approval was granted by London-Bromley Research Ethics Committee.

Language and Definitions

Overweight and obesity are defined by the WHO as a BMI equal to or greater than 25 kg/m^2 or 30 kg/m^2 respectively (WHO, 2021). The inclusion criteria for this study used a BMI of 27 kg/m^2 or over, to correspond with the inclusion criteria used in quantitative studies of overweight and AF (Abed, *et al.*, 2013; Pathak, *et al.*, 2015). Although medically recognised, the terms "obese" and "obesity" carry negative connotations and are controversial among campaigners for the rights of people with obesity (Albury, *et al.*, 2020). This report will therefore use the more broadly acceptable term "overweight" to include all people with a BMI of 27 kg/m^2 or over, except when discussing other studies which specifically investigate obesity.

Methods

Design

A qualitative design was chosen as the most appropriate for exploring patients' perspectives and experiences (Cresswell, 2009). Advice on the relevance and acceptability of the study was sought through a Patient and Public Involvement (PPI) bulletin.

Because weight management is linked to behaviour change, the COM-B model (Michie, van Stralen and West, 2011) was used as the theoretical framework. COM-B identifies Capability, Opportunity and Motivation as the three essential elements for behaviour change, forming the hub of the Behaviour Change Wheel. The outer rings of the wheel aid identification of economic, social and political strategies to improve public health by acting on the COM elements which ultimately determine behavioural choices (Michie, Atkins and West, 2014). The model was used in study design, as a guide during the interviews, and as a thematic framework for the data analysis to enhance theoretical coherence and consistency (Bradbury-Jones, Taylor and Herber, 2014). The study was reported with reference to the COREQ guidelines (Tong, Sainsbury and Craig, 2007).

Ethical Considerations

Ethical considerations were discussed with the supervisory team, the PPI volunteers and the R&D department of the recruiting hospital during the planning stages of the study. For many people the subject of overweight/obesity is associated with social stigma (Annandale and Williams, 2018). Approaching potential participants therefore required discretion, respect and sensitivity. Outpatient appointment lists were screened to identify potential participants, who were initially approached by the direct care team. Those who expressed an interest were then contacted by the researcher. Confidentiality was respected by holding discussions in clinic rooms rather than open multi-bedded bays.

Details of the Patient Advice and Liaison service were included in the patient information sheet in case any patient wished to raise concerns. Arrangements were made for support to be offered by an independent health care professional should any participant become distressed.

Context and Sampling

Patients were recruited from Oxford University Hospitals NHS Foundation Trust. A purposive sample of patients with AF, BMI >27 kg/m^2 (or less if they had reduced their BMI through successful weight-loss), and able to converse in English were selected to gain understanding of the weight management issues they face (Cresswell, 2009). Outpatient appointment lists were screened to identify symptomatic patients in recent contact with Cardiology services. Potential participants were identified from clinics and out-patient waiting lists and were approached by the direct care team. Fourteen patients were approached in total; three declined to discuss weight management. One participant spontaneously contacted the researcher and requested to take part having heard about the study from a family member who had assisted with PPI during the design phase. Twelve participants were enrolled in total.

Potential participants were purposively sampled on basis of age, gender, AF duration, and BMI to incorporate maximum variation. Due to the demography of the AF population managed at the study site, all participants identified as White British (see Table 5 for selected participant characteristics). One participant was known to the researcher through participation in another, unrelated cardiac study. All other participants were unknown.

Data Collection

Interviews were conducted by telephone due to public health restrictions on research and elective clinical activity imposed by the COVID-19 pandemic, with the exception of

one participant who preferred to be interviewed face-to-face when visiting the hospital for a pre-planned clinic visit. Two participants were interviewed with their partner in attendance. The interviews lasted between 31 and 100 minutes with an average duration of 55 minutes.

The interview process was carefully planned to encourage participants to feel comfortable and able to speak openly about their weight management experiences whilst focusing on how individual experience could influence service improvement (McIntosh and Morse, 2015). Semi-structured interviews were used to explore patients' experiences in their own words (Mitchell, 2015) with guide-questions based on the COM-B model to draw discussion towards participants' physical and psychological capabilities, opportunities, and motivation to manage their weight (McIntosh and Morse, 2015). To reduce potential discomfort around discussing weight and to situate the interview within a cardiac context (Whiting, 2008), participants began by completing two validated questionnaires (Atrial Fibrillation Symptom Severity Scale (Dorian *et al.*, 2006); EQ-5D-5L (EuroQol, 2017)), using a Think-Aloud technique to gain deeper insight into their responses (Charters, 2003). This technique enables identification of instances where questionnaire responses reflect adaption in expectations to accommodate a worsening state of health (Bailey, *et al.*, 2017) and has previously been used to explore the support needs of patients with AF (Zhang, *et al.*, 2017).

Analysis

Interviews were audio recorded and transcribed by the researcher to facilitate data immersion (Green *et al.,* 2007). Field notes were written immediately after each interview and supplemented during transcription to record responses, reflections, assumptions and evolving interpretations (Whiting, 2008). To test the validity of the interpretation (Carter *et al.*, 2014) a summary of each interview was produced, sent to the participant by email, and discussed by telephone within ten days of the interview to

confirm that it captured an accurate representation of their views, meanings, and intentions.

The transcribed data were imported to a spreadsheet and coded line-by-line using the Eclectic Coding process described by Saldaña (2015) to explore and identify processes and phenomenon using a combination of code-types. Process Codes, which capture action (Saldaña, 2015), were widely used to emphasise the active nature of behaviour change within the COM-B model. Descriptive Codes were used to summarise topics, and Values Codes to label participants' perspectives (Saldaña, 2015).

Codes were mapped onto the COM-B framework and organised into sub-themes. Those which did not appear to fit the COM-B framework were allotted separate themes. As working themes were identified, a re-coding process was carried out to maintain thematic coherence (Saldaña, 2015. See Table 6 for examples of the coding process). As coding progressed, emerging themes were identified which transcended the COM-B divisions. The colour-coded COM-B framework was therefore dismantled, and the individual codes reorganised within the overarching themes. The colour-coding enabled visualisation of the interplay between the elements of the COM-B model (see Figure 4).

The resulting schema was then checked against the original interviews to ensure the various perspectives of participants' were fairly represented (Carter *et al.*, 2014) and to enrich the authenticity of the description by returning to the participants' voices.

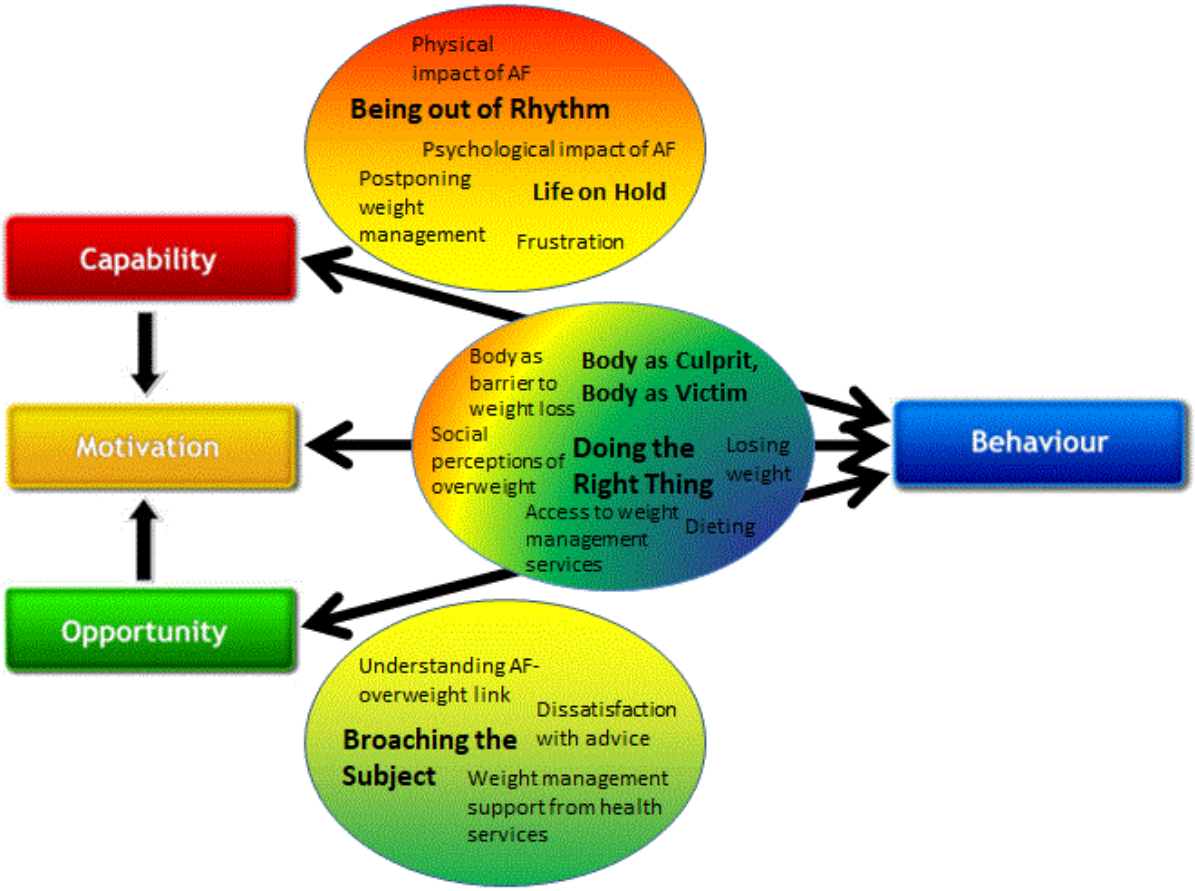

Figure 4. Map of themes with relation to COM-B elements (Michie, Atkins and West, 2014)

Table 5. Selected participant demographics and characteristics

Participant pseudonym	Gender	Age	Employment	Education	BMI	Type of AF	Years since AF diagnosis	Symptomatic	Reported previous weight loss (kg)	Weight loss method
Penny	F	75	Retired teacher	Higher	30	Paroxysmal	>10	Yes	19 (regained)	Very low calorie (self directed)
Stan	M	76	Retired from food industry	Secondary	43	Paroxysmal	5	Yes	Not reported	Very low calorie (self directed)
Jane	F	62	Cook	Secondary	25	Paroxysmal	>10	Yes	19	Dietary, self-directed
Simon	M	62	Hospitality	Further	28	Persistent	9	Yes	22 (regained)	Slimming World
Jay	M	50	Tradesman	Secondary	28	Persistent	<1	Yes	4	Diet and exercise, self-directed
Harry	M	60	Leisure industry (retired firefighter)	Further	41	Persistent	2.5	Yes	50 (partially regained)	Slimming World
Nick	M	58	Retired firefighter	Secondary	37	Persistent	1.5	Yes	19 (regained)	Previously Slimming World. Now on BHF diet (LOSE-AF study)
Sova	F	60	Nurse	Higher	41	Paroxysmal	9	Yes	Not reported	Various
Dotty	F	63	Carer	Further	36	Paroxysmal	>10	Yes	11	Diet and exercise, self-directed
Peter	M	61	Tradesman and business owner	Secondary	31	Persistent	>10	No	53 (partial regain)	Previously Aloe Vera diet. Now Cambridge 1:1 (LOSE-AF study)
Alfie	M	58	Teacher	Higher	34	Persistent	3	Yes	28 (partial regain)	SlimFast
David	M	72	Retired electronics engineer	Further	37	Persistent	<1	Yes	7	Cambridge 1:1 (LOSE-AF study)

Table 6. Examples of coding and thematic analysis process

Quote	Initial codes (Initial framework theme)	Re-coded to	COM-B category	Theme
"It bothers me.. not the actual.. It bothers me that I can hear it in my ears more than anything" - Stan	Annoying symptoms (What it feels like for me)	Psychological impact of AF	Motivation	Being out of rhythm
"At the minute, touch wood.. it feels like it wants to start, like at work today it kind of skipped a beat and I thought oh no please don't start!" - Jane	Touching wood (Motivation); Dreading relapse (Capability – Psychological)	Psychological impact of AF	Motivation	Being out of rhythm
"I know if I lost half a stone I would feel that little bit quicker, a bit lighter, but I wouldn't want to lose any more than that because it would like take that bit of strength away" - Jay	Being big and strong (Motivation - reflective)	Desire to lose weight - confounding factors	Motivation	Doing the right thing
"But yeah that's what I'd like, to go through foods with me, to say well no you can't really have that – I'm only thinking I'll have that because it's got no sugar in it – do you know what I mean? But I don't think about maybe the fat content. I think about the sugar content, I think oh great I can have that – do you know what I mean? So.. It's someone to sit and educate me, more than anything." Dotty	Nutritional knowledge (Capability - psychological); Desired help (Opportunity – physical); Wanting to talk about weight (Motivation – automatic); Changing diet (Behaviour Change)	Weight management knowledge; Desired help	Capability, Opportunity, Motivation; Behaviour Change	Doing the right thing
"I can't remember exactly what she said but I think it was around the weight issue. But none of them, none of them have said that the weight was an issue for any of the procedures that were going to be done, so I didn't make much of it other than to say you know that.. But it's usually that if you lose a bit of weight then.. I don't know I can't remember what they said but basically lose some weight – it wasn't an order, it was just advice." - Alfie	Risks not explained (Motivation – reflective); Choosing what to hear (Motivation – automatic).	Patient education	Motivation	Broaching the subject
"Years ago when I lived in [city] um, they could, sounds silly I know but they could put the gym on prescription for so many months, which is what one doctor done for me and I used to go to the gym, um, oh two, three times a week then.." - Jane	Having weight loss prescription (Motivation – reflective); Doing exercise (Capability – physical).	Being referred	Motivation, Opportunity	Broaching the subject

Findings

Participants

Eleven of the twelve participants were patients under the care of the Cardiology Department at Oxford John Radcliffe Hospital; one participant who self-referred to the study had been treated at another hospital and subsequently discharged to the care of her GP. Participants ranged in age from 50 to 76. The participants came from a geographical area covering Oxfordshire, Northamptonshire, Wiltshire, Bedfordshire, and Greater London. The sample included four women and eight men, a gender ratio which corresponds to that of the general AF population. All identified as white British. The participants reflected a range of socioeconomic, educational, and professional backgrounds; six were retired.

Time since diagnosis of AF ranged from four months to fifteen years. Five participants had paroxysmal AF (occurring in self-limiting episodes lasting less than one week) and seven had persistent AF (lasting more than one week). Eleven participants reported comorbidities which impacted on their activities of daily living and quality of life to varying degrees. These included cardiovascular, cerebrovascular, and peripheral vascular disease, peripheral neuropathy, chronic kidney disease, congestive heart failure, hypertension, inflammatory bowel disease, labyrinthitis, osteoarthritis, rheumatoid arthritis, type 2 diabetes mellitus. BMI ranged from 25 (after sustained weight loss) to 43 kg/m^2. All participants reported having lost weight at some point in life, from 4kg to 53kg, but most had been at least partially regained (see Table 5).

Theme 1 – Being out of rhythm

The theme *Being out of rhythm* describes the physical and psychological disruption that AF caused to participants' lives. All reported a heightened awareness - sometimes incessant - of their heartbeat. Symptoms impeded day-to-day activities, corresponding

with the Capability component of COM-B. Experiencing physical limitations was characterised by participants' as a sense that their lives had also lost their rhythm; they could no longer live the life they wanted while in AF and were left waiting to regain their rhythm, both cardiologically and metaphorically. Waiting for treatment, uncertainty of effectiveness, and fear of relapse appeared to sap participants' will to initiate healthy lifestyle behaviours, linking to Motivation within COM-B.

> "I just feel edgy when it's out of sync… I can't wait for it to drop back into rhythm" – Penny, 75F

The physical impact of AF was explored using ThinkAloud technique (Charters, 2003) when completing the AFSS and EQ-5D-5L questionnaires, allowing participants to explain how their symptoms affected daily life (see Appendix A for summary of results). Reported symptoms of fatigue, breathlessness, light-headedness, chest pain, palpitations, and faintness ranged in severity from mild to debilitating. Nine of the twelve participants had been hospitalised as a consequence of the severity of their symptoms, and eleven had undergone cardioversion or ablation for symptom management. Although reassured by their cardiologists that AF is not life-threatening, symptom onset could still invoke significant anxiety and sometimes panic. This dichotomy was typified by Sova, herself a healthcare professional, who struggled to reconcile her objective, medical knowledge of AF with the subjective distress she felt when losing control of her body, exacerbated by worry that colleagues would think she was over-reacting:

> "It is horrible, it is horrible... and it can come on at any time so if I'm at work or at a meeting… you haven't even got a chance to be away from anyone noticing you're not very well, you know so you have to hide it, I tend to obviously always hide it as well, so you don't want people to know you're in AF. Especially people in my office who are nurses, they're not going to take much notice really!" – Sova, 60F

Most participants reported being physically limited by symptoms which impacted on family activities, work, housekeeping, hobbies and sleep patterns. Some felt unsafe and deliberately limited their activities for fear of precipitating an episode of AF or damaging their heart. Requiring time off work for hospital treatment caused further disruption. Participants who had previously been active identified their symptoms as a cause of weight gain; inability to participate in sports impacted energy expenditure, but could also affect motivation by disrupting social lives and removing a source of pleasure.

> "It's doing my head in to a point. I hate it. Frustration is a massive thing because I'm in my 50s and like I said I'm an ex fire fighter and all that stuff and I'm used to being healthy and active, I'm not someone for sitting around and watching TV all day." – Nick, 58M

Physical limitations often had psychological ramifications, causing frustration and anxiety about deteriorating health and aging. Some participants expressed feelings of inadequacy at seeing their role within the family change. Others appeared to adjust their expectations and aspirations to accommodate their reduced physical capacity and avoid disappointment. Most participants described being conscious of their irregular heartbeat when in AF, which could lead to self-monitoring and a feeling of precarity even when in sinus rhythm. The sense that life had been interrupted was developed in the sub-theme *Life on hold*. Some participants appeared absorbed with the idea that returning to sinus rhythm was the only way to regain their health and previous lifestyle. This could result in a tendency to postpone attempts at weight management until such a time when, back in rhythm, they would have the mental energy to focus on diet and the physical capacity to exercise.

Theme 2. Doing the right thing.

All participants talked about overweight as unhealthy and undesirable and wished to emphasise their positive health behaviours, expressed in the theme *Doing the right thing*. The difficulty of sustaining weight loss despite believing they were following advice

to the best of their ability caused significant frustration for many participants. All four elements of the COM-B model are reflected within this theme – participants reported motivation to lose weight and intentional behaviour change but felt their health or bodily constitution hindered their capability, or lacked the opportunity to access appropriate services.

> "I try and eat healthily – we *do* eat healthily – we have fruit and veg more, far more than five portions a day, so I believe we eat healthily. I try and exercise, um, so at the moment I'm on this healthy diet that the British Heart Foundation recommend, and my wife's good at measuring out portion sizes and this sort of thing… So we've been doing that for a couple of weeks now and it's ok but I've only lost – for me – hardly anything, like a pound or two" - Simon, 62M

For some participants, internal conflict arose as they sought to refute perceived stereotypes of overweight arising from over-indulgence and inactivity, while simultaneously berating themselves for lacking the self-discipline to avoid weight gain and associated health problems. Despite echoing the general view that overweight is unhealthy, others viewed their own ill-health as a cause of weight gain, and not as a consequence of long-term overweight. Male participants with physically demanding jobs associated being big with maintaining strength and expressed reluctance to conform to BMI norms which they feared would result in reduced physical capacity.

All participants reported having lost weight at some point, citing general health concerns or body image as motivating factors. Organised diet programmes (Slimming World) and meal replacement products (Aloe Vera sachets, Slimfast, Cambridge 1:1) were identified as effective in achieving significant weight loss by six participants, three of whom were also enrolled in the ongoing LOSE-AF trial of weight loss interventions and AF outcomes (Casadei, Wijisurendra, and Spartera, 2018). Others preferred to self-manage, drawing on calorie reduction and exercise advice from a variety of sources. Two participants reported losing weight through a self-directed, unsupervised very low calorie diet. Repeat cycles of dieting and weight regain were common. Loss of motivation was

frequently identified as a cause of weight regain, often associated with relaxing diet regimes around holidays or weddings. Only one participant (Jane) maintained her weight-loss in the long term, which coincided with significant changes in her lifestyle and personal relationships.

The sub-theme *Body as culprit, body as victim* explores participants' experiences of managing weight in a body over which they did not feel fully in control. The body could be constructed as vulnerable to AF symptoms, comorbidities and aging, all of which impeded weight management. Some participants appeared to conceptualise AF as an external aggressor to be kept at bay through medication and risk factor management. Conversely, the body could play the role of culprit in the struggle to achieve a healthy weight, being pre-disposed to weight gain by genetic factors or childhood eating habits. Two participants described food as an addiction, experiencing bodily cravings which they lacked the psychological strength to overcome. Many participants expressed a sense of injustice towards perceived assumptions and social judgement of people with overweight.

> "It's quite easy for people to look at a big person and go, well they just eat and eat and eat, and it's not always the case y'know" – Peter, 61M

Besides showing willing to lose weight by focussing on positive changes they had made several participants reported having attempted to discuss weight management issues with their GP or other health care professionals, but that useful support had not been forthcoming.

Theme 3. Broaching the subject

The theme *Broaching the subject* examines how participants perceive weight management conversations with healthcare professionals, and relates to Opportunity and Motivation within COM-B. Participants generally appeared dissatisfied with

healthcare encounters where weight management was broached, desiring a fuller explanation of the health implications backed up by practical weight management assistance. Only one participant knew of the correlation between overweight and AF onset. None were aware of evidence that weight loss can improve AF symptoms (Abed, *et al*., 2013; Pathak, *et al.*, 2015).

Participants were open to discussing their weight within a clinical context and thought healthcare professionals should give advice, but perceived a reluctance on their part to engage in frank discussion. Many reported doctors "mentioning" their weight, which could become repetitive and irritating when not accompanied by specific explanations of the health risks, or offers of help.

> "…not just to have the throwaway sentence "You could do with losing some weight". 'Cause you then would sort of leave people to fend for themselves. Like I shouldn't drive my car at 80 miles an hour as well. I know what's right and what's wrong, but how can you help me…?" – Harry, 60M

Despite associating overweight with health risks, many continued to deny that their own health might be damaged by their overweight, never having been unequivocally told so by a healthcare professional. Where weight management was broached, omitting to refer patients to relevant services could reinforce the notion that their weight was not yet a cause for concern and behaviour change could be postponed. Some reported asking for help, but that the type of help they sought was not available to them. Preferences varied widely across the sample, and included very low calorie meal replacements, dietician review, cognitive behavioural therapy, and bariatric surgery. Confusion over the plethora of weight management advice available - especially on the internet – and suspicion of commercial motivations behind diet programmes often discouraged participants from committing. The three participants who were also enrolled in the LOSE-AF trial (Casadei, Wijisurendra, and Spartera, 2018) welcomed the opportunity to access weight management assistance, although they appeared to understand the

study as a comparison of weight loss techniques rather than measuring the effect of weight loss on AF.

> "I suppose it [health risk of overweight] concerned me a bit, but then it's a long way off, it seems! And of course then um when the idea of the [LOSE-AF study] came up then it was a really good incentive to deal with it. The trouble is, it's all very well them saying "You should lose weight" but I couldn't. You know it's difficult to find proper sensible advice on how to do this. You know there are all these companies that set up but they're in there to make money." – David, 72M

Sova was the sole participant who reported having had a meaningful conversation about weight management with her cardiologist. She saw this conversation as positive and constructive, despite feeling confronted.

> "That was a good conversation. Quite a scary one but a good one in that respect because no-one's actually said AF and weight – that's the first. And also that's the first time I've ever actually had that proper conversation about it" – Sova, 60F

When told about studies linking weight loss with improvement in AF during the interviews, all participants expressed the view that this knowledge would be highly motivational to them in their weight management attempts.

Discussion

Summary of findings

There is growing clinical interest in the potential benefits of weight loss for disease management in patients with AF and overweight, but participants in this study were unaware. Only one participant knew overweight is a risk factor for developing AF. While all participants recognised overweight as a general health risk, many did not make this association with regard to their own health problems. Those who did expressed self-

blame and anger at their perceived weakness and lack of self-control. All participants reported having lost weight at some point, demonstrating their capacity, opportunity and motivation for successful health behaviour change. Some participants identified reduced physical activity due to AF symptoms and fear of damaging the heart as a barrier to weight management. Inadequate communication and support from healthcare professionals, lack of knowledge, and lack of access to trustworthy advice and weight management services were identified as problematic in initiating and maintaining weight loss.

Participants had all lost weight

Somewhat unexpectedly, participants universally reported successful weight-loss – though rarely sustained in the longer term. The assumption that most participants would not be actively managing their weight reflects a common prejudice among healthcare professionals, that people with overweight are non-compliant with recommended health behaviours (Phelan, *et al.*, 2015). Rather, research shows most people with overweight are trying to lose weight (Piernas, Aveyard and Jebb, 2016). This finding also calls into question the relevance of COM-B as a theoretical basis for the study – the COM-B model relates to promoting behaviour change, but participants reported having changed behaviour and demonstrated the capacity, opportunity and motivation to do so. Use of the model did however highlight that behaviour change had taken place, and identified significant gaps particularly around participants' knowledge of AF risk factors (capability, motivation), and capacity and safety when exercising (capability, opportunity). As most participants had re-gained lost weight, addressing these gaps might support longer term sustainable weight management.

AF symptoms interfered with weight management

Many participants identified limited exercise capacity due to AF symptoms as a barrier to weight management. Anxiety about damaging the heart is common among patients with

cardiac disease (Astin, Horrocks and Closs, 2014) but here is unfounded as studies have shown physical exercise reduces AF burden and improves quality of life (Elliott, *et al.*, 2016). Awareness of their irregular heartbeat appeared to focus attention inwards to the internal workings of the body, creating anxiety and sapping the mental energy and determination needed for weight-loss. Attempts to lose weight were put on hold until an anticipated future time when treatment would restore sinus rhythm, together with exercise capacity and motivation. Significant advances in AF treatment are successfully restoring sinus rhythm in ever more patients (Kirchoff, *et al.*, 2016), but those whose hopes are solely invested in medical intervention could be encouraged to become partners in their care by discussing ways lifestyle change may improve AF and overall health (Dineen-Griffin, *et al*, 2019). While studies show disagreement between patients and healthcare professionals over who should bear responsibility for weight-management (Dewhurst, *et al.*, 2017), almost all participants in this study expressed a desire to be referred to weight-management services, a finding common to other qualitative research (Ananthakumar, *et al.*, 2020), suggesting a willingness to participate proactively in health improvement. Referral to CR was found to be highly motivational in studies of patients with CVD and overweight (Gallagher, *et al.*, 2012; Kramer-Kile, 2013). Explaining the potential of weight-loss and providing a referral might go some way to addressing the sense of loss-of-control expressed by many participants in this study, by offering a sense of agency over both body and prognosis.

Participants didn't associate AF with overweight

Cardiovascular studies with myocardial infarction (MI) patients found the fear of dying experienced during a life-threatening medical emergency motivated subsequent weight loss attempts (Gallagher, *et al.*, 2012; Nadarajah, 2012; Kramer-Kile, 2013). This study began with the assumption that this factor would be absent in AF patients. Contrary to expectations, many participants in the present study reported experiencing fear and disrupted self-image comparable with MI patients because the sensation of severe sudden-onset AF felt life-threatening to them. This fear did not translate into motivation

to lose weight because, unlike coronary heart disease, AF is not widely associated with overweight in the public consciousness (American Heart Association, 2016). In some cases fear of precipitating further episodes interfered with weight management by discouraging participants from exercising.

In post-MI studies of weight management (Gallagher, *et al.*, 2012; Kramer-Kile, 2013) the stigma and shame of becoming a burden on society through self-inflicted disease, and desire to return to a perceived earlier healthy state were highly motivational. Weight loss was pursued – though not always achieved - as a public demonstration of "doing the right thing" by making healthy lifestyle changes to regain health (Shilling, 2003; Kramer-Kile, 2013). Shame and stigma are widely reported by patients with obesity (Ogden and Clementi, 2010; Williams and Annandale, 2020) and can be counterproductive in motivating weight-management if patients perceive negative judgement from healthcare professionals based on their body size (Albury, *et al.*, 2019; Ananthakumar, *et al.*, 2020; Williams and Annandale, 2020). Linking health behaviours with health problems can lead to defensiveness and resistance (Albury, *et al.*, 2019) so care must be taken when discussing overweight as an AF risk factor to avoid misinterpretation of well-intentioned advice. Feelings of vulnerability and being misunderstood which people with overweight frequently associate with healthcare encounters (Albury, *et al.*, 2019) may be amplified for patients with AF as many participants in the present study reported feeling vulnerable and out-of-control due to their symptoms, a finding echoed in studies of the experiences of people living with AF (Zhang, *et al.*, 2017; Stridsman, *et al.,* 2019).

All participants agreed that knowledge of the potential for weight loss to reduce AF burden would increase their motivation to manage their weight in the hope of reducing their symptoms. Improving the sensitive and effective communication of this information to patients is therefore key.

Getting the tone of weight conversations right is paramount

Healthcare professionals are encouraged to discuss weight opportunistically (NICE, 2015) but many participants in this and other weight-management studies (Ananthakumar, *et al*., 2020) deny the topic ever being raised. Tactfulness is essential as obesity stigma can lead patients to avoid healthcare encounters (Albury, *et al.*, 2020; Ratansi, 2020) and healthcare professionals may feel they lack the necessary skills or fear a negative reaction (Dewhurst, *et al.*, 2017), but trials have shown brief interventions can be well-received and effective in motivating behaviour change (Aveyard, *et al.*, 2016). Apprehension could be allayed through better understanding of patient preferences around use of language and communication techniques. Linking weight management discussions to a health concern could be counterproductive as the implication that the patient is responsible for their illness frequently generates resistance (Albury, *et al.*, 2019). Rather, health care professionals should seek permission to discuss weight and capitalise on patient-initiated conversations (Albury, *et al.*, 2019). Discussions should be collaborative, non-judgemental, and use person-centred language (Albury, *et al.*, 2020). Achievements should be acknowledged and positive behaviour changes reinforced (Albury, *et al.*, 2020).

Lack of knowledge of the overweight-AF connection was another unexpected finding and indicates shortcomings in disseminating research findings to patients. A recent survey of 143 patients at 3 hospitals in Belgium found nearly 70% of participants were aware of the benefits of weight reduction for AF management (Delesie, *et al.*, 2020). Although this figure may have been inflated by participants deducing the answer from the subject of the questionnaire and tending to respond positively to multiple choice items (Greenhalgh, 2006), this finding would suggest dissemination has been more successful elsewhere.

Some participants in the present study felt reassured that their weight was not a concern because healthcare professionals had not mentioned it, a finding supported by other

studies (Ananthakumar, *et al.*, 2020). Previous research has found patients expect healthcare professionals to discuss weight when it is clinically relevant, and feel let down when they do not (Maltherud and Ulriksen, 2011), a sentiment echoed by some participants in this study. Others felt irritated and patronised by opportunistic “mentions” of their weight or banal advice, especially where this was not backed up by explanation of its impact on their own health, congruent with previous studies of communication around weight-management (Ananthakumar, *et al.*, 2020). As in the wider weight-management literature (Maltherud and Ulriksen, 2011; Ananthakumar, *et al.*, 2020), participants with AF wanted frank, non-judgemental discussion focussed on the health impact of overweight, acknowledgement of steps they are currently taking, and the offer of a referral to support services.

Limitations

Only the views of people who were willing to discuss weight management were included in this study, as those who were unwilling declined to participate. The sample is ethnically and culturally homogeneous, including only people of white British heritage which, while representative of the demographic of patients treated for AF at the study centre, may limit its applicability to the broader AF population.

The study was conducted during international disruption to health care (and most aspects of life) caused by the COVID-19 pandemic. Some participants noted that their responses to questions were affected by restricted opportunities to exercise, socialise, eat out etc., imposed by the public health emergency. Some reported weight gain because of disruption to exercise facilities. Others saw an opportunity to lose weight by controlling their diet through limited shopping.

The study methods were also affected by COVID-19 restrictions. The initial plan for face-to-face interviews to coincide with hospital appointments was changed to permit telephone interviews for 11 of the 12 participants. While telephone interviews are

sometimes considered “second rate” in qualitative research, Cachia and Millward (2011) argue they are more egalitarian as the interviewee is on their own territory and a lack of body language clues may encourage deeper verbal probing. The maintenance of visual anonymity may also have altered the interview dynamic, as the interviewee remained invisible to the interviewer and thus able to maintain their self-image without external challenge or perceptions of judgement to which people living with overweight may become highly sensitised (Ananthakumar, *et al.*, 2020). Broader socioeconomic diversity within the sample was enabled by inclusion of participants from wider geographical area and those whose participation would otherwise be precluded by work commitments or the financial burden of travelling to hospital. The impact of the healthcare professional-patient relationship may have been attenuated to a degree as, although participants knew the interviewer to be a nurse, they were interacting with a disembodied voice rather than a nurse in uniform. The subconscious tendency to follow cultural scripts (Goddard, 2009) when discussing health improvement should nevertheless be considered and some responses, especially within the theme *Doing the right thing,* may stem from participants responding as they know they “should” to a nurse, rather than describing the reality of their diet and activity levels.

The role of cultural scripts may also explain the difference between some participants’ initial answers to the questionnaires and the detail which emerged in conversation. For example, one participant who responded “I have no difficulties washing and dressing myself” on the EQ-5D-5L later lamented his overweight prevented him putting his socks on. This is not an issue for the present study where the questionnaires were used to open weight-management discussions, but might be a consideration when used to capture patient-reported outcome measures in quantitative clinical studies.

Recommendations

At a local level there is a clear need to improve dissemination of research findings to patients where weight-management might improve AF symptoms and disease

progression. This could take the form of face-to-face discussion in clinic, written material included in patient information leaflets, or posters displayed in waiting areas accompanied by details of health improvement services available through the hospital and in the community.

Locally and more widely, healthcare professionals may benefit from additional training to increase confidence and efficacy in discussing weight with patients. The COM-B analysis identified healthcare professionals' lack of discussion of overweight and its implications for AF as a major gap in promoting weight-management among this population who appeared open to behaviour change. Future research could investigate health education behaviour change among healthcare professionals' by applying COM-B to identify gaps in their capability, opportunity and motivation to intervene.

Once accepted, weight-management advice needs to be reinforced with a referral. Options available to clinicians are limited and tend to focus on primary care referrals (e.g. NHS Digital Weight Management Programme, commercial weight management programmes). Extending these schemes to secondary care teams could open another opportunity to support patients with weight-management.

Conclusions

This study highlights the importance of sensitive and thoughtful weight-management discussion with AF patients, particularly with regard to sharing research findings supporting weight loss as a means of reducing symptom burden and reversing disease progression. Patients are open to having difficult conversations about the interaction between weight and health within the context of healthcare encounters and expect professionals to address the topic with them. Offering positive feedback on current weight-management attempts, explaining how overweight affects cardiac health, giving reassurance about the effect of exercise on AF, and offering a referral to appropriate services were identified as ways in which healthcare professionals can promote

behaviour change for weight-management among patients with AF and overweight. These findings now need to be taken forward by developing education and skills training to augment healthcare professionals' confidence and efficacy in discussing weight management.

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Part 3: Reflective Report

A Reflection on the Study Process Using the Peshkin Approach.

Introduction

Reflection as a tool for learning is embedded in nursing education and continuing professional development (Johns, 2013). In the field of healthcare research, reflection on the decision-making process together with enhanced self-awareness through reflexivity can reveal how the researcher's own priorities, values and assumptions have guided the inquiry (Malterud, 2001). Transparency in this process enables critical appraisal of the study methodology and methods (Bradbury-Jones, 2007) and contributes to quality assurance in qualitative research (Reynolds, *et al*., 2011). By using an approach to reflection which promotes reflexivity, I aim to identify how my subjectivity influenced decisions I made in designing and conducting a research project as part of the award of Masters in Clinical Research, and consider how it shaped the findings.

Reflection and reflexivity in Qualitative Inquiry

The research project explored experiences and perspectives of weight management among people with atrial fibrillation (AF). The COM-B behaviour change model provided the theoretical framework with the aim of identifying barriers to weight management. A qualitative design was chosen to investigate people's lived experiences and the meanings they attribute to them (Denzin and Lincoln, 2011). The presence of researchers' subjectivity as a component of qualitative inquiry is well established (Malterud, 2001). Consciously addressing its influence through reflexivity can help clarify the context and assumptions of the study, allowing the reader to judge how useful and applicable findings may be in other situations (Reynolds, *et al*., 2011).

Meaningful reflection on the qualitative research process must therefore incorporate reflexivity at its core. The Peshkin Approach (Bradbury-Jones 2007), based on the work of Alan Peshkin (1988), describes a method of actively seeking out subjectivity throughout the qualitative process to sharpen researchers' awareness of the effect of their assumptions, values and biases in shaping a study and its findings (Peshkin,

1988). This iterative approach is better suited to reflecting on a process than traditional nursing models of reflection which usually take an incident, experience or problem as a starting point (Kolb, 1984; Gibbs, 1988; Rolfe, Freshwater and Jasper, 2011; Johns, 2013). In preparing a structured reflection on the thesis process, I selected the Peshkin approach for its reflexivity and applicability to qualitative research as a process.

The Peshkin Approach

Peshkin (1988) described looking for the emergence of positive and negative feelings during his education research fieldwork and examining these to identify "Subjective I's" – aspects of his own personality, values and culture which impacted his research. This approach was applied to the field of nursing education research by Bradbury-Jones (2007; Bradbury-Jones *et al.*, 2009) who proposed that this method of systematic and rigorous analysis of subjectivity can enhance the trustworthiness of research, and that its flexibility makes it broadly transferrable, making the approach well-suited to a novice researcher seeking both to improve the rigour of my inquiry and identify the influence of my subjectivity.

Peshkin (1988) proposed this self-examination begin at the study outset, to enhance awareness of the effects of subjectivity throughout the research process. As a nurse I am habituated to reflect *post hoc* using incident-based models of reflection, so did not begin a structured reflection until the study was almost complete. My decision to use the Peshkin approach to explore this journey retrospectively arose from the difficulty I experienced applying traditional models of nursing reflection to the research process. Recognising my study was too far advanced to apply the approach as Peshkin intended, I began my reflection by searching the reflective diaries and field notes I had made following each interview, during the transcription, coding and analysis phases of the study to identify entries where my emotions were aroused; then interrogating these occurrences to identify my *Subjective I*'s. I then re-visited some of the pivotal decisions

made in the development and design phases, to explore whether and how these *I*'s had shaped my inquiry.

As I read and re-read my diaries and field notes I became aware of patterns and themes in my reactions to participants' accounts of the impact of AF on their lives, their weight management attempts, and their various encounters with healthcare professionals and weight-loss service providers. Through an inductive process I noted these emerging patterns in my diaries, and began to consider how they might relate to aspects of my personality, identity and experience which could be characterised as *Subjective I*'s. Four principal *Subjective I*'s were identified through this process: *Ambivalent I*, *Novice Researcher I, Healthcare Professional I*, and *Political I*. The four are distinct but inter-related. The following discussion illustrates how these *I*'s manifested in my reflective diaries and considers their implications for the study findings. Finally, their role in key decisions in the research process is examined.

Ambivalent I

Ambivalent I represented uncertainty experienced when confronting highly complex and emotive problems like weight management, including my doubt as to whether weight management should be a healthcare priority. *Ambivalent I* was uncovered in the anxiety I felt when participants expressed frustration at failed weight-loss attempts. This anxiety arose from my assumption that participants were looking to me for answers because of my role as a nurse, when in fact they had agreed to participate in the study precisely because it provided an opportunity to voice their own opinions and experiences. Ambivalence towards the merits of weight management enhanced my receptiveness to participants' perspectives and opinions. The urge to step out of the researcher role and interject with advice – often a challenge for nurse-researchers (Sque, 2000) – was more easily suppressed. Contrarily, my ambivalence at times led to my giving excessive credence to participants' accounts of gaining weight despite making recommended

lifestyle changes, disregarding the role of personal responsibility and shifting the onus for weight management onto health services.

Novice Researcher I

Already evident in the retrospective application of reflection to the research process, *Novice Researcher I* surfaced throughout the diaries but particularly in entries expressing concern about interview technique. I was apprehensive of missing vital information through reluctance to probe, or conversely of offending participants by appearing intrusive or insensitive. Such concerns are common among novice researchers (Whiting, 2008) and my diaries record the process of reading and reflection through which I aimed to improve my interview technique (Price, 2002; Hewitt, 2007; Whiting, 2008).

Concerns about negative reactions due to the stigma surrounding overweight and obesity (Ogden and Clementi, 2010) might have affected who I chose to approach had I not been assisted by the direct care team who actively promoted the study to eligible patients. My concerns proved unfounded as most of those invited appeared pleased to contribute. It was interesting to note the reticence of my *Novice Researcher I* in approaching patients for a study for which I took responsibility, when as a clinical research nurse I have no hesitation in contacting patients for other researchers' studies. Managing power differentials inherent in the researcher-participant relationship (Karnieli-Miller, Strier and Pessach, 2008) posed another challenge for *Novice Researcher I*. A sense of privilege that participants would share such personal information evoked feelings of protectiveness and a tendency to downplay more intimate and visceral revelations.

Healthcare Professional I

As an experienced clinical nurse, *Healthcare Professional I* coexisted with *Novice Researcher I* and was revealed by feelings of exasperation when participants appeared to ignore or misinterpret advice. This stemmed from a sense of disempowerment experienced as a healthcare professional at participants' apparent lack of resolve when I was seeking ways to empower them to take control of their weight management. There is an irony in finding *Healthcare Professional I* bemoaning patients' "misinterpretations" while in the process of identifying how my own values and assumptions affect how I interpret and report their views.

Healthcare Professional I registered annoyance when participants were perceived to shift responsibility for weight management onto clinicians (although *Ambivalent I* sympathised). Participants' complaints of poor communication from multidisciplinary team colleagues whom I respect and admire surprised me and provoked defensiveness. Reflecting on these reactions, I considered whether protectiveness towards my profession could have caused me to attempt to redirect responsibility onto weight management services and partially back to the patient by focussing on requests for referral. Findings relating to clinical communication and desire for referral to weight management services are consistent with the findings of weight management studies in primary care (Albury, *et al.*, 2019; Ananthakumar, *et al.*, 2020), suggesting *Healthcare Professional I* did not unduly emphasise these aspects.

Besides assumptions and values, *Healthcare Professional I* contributed significant nursing and clinical research experience which aided the logistics of study development and conduct.

Political I

Although I am obviously aware of my own political views, the left-wing, feminist and antiauthoritarian values which surfaced throughout my diaries shaped my findings in ways I had not anticipated.

A tendency to downplay the role of commercial services in favour of state provision of exercise facilities was revealed in my reaction to a participant saying he wouldn't use the nearby council-run facilities, but would be motivated to exercise if "a nice private members' health club" were built locally. I dismissed this as snobbery (and *Healthcare Professional I* sighed at yet another "excuse" not to exercise), but the participant was identifying what he personally believed would help with his weight management which was exactly the aim of the study.

The feminist aspect of *Political I* manifested in anger at the delayed diagnosis, referral and treatment reported by female participants while male participants seemed to encounter far greater proactivity from healthcare professionals. During the analysis stage I sought to partition my anger to avoid over-emphasising findings that resonated with my feminist perspective. Gender inequality in the diagnosis and treatment of AF cannot be substantiated from a convenience sample of twelve participants, but disparity has been uncovered in other areas of cardiology (White and Lockyer, 2001) and could be an area for future research.

Feminist predispositions were clearly demonstrated when, distressed by a participant's expressions of obesity-related self-loathing, I wrote "I just want to send her a bunch of flowers and a copy of FIFI!". The reference to *Fat is a Feminist Issue* (Orbach, 1978) belies wider political, moral and ideological concerns around the causes and consequences of obesity. Issues of state and social control over bodies (Shilling, 2003; Gard and Wright, 2005), the manipulation of nutrition research by multinational corporations (Nestle, 2016) and food industry profit-motive (Jenkinson, 2020) resonate

with my *Political I* and lead me to question my focus on attempting to manage overweight at an individual behaviour change level.

Impact of COVID-19 Restrictions

Not all decisions can be traced to *Subjective I*'s. The decision to conduct interviews by telephone was pragmatic due to coronavirus restrictions in place at the time, but the inclusive nature of telephone interviews which facilitate participation for those who cannot travel to the hospital (Cachia and Millward, 2011) appeals to my *Political I*. The use of spreadsheets instead of qualitative data analysis software (i.e. NVivo) to manage and analyse data was also largely due to COVID-19 restrictions limiting access to campus-based IT support. Although large and unwieldy, I was able to develop a spreadsheet system to manage my data and keep track of the coding process as it unfolded. While I eventually resorted to handwritten codes to organise the overall themes, the spreadsheet search function allowed me to easily return to quotes and codes, facilitating cross-checking of findings within the interview context.

Discussion

Looking back over the research process, *Ambivalent I* and *Political I* can be identified in my initial interest in weight management and AF as a research topic. From conversations with patients, *Ambivalent I* was aware that "eat less, move more" advice was over-simplistic and did not meet their needs but felt ill-equipped to help. *Political I* was irked by paternalism in clinicians' expressions of frustration at perceived indifference to weight management among AF patients ("If they won't lose weight, why don't we just give them a gastric band?!"). A lack of existing research into the specific needs and preferences of AF patients that might help resolve the tension between clinical and lay perspectives led to the development of the present study.

A growing sense of unease around the focus on managing weight at an individual behaviour change level stems from the competing perspectives of my four *Subjective I*'s. Adoption of the COM-B model as a theoretical basis early in the study process provided focus for the semi-structured interviews and a framework around which to structure the thematic analysis. This decision was invaluable to *Novice Researcher I* in facilitating the production of a coherent piece of work, but as the study progressed I began to question the choice of model.

Selecting COM-B implied that weight management relates to behaviour change, and that altering behaviour is the key to achieving weight loss. But this assumption had not been present at the conception of the study when *Ambivalent I* felt anxiety and uncertainty in addressing complex weight management health issues, despite the occasional frustration of *Healthcare Professional I* at certain patients' life-style choices. While the COM-B model facilitated investigating these life-style choices by focusing interviews and data analysis on personal behaviour, it did not promote exploration of wider systemic socio-cultural-political-economic factors which may be driving a rise in overweight/obesity.

All participants in the study disliked being overweight and reported weight loss attempts. All but one had regained most or all of the lost weight, and some reported comparative weight gain. This calls into question the adequacy of the COM-B model to explain their experiences. The model addresses barriers to behaviour change, but behaviour changes reported by participants were not achieving healthy weight management. Their reports correspond with the findings of a recent meta-analysis of 14 diet programmes which found weight loss was not sustained at 12 months (Long Ge, *et al.*, 2020), and with evidence that dieting may paradoxically promote long-term weight gain in some people (Pietiläinen, *et al.*, 2012; Jacquet, *et al.*, 2020). *Political I* was unsettled by the ethics of perpetuating obesity stigma (Tomiyama, *et al.*, 2018) by encouraging patients to adopt unproven and potentially counter-productive regimens. Although using COM-B introduced the assumption that weight management depends on behaviour change, the

flexibility of the semi-structured interview approach allowed other factors in weight management to be acknowledged even while the framework inhibited their elaboration. Further research into these non-behavioural factors would require an alternative theoretical foundation.

Conclusion

Reflecting on the study process using the Peshkin Approach has provided insight into how my subjectivity shaped its design, conduct and findings. Examining my assumptions and values through the construct of *Subjective I*'s has led me to identify and understand my ambivalence about the topic of weight management through behaviour change in the AF population. Areas of interest for future research have been highlighted as much by *Political I* as by *Healthcare Professional I,* and could include exploring socioeconomic causes of overweight, gender disparities in cardiac rhythm management, or improving clinical communication. Theoretical consistency could be improved by employing this reflexive approach from the outset in future to promote awareness of the values and assumptions of the chosen model, as well as to uncover the role of the researcher in shaping the findings.

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Appendix A

Table 7. Responses to Atrial Fibrillation Severity Scale

	Q	Penny	Stan	Jane	Simon	Jay	Harry	Nick	Sova	Dotty	Peter	Alfie	David
A	1	F	M	F	M	M	M	M	F	F	M	M	M
	2	1945	1944	1958	1958	1970	1961	1962	1960	1957	1959	1962	1948
	3	N	N	N	Y	Y	Y	Y	N	-	N	Y	N
	4	5	8	8	7	-	6	8	7	4	7.5	5	8
	5	About 2-4 times a year	2-3 times a week	4-5 times a week	Continuously	Continuously	Continuously	Continuously	2-3 times a week	More than twice a day	Less than once a year	Continuously	Not applicable
	6	Several hours, but less than a day	Several hours, but less than a day	Several hours, but less than a day	Continuously	Continuously	Continuously	Continuously	< 30 minutes	A few minutes	Continuously	Continuously	Not applicable
	7	1	6	9	6	-	7	3	7	5	6.5	-	4
	8	1	1	10	8	1	9	3	8	-	10	10	4
B	9	0	0	0	2	2	2	3	0	1	4	2	1
	10	0	0	2	0	3	1	0	1	0	0	1	0
	11	0	0	4	0	4	0	3	1	0	0	1	0
	12	0	1	3	1	5	2	3	2	0	0	1	5
C	1	Very little	A little	A fair amount	I have not had this symptom in the past 4 weeks	A great deal	A little	A fair amount	A fair amount	A fair amount	I have not had this symptom in the past 4 weeks	A great deal	A little
	2	I have not had this symptom in the past 4 weeks	A little	I have not had this symptom in the past 4 weeks	A little	A fair amount	A little	I have not had this symptom in the past 4 weeks	A lot	I have not had this symptom in the past 4 weeks	I have not had this symptom in the past 4 weeks	A fair amount	A fair amount
	3	I have not had this symptom in the past 4 weeks	Very little	A little	A fair amount	A fair amount	A lot	A lot	A fair amount	A great deal	Very little	A great deal	A fair amount
	4	Very little	A little	I have not had this symptom in the past 4 weeks	A fair amount	A fair amount	A great deal	A little	A fair amount	A great deal	A little	A lot	A fair amount
	5	Very little	Very little	I have not had this symptom in the past 4 weeks	Very little	A fair amount	A great deal	A little	A little	A great deal	I have not had this symptom in the past 4 weeks	A little	I have not had this symptom in the past 4 weeks
	6	I have not had this symptom in the past 4 weeks	A fair amount	A lot	Very little	A fair amount	A little	A little	A fair amount	A lot	I have not had this symptom in the past 4 weeks	I have not had this symptom in the past 4 weeks	Very little
	7	I have not had this symptom in the past 4 weeks	A little	I have not had this symptom in the past 4 weeks	A little	I have not had this symptom in the past 4 weeks	I have not had this symptom in the past 4 weeks	I have not had this symptom in the past 4 weeks	A little	A little	I have not had this symptom in the past 4 weeks	I have not had this symptom in the past 4 weeks	Very little

Key to Atrial Fibrillation Severity Scale Questions

Part A: 1. Sex: M/F. **2.** Date of Birth. **3.** Are you in atrial fibrillation currently?. **4.** How do you feel about your life at the present time ? 1 (worst possible life) to 10 (best possible life). **5.** How often on average, does your irregular heart rhythm (atrial fibrillation) occur?. **6.** How long on average, do the episodes of the irregular heart rhythm last? **7.** How severe was your most recent episode of irregular heart rhythm? 1 (not severe at all) to 10 (extremely severe). **8.** How severe was your first episode of irregular heart rhythm? 1 (not severe at all) to 10 (extremely severe)

PART B: 9. Have you ever been cardioverted (ie. been put to sleep and electrically shocked)? If yes, how many times? **10.** How many times did you visit the emergency room within the past year because of an irregular heart rhythm? **11.** How many times were you hospitalized within the past year because of an irregular heart rhythm? **12.** How many times did you visit your specialist within the past year because of an irregular heart rhythm?

PART C Please indicate how bothered you have been by the following symptoms (if at all) in the past 4 weeks: **1.** Palpitations. **2.** Shortness of breath at rest. **3.** Shortness of breath during physical activity. **4.** Exercise intolerance (fatigue during mild physical activity). **5.** Fatigue at rest. **6.** Lightheadedness/dizziness. **7.** Chest pain or pressure

Table 8. Responses to EQ-5D-5L questionnaire

	Penny	Stan	Jane	Simon	Jay	Harry	Nick	Sova	Dotty	Peter	Alfie	David
Mobility (problems walking about)	Slight problems	No problems	No problems	No problems	No problems	Moderate problems	Slight problems	Slight problems	Moderate/ severe problems	Slight problems	Severe problems	No problems
Self-care (problems washing or dressing myself)	No problems	No problems	No problems	No problems	No problems	No problems	No problems	No problems	No problems	No problems	No problems	No problems
Usual activities (e.g. work, study, housework, family or leisure activities)	No problems	Severe problems	No problems	Slight problems	Moderate problems	Moderate problems	Moderate problems	Slight problems	Severe problems	Moderate problems	Moderate problems	No problems
Pain/discomfort	Slight	Extreme	None	Slight	Slight	None	None	None	Slight	None	Moderate	None
Anxiety/depression	None	None	None	Slightly	None	Slightly	None	Moderately	Slightly	Slightly	None	None
YOUR HEALTH TODAY: 100 means the best health you can imagine. 0 means the worst health you can imagine.	63	80	90	60	60	60	60	70	40	60	70	90