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WEIGHT MANAGEMENT FOR PEOPLE WITH LEARNING
DISABILITIES: DIRECT CARE STAFF UNDERSTANDING AND
HELPING BEHAVIOURS.

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disabilities who are overweight.

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people with intellectual disabilities: A cognitive-emotional analysis.

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Overall Summary

A literature review was completed on direct care staffs' understanding and roles in supporting overweight people with learning disabilities. This review showed that staff acknowledge the importance of nutrition and physical activity in health but have limited training and knowledge on how to achieve particular health recommendations and how to overcome many of the health obstacles that people with learning disabilities face.

The empirical research then explored the application of Weiner's attribution theory to staff's helping behaviour to overweight clients with learning disabilities. A questionnaire assessed whether staff attributions, emotions and levels of optimism impact on their willingness to help their clients. Results showed no evidence that staffs' attributions impacted on their willingness to help nor that these were mediated by emotion or optimism as predicted by Weiner's model.

Future research should ensure that service context is taken into consideration and that staff's willingness to help is associated with effective health strategies. Services must capture staff's willingness to help and facilitate this by providing optimism and training on health recommendations and strategies on how to collaboratively work with client's own weight motivators. Policies are also needed to advocate for health to be prioritised in services.

Key words: caregivers, weight management, intellectual disability.

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SECTION A

How care staff understand and support people with learning disabilities who are overweight.

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Word Count: 8,473

ABSTRACT

This review aimed to explore the literature on how direct care staff understand the weight management needs of people with learning disabilities and the weight management roles that they undertake. The seventeen papers reviewed showed that staff perspectives had a strong influence on health behaviours. Staff were found to acknowledge the importance of nutrition and physical activity but had inadequate health knowledge and were poor at identifying overweight clients that require suitable support. Staff emphasised intrapersonal barriers to health in people with learning disabilities compared to interpersonal or external factors, which were inconsistent with their clients' perspectives.

Staff can have key roles in weight management interventions and their involvement promotes more sustained benefits than individual interventions. Staff roles included liaison with health professionals, establishing collaborative goals, planning and leading weight management programmes and disseminating health information across teams. These benefitted clients' physiology and quality of life but they had mixed results on weight loss. Further research should establish the key components in staff roles that can promote health change. We recommend that staff are trained on health recommendations, forming collaborative goals and improving health communication across services. Policies also need to emphasise the organisation's role in promoting health.

Key words: care staff, learning disabilities and weight.

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1. Introduction

This review will focus on evaluating the literature on how direct care staff (DCS) support their clients to manage their weight. Initially the issue of health inequality and obesity in the learning disability (LD) population will be discussed in relation to policies and DCS involvement. The body of this review will then evaluate the research to-date on DCSs' understanding of, and their roles in assisting, weight management in people with LDs (PwLD). The implications for future research and clinical practice will then be considered.

Chronic diseases associated with poor diet and lifestyle choices are on the rise as a result of societal changes (World Health Organisation [WHO], 2015). Obesity is an endemic problem affecting over 600 million adults worldwide, 13% of the adult population (ibid). In the UK in 2012 62% of individuals over the age of 16 years were overweight or obese (Public Health England, 2012). This issue is particularly high on the government's agenda as the NHS spends more than £5 billion on weight-related health problems per year (Department of Health [DoH], 2013) treating a range of associated long-term conditions such as type two diabetes (Weight-Control Information Network, 2012).

There is a complex interplay between genetic, biological and social factors that contribute to the increasing obesity endemic (Wyatt, Winters, & Dubbert, 2006). Technological advancements have reduced society's energy expenditure and increased calorific intake in food production (Finkelstein, Ruhm, & Kosa, 2005). These factors have led to an 'obesogenic environment' that exposes the biological vulnerability of humans (Government Office for Science, 2007). An obesogenic environment has been defined as "the sum of influences that the surroundings,

opportunities, or conditions of life have on promoting obesity in individuals or populations” (Swinburn, 2002, p. 564).

Throughout the literature obesity has been consistently associated with social inequality (Reidpath, Burns, Garrard, Mahoney, & Townsend, 2002). Drewnowski (2009) discussed obesity as an economic problem with socioeconomic deprivation, including those with the poorest education, income and living in the most deprived areas, being associated with increased levels of obesity. In part this is due to energy-dense foods with poor nutritional value being most affordable for low income households.

1.1 Weight difficulties in the learning disability population.

The terms used in the literature to describe PwLD have shifted throughout the decades and varied across countries (Sinason, 1992). Therefore for the purpose of this review the UK term ‘learning disability’ and the definition described in the Valuing People white paper (DoH, 2001) will be used. Valuing People (DoH, 2001) defines LD as “the presence of:

- a significantly reduced ability to understand new or complex information or to learn new skills
- a reduced ability to cope independently
- an impairment that started before adulthood, with a lasting effect on development.” (p. 14).

PwLD are more likely to be obese with 39.6% of women and 27.8% of men in the LD population within this category, compared to 25.1% of females and 22.7% of men in the general population (Melville, Cooper, Morrisson, Allan, Smiley & Williamson,

2008). Overall the prevalence of obesity in the LD population has significantly increased over 20 years (Melville, Hamilton, Hankey, Miller & Boyle, 2007).

Individuals with mild to moderate LD living in the community have a particularly high prevalence of being overweight (Melville et al., 2008). Less than 10% of PwLD in supported accommodation have a balanced diet, which is considerably lower than the 53% to 64% of the general population, and 80% of PwLD participate in less than the recommended minimum level of physical activity (Emerson & Baines, 2010).

With the increasing life expectancy of PwLD these chronic weight-related health problems are expected to be an increasing challenge (British Institute of Learning Disabilities, 2012) with substantial personal and social costs (Public Health England, 2013). Therefore the DoH (2009) have emphasised a national priority for promoting health to reduce such health inequalities for PwLD.

Dietary and lifestyle choices can often be complex for PwLD due to their cognitive restrictions which can negatively impact on their ability to make healthy choices in an obesogenic environment (Elinder & Jansson, 2007). For example, short-term memory and abstraction deficits are often common in PwLD (ibid) which potentially hinders their understanding of the importance of health, the potential long-term consequences of unhealthy lifestyles and their available options (Smyth & Bell, 2006). PwLD also frequently have physical disabilities (Emerson & Baines, 2010), other health complaints and 'behavioural' problems, and therefore unmet emotional needs, that have been associated with the level of inactivity in this population (Emerson, 2005; Robertson et al., 2000).

1.2 Health Policies and Protocols

Several papers and policies have emphasised the importance of tackling the population's high rates of obesity and the social deprivation associated with obesity. The Marmot Review (Voluntary Sector Support, 2011) has reported unequal access to healthcare in poorer socioeconomic populations and that future policies should address this social injustice. Therefore the government has prioritised the accessibility of physical and mental healthcare for all (DoH, 2011; 2014, Voluntary Sector Support, 2011). The recent Five Year Forward View (National Health Service, 2014) has emphasised preventative strategies and public health promotion for major health risks, such as obesity and smoking.

There are several main policies and papers that highlight the importance of addressing the health and weight needs of PwLD. The National Institute of Clinical Excellence [NICE] obesity guidelines (2006) emphasises advice, treatment and care being accessible to PwLD, as required by the Disability Discrimination Act (DoH, 2005). However there are well documented healthcare inequalities (Cooper, Melville & Morrison, 2004; DoH, 2010) related to societal discrimination and service access barriers (Michael, 2012). PwLD are also known to live in more socially deprived environments that are associated with obesity (Emerson & Hatton, 2008; National Obesity Observatory, 2010).

The Death by Indifference (Mencap, 2009) paper states that diagnostic overshadowing is one of the main features inherent in the premature death of PwLD. Overshadowing is a process by which health professionals attribute symptoms of a condition to a person's LD rather than a health problem which could be addressed or prevented. There are significant difficulties in assessing and supporting PwLD to

make informed choices. However, services are required to overcome this obstacle through personalising interventions to bridge clients' understanding (DoH, 2010), empower people and reduce social isolation (DoH, 2009). Health for All (DoH, 2005) advocates for healthcare professionals to consider the perspectives of informants, such as DCS, to enable appropriate health decisions to be made for PwLD.

1.3 Paid carers' roles in health promotion.

Carers have an instrumental role in the quality of life of PwLD (Smyth & Bell, 2006). The Department of Health, Social Services and Public Safety (DoH, 2004) outlined that the majority of LD staff are unqualified DCS in day centres and residences who are required to have a GCSE level of education. The roles are generally low paid with ongoing difficulties in recruiting and retaining staff resulting in high staff turnover (ibid). DCS duties vary across services and roles are often unclear but include assisting and enabling PwLD in their daily activities (Willis, 2015).

Pitetti, Rimmer & Fernhall (1993) suggest that many PwLD have the capacity and resources to adapt their lifestyle but may require additional assistance in associating physical activity and health. PwLD who live in less restrictive settings, such as community group homes, are more at risk of becoming obese (Rimmer & Yamaki, 2006). Community settings are strongly influenced by DCS through meal preparation, influencing food choices, purchasing food and outing decisions. However, it is uncertain whether the association between obesity and community group homes is a consequence of poor DCS availability and resources.

Often PwLD live in environments where healthy living choices are difficult due to limited staff availability and expertise where staff are required to cater simultaneously

to clients with various levels of functioning and preferences (Lennox, 2002). Moreover, activities such as visits to fast food establishments and providing unhealthy foods are frequently used by services as rewarding activities for PwLD (ibid). To enable change, researchers have suggested that carers need to model health behaviours for their clients (Temple, 2009).

2. This Review

2.1 Aims

This review aims firstly to systematically review the research on how DCS understand PwLDs' weight needs and their roles in supporting their clients' weight management. The second aim is to discuss the clinical implications of this literature and identify key avenues for future research.

2.2 Research Questions

To fulfil these aims the research questions are:

- How do DCS understand the weight management needs of PwLD?
- What roles do DCS take in supporting PwLD to manage their weight?
- What is the quality of the current LD weight management research?
- What is the best practice for DCS in weight management interventions?
- What are the current gaps in literature on DCS understanding and roles in managing weight?

3. Method

3.1 Literature search

A systematic search was completed using the following search databases: Psycinfo, Medline, Cochrane central register of control trials, and Cochrane database of systematic reviews. The search terms used are shown in Table 1. The grouped

'learning disability', 'weight difficulties' and 'DCS' terms were combined during the search.

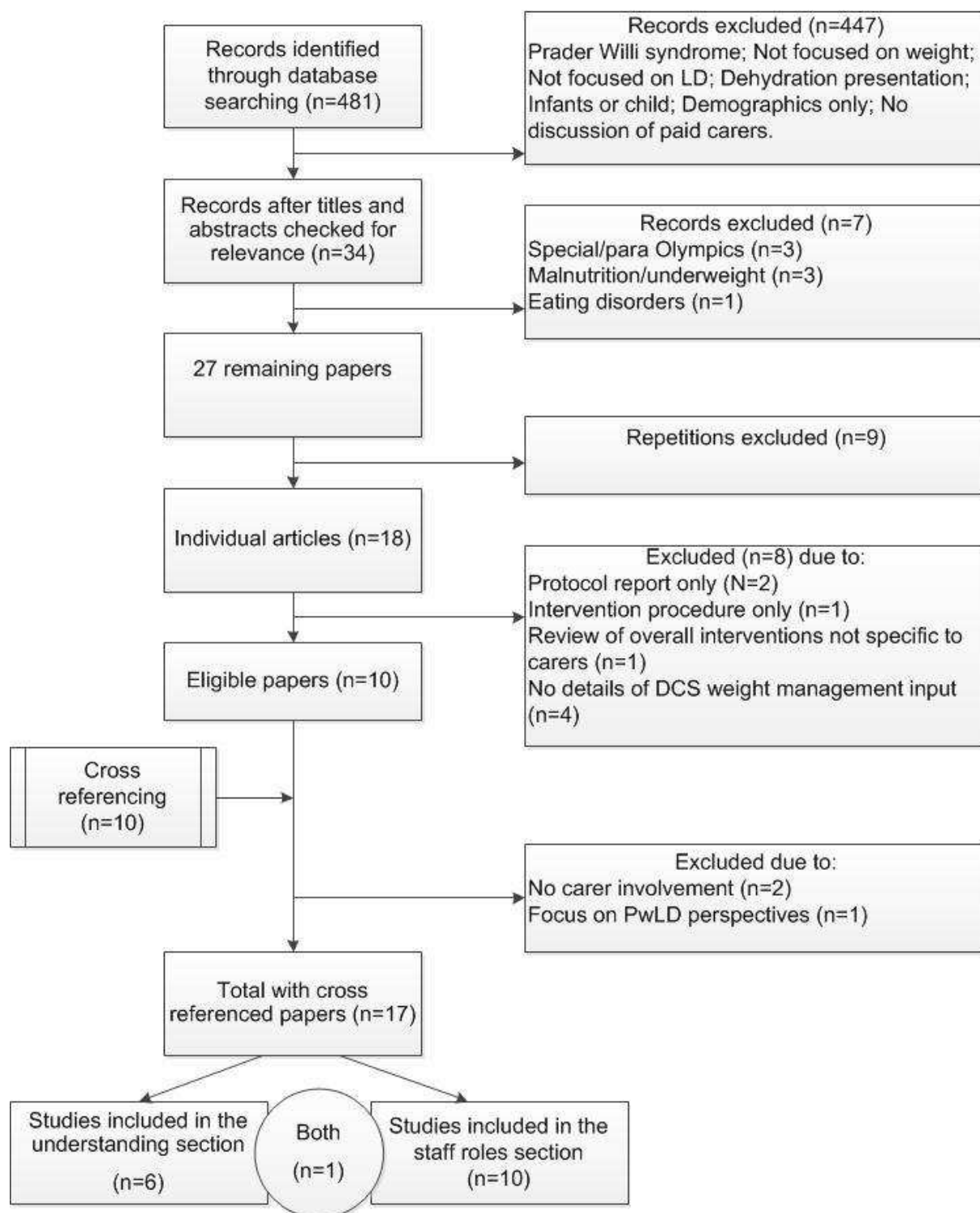
The papers retrieved were then cross-referenced and a manual search was completed on Google Scholar. Please see figure 1 for a flowchart showing the selection process for the review studies.

Table 1:

Search terms used for this review.

Terms used for		
Learning disability:	Weight difficulties:	DCS:
learning disabilit*	obes*	untrained staff
intellectual disabilit*,	Overweight	caregivers
learning difficulty,	Weight	homecare
mental retardation	weight gain	paid carers
cognitive disorder,	weight loss	support staff
learning disorders	body mass index	direct care staff
developmental disabilities	morbid obesity	support workers
developmental delay	weight concerns	attendants
special needs	physical health	residential care institutions
		home groups
		hospitalised patients
		health personnel attitudes
		community services,
		home care personnel,
		nurses,
		medical personnel,
		health personnel,
		employee attitudes,
		staff,
		professional development
		day care centres

Figure 1: A flow chart of the search strategy used.



3.1.1 Inclusion criteria:

- The term DCS included only paid support staff. This was due to their daily input in PwLDs' nutrition and activity levels.

- The LD literature often amalgamated paid carers with family carers causing difficulties in separating exclusively paid carer perspectives and roles. Therefore papers that included both paid carers only and a combination of both paid carers and family carers were used.
- Papers that refer to DCS understanding of weight management, both physical activities and diet, and articles that explicitly refer to DCS' active contribution to weight interventions in the abstract or methodology were included. An active contribution was defined as any DCS's role above simply attending PwLD weight interventions.
- Only studies in English were included in this review.

3.1.2 Exclusion criteria:

- Trained nurses were excluded as although the provision of health interventions is a key part of their community role the daily facilitation of PwLD's lifestyle is not.
- Activity and exercise interventions aimed to reduce challenging behaviour (CB).
- Research exclusively on PwLDs' low weight and malnutrition.
- Studies specifically relating to Prader-Willi syndrome. This syndrome is associated with severe over-eating behaviour, which is believed to be related to the failure of the typical satiety response, and where life threatening obesity is prevented through the controlled access of food (Butler, Whittington, Holland, Boer, & Webb, 2007). This presentation and management is not representative or generalisable to the wider LD population.

The rigorousness of the key research articles reviewed were assessed using a holistic health research framework (Caldwell, Henshaw & Taylor, 2005; Appendix D). In addition, the data abstraction used for each of the studies in section 4.1 can be found in appendix A and, for section 4.2, found in appendix C.

3.2 The Structure of this Review

Seventeen papers were included in the body of this review. These have been organised into six studies on DCS' understanding of weight, physical activity and nutrition, and ten studies relating to DCS' active role in supporting PwLD in weight management interventions. One additional study was included in both sections.

4. Review

4.1 Care staff understanding

To address the initial research question seven studies relating to DCS' understanding of PwLDs' weight needs were reviewed. For DCS to provide the appropriate response to PwLD with excess weight they are required to understand their weight needs through being able to: identify a weight problem; understand the current recommendations to improve health; and to be aware of barriers and how to overcome these.

4.1.1 DCS difficulties with weight problem identification. In understanding the role that DCS play in managing weight in the LD population it is first important to examine if DCS identify weight problems in clients. One recent study has researched this by comparing how 48 DCS from ten group homes perceived their clients' weight status with their actual weight measurements (Gephart & Loman, 2013). This study included the weight assessment of 40 youths, aged eight to 20

years with multiple diagnoses, 97.5% had an LD. DCS were asked to whether their client were best described as “underweight”, “healthy weight”, “overweight” or “obese”. This was part of a wider study on the impact of an educational ‘Prevention Plus Programme’ with DCS on their health awareness.

Findings showed that DCS were inaccurate at estimating weight statuses (only 18.8% correctly reported obesity), and were poor at identifying unhealthy weight as a health problem. This study suggests that DCS lack awareness of their clients’, healthy or unhealthy, weight status and whether such difficulties require input or not.

4.1.2 DCS poor knowledge of exercise and nutritional recommendations.

National recommendations are published to inform people of evidenced healthy lifestyle choices. In order for DCS to support their clients’ weight management they would be required to understand how to improve clients’ diet and lifestyle in accordance with these recommendations. A quantitative study by Melville et al. (2009) compared the health knowledge of 61 DCS against exercise and nutrition public health recommendations (Scottish Office, 1996). A questionnaire was developed to explore DCS: a) knowledge of health recommendations; b) beliefs of the benefits; and c) views of the current barriers to achieving these recommendations. This questionnaire was based on one used in large-scale national studies (NHS Health Scotland, 2004a), however, no reliability nor validity data is available to provide evidence of its quality.

Findings from the former two aims (a and b), being the focus here, showed the majority of DCS acknowledged the benefits of improved diet (39/61) and exercise (52/61) but showed poor dietary and exercise knowledge. Full knowledge was

reported for fruit and vegetable intake in 59% of participants however the majority of DCS (73.8-100%) had no knowledge of any other dietary recommendations, for example fat intake. This study suggests that although DCS recognise the importance of diet and exercise they lack the knowledge on how to achieve this.

4.1.3 Impact of carer understanding on weight management. The importance of DCS understanding and the impact of this on successful health in PwLD has been demonstrated by two studies. Both studies used a social-cognitive model to investigate the impact of personal and environmental factors on exercise participation (Heller, Ying, Rimmer & Marks, 2002; Heller, Hsieh & Rimmer, 2003). Quantitative interviews were completed on the independent variables of: a) PwLD demographics and residential type; b) carer perceived benefits; and c) carer perceived barriers to exercise in clients with the dependent variable, physical activity participation. Both studies used reliable measures for perceived benefits; Heller et al (2002) used a three item scale with an alpha reliability of 0.64 and Heller et al (2003) used a nine item Exercise Perceptions Scale (Heller & Prohaska, 2001) for both DCS and PwLD with an alpha reliability of 0.87 and 0.71 respectively.

Heller et al. (2002) interviewed adults (n=83) with Cerebral Palsy, 80.7% of who had mild to profound LD, and their family and paid carers. Regression analysis showed that carer perceived benefits and residence (non-nursing homes) predicted exercise participation. Although 'PwLDs' residence' was no longer a significant predictor when the 'carers' perceived benefits' were introduced in the regression model. Similarly Heller et al. (2003) interviewed adults (n=44) with Down's Syndrome and mild to moderate LD, and informant interviews were completed by their primary carers, comprising of 63% DCS and 37% family carers. They replicated Heller et al's

(2002) findings that carer perceived benefits predicted clients' physical activity participation but additionally found that younger clients with fewer access barriers also predicted activity in those with Down's Syndrome. Interestingly other PwLD's demographics, e.g. health conditions and gender, were not predictors. However, neither studies manipulated their independent variables nor controlled for extraneous variables, for example PwLDs' exercise motivation may have confounded/mediated this relationship. Therefore cause and effect cannot be established.

4.1.4 How DCS understand the health barriers and ways to overcome them.

External Factors. For DCS to support PwLDs' health it is important that they know the barriers to improved weight management and how to overcome these. Six studies explored carers' perceived barriers to physical activity and improved diet in PwLD. Four of these studies employed quantitative methodologies using pre-existing barriers. The research to-date has identified that DCS perceive intrapersonal, interpersonal and environmental barriers to PwLD engaging in physical activity and healthy diets (see appendix B).

Heller et al. (2002; 2003), as stated previously, researched carers' perceptions of the barriers to clients' weight being successfully managed. Heller et al. (2002) assessed the presence of four access barriers (exercise cost, not knowing where to exercise, lack of transportation and access to home exercise equipment) and showed that DCS perceived them all to be present. The lack of home equipment was most commonly reported (82%) and lack of transportation was least frequently reported (22%).

In the 2003 study Heller et al. used 18 Likert items with both PwLD and their carers to assess for the presence of exercise barriers. A factor analysis identified two reliable factors, cognitive-emotional barriers (α : 0.85) and access barriers (α : 0.77). The researchers found that carers reported that access barriers, such as: financial constraints; transport difficulties; inaccessible fitness centres; not knowing where to exercise; how to exercise; and who to exercise with, as more important than clients' cognitive-emotional barriers, such as: lack of interest and energy; being 'too lazy'; and finding exercise 'boring'. However, respondents with Down's Syndrome experienced a lack of guidance and were more likely than their carers to report difficulties in exercising and using exercise equipment. PwLD also reported time constraints and that their health concerns inhibited them from exercising.

The authors recommended that finances should be prioritised for exercise and for DCS to be trained in the benefits of exercise, safety monitoring and developing accessible, individualised, enjoyable and sociable programs for PwLD. This evidence indicates that DCS were unaware of their clients' negative perceptions of exercise. This sample combined DCS and relative responses which limited the generalisability of these findings to other DCS.

Intrapersonal barriers. Of the four studies related to DCS perceptions of both intrapersonal and access weight management barriers, all indicated that staff viewed intrapersonal barriers as more relevant (Hawkins & Look, 2007; Temple & Walkley, 2007; Melville et al., 2009; Johnson, Hobson, Garcia & Matthews, 2011). Both Hawkins and Look (2006) and Melville et al. (2009) specifically explored the perspectives of DCS. A relatively small study by Hawkins and Look (2006) used

semi-structured interviews with the residential and day DCS, both team leaders and day service workers, of 19 people with mild to severe LD. DCS were asked to rate the perceived significance of thirteen barriers to physical activity, drawn from staff consultation and published research findings (eg. Messent et al., 1998), again using Likert scales.

The five highest ranked barriers were that clients lacked the awareness of the benefits of physical activity, the available activity options, the client's mood, risk concerns and financial constraints. DCS caring for those with severe LD reported physical disabilities, risk concerns, transport difficulties, lack of understanding of the benefits and awareness of the options as more relevant barriers and client motivation as least relevant.

These authors recommended that clients should be involved in developing a wider range of physical activities, that client training be provided on the benefits and risks of physical activities and to use creative accessible information. Furthermore they highlighted that funding should be prioritised for cost-efficient strategies. However, this study had a particularly low sample size (n=19) limiting the generalisability (Caldwell, Henshaw & Taylor, 2005) of these findings.

Although the majority of this LD research focused on the barriers to physical activity Melville et al's (2009) study also explored the barriers to dietary recommendations. This part of Melville et al's (2009) study assessed the presence of eight perceived barriers, adapted from previous studies (e.g. Messent et al., 1998), in a convenience sample of 61 paid carers.

DCS were asked to select and rank the perceived relevant barriers, including: two external barriers (money and transport problems); three interpersonal barriers (lack of appropriate support, lack of encouragement and other's lifestyle choices); and three intrapersonal barriers (individual knowledge and skills, motivation and lack of personal choice). No psychometric properties were reported for this questionnaire therefore the quality of this measure in assessing external, interpersonal and intrapersonal as it reports and doing this reliably cannot be established. This casts doubt about the quality of this study (Caldwell et al, 2005).

Findings showed that some DCS were unaware of the obstacles faced by PwLD, with 16 selecting no dietary barriers and 14 participants selecting no physical activity barriers. Intrapersonal barriers, such as knowledge, skills and motivation, were reported as the most important barriers for both physical activity and diet. The lifestyle of others were also reported to be a highly relevant barrier in diet, but not for physical activity. Particularly low ratings were provided for the presence of the external barriers, finance and transport. The authors recommended flexible DCS training on awareness and support to motivate clients using client informed motivators. This larger study (n=61) provides stronger evidence that, specifically, DCS report intrapersonal barriers as most prevalent.

These quantitative studies have used previously identified barriers from the health literature (e.g. Messent et al., 1998). This causes some concerns regarding whether other perceived barriers have been neglected. Two studies have tried to address this through using qualitative methods to explore DCS understanding of the barriers to improving PwLD's health. The first focused on physical activity (Temple &

Walkley, 2007) and the second on nutritional education (Johnson, et al. 2011). Both studies found further evidence that DCS' perceived intrapersonal factors as the most relevant barriers.

Johnson et al. (2011) used interviews and focus groups with people with mild to moderate LD (n = 28), managers (n=7) and DCS (n=21) to identify their clients' nutritional and food skills needs in preparation for an educational program. A purportedly varied sample was obtained through a purposive sampling method, however no information was provided on the researchers' decision making processes to reduce selection bias (Lund Research, 2012).

Grounded theory analyses showed that all groups perceived there to be a need for a programme and that intrapersonal barriers were highlighted, such as clients having poor eating habits with limited cooking skills, difficulties in transferring learning across environments and safety concerns. Interpersonal and external barriers were also highlighted, such as staffs' lack of nutrition and safety knowledge and limited funding. Staff highlighted a need for training in nutrition and safety, visual educational resources and interventions to include an opportunity for socialising.

An Australian qualitative study by Temple and Walkley (2007) explored DCS (n=5), home supervisors (n= 13), managers (n=4), parents (n=7) and PwLD (n=9) perspectives of the factors involved in physical activity participation in PwLD with no intervention. This research was guided by the "precede/proceed" model for health promotion (Green & Kreuter, 2005) which draws on multiple levels of influence to explain behaviour across two stages, the precede and proceed phase. The precede stage proposes that behaviours are influenced by educational skills and ecology.

The proceed phase focuses on the administrative and financial policies needed for behaviour change. This study focused only on the precede phase which included predisposing, reinforcing and enabling factors of health change.

Thematic analysis showed that motivation for participation, social, political and financial support were considered constraining and enabling factors by staff.

Overall, staff focused on psychological and emotional factors, such as a lack of motivation, preference for sedentary activities and unwillingness to persist in physical activities, over broader social or environmental barriers. For example, DCS reported that PwLD were negatively reinforced by physical activity, e.g. breathlessness, causing clients to lack persistence. Clients' lack of persistence was perceived to be negatively reinforcing for staff therefore less encouragement was provided to PwLD.

In contrast, PwLD spoke about physical activities being rewarding but environmental factors, such as scheduling changes and staffing, undermined their enthusiasm.

Respondents reported that to overcome these barriers successful staff-led programmes should reinforce staff, for job specifications to include knowledge, confidence and motivation in physical activities and for policies to highlight service physical health responsibilities. This study provides further evidence that DCS attribute lack of physical activity to intrapersonal factors which is not in line with PwLDs' perspectives. Although this is not a consistent picture as demonstrated by Heller et al (2003) who discovered that access barriers were the primary perceived barriers to activity in their particular study.

Overall this research indicates that although DCS perspectives are vital in the health outcomes of PwLD, DCS are poor at identifying weight problems, lack health knowledge and perceive different health barriers to their clients. This is likely to hinder DCS from adequately supporting PwLD. DCS appear to emphasise intrapersonal barriers to weight management, such as clients' lack of motivation, knowledge of exercise equipment, the benefits of exercise and where to exercise. However intrapersonal barriers range in their perceived relevance across studies. External barriers, such as: transport; finances; staffing levels when catering for a range of clients' preferences; and risk needs, have also been identified. The literature advocates for the training of DCS on the benefits of exercise, individualising lifestyle programmes and safety.

4.2 Care staff roles in weight loss intervention

Eleven studies were found to address the second research question relating to what active roles DCS take in supporting PwLD to manage their weight. These studies were organised into the impact of DCS being included in interventions and then arranged into interventions where DCS took ever increasing roles in their clients' weight management. DCS roles in liaising and planning interventions with health professionals were discussed followed by DCS leading weight programs and then DCS working across teams as health ambassadors.

4.2.1 The impact of DCS involvement in interventions. Firstly, it is important to establish whether DCS involvement in weight interventions has any added benefit over interventions solely with PwLD. McCarran and Andrasik, (1990) completed a study to evaluate the impact of weekly written "technique communication sheets" being shared with DCS and parents during a small scale (n=8) 19 week behavioural weight loss intervention. Adults with Cerebral Palsy (IQ

50 to 80) were allocated to an awareness and self-control technique intervention group either with carer communication or no carer communication. Group allocation was based on the groups being balanced for overall level of IQ and disability.

Findings showed that both groups lost significant weight but the carer liaison group lost clinically, but not statistically, more weight which was largely maintained a year later in the carer liaison group. Despite this, observations and self-reports of eating behaviour were comparable across the groups. When balancing the groups for total IQ and disability the researchers did not consider balancing for weight or mobility limiting the generalisability of these findings (Watt & Berg, 2002). Furthermore no information was provided on the roles carers took in helping their clients.

Subsequent studies however, have included further details of DCS roles in weight interventions.

4.2.2 DCS collaborating and designing weight interventions and goals.

Four weight management interventions incorporated DCS having key roles in collaborating with health professionals and PwLD and designing health improvement strategies. The first two studies DCS had key roles in designing healthier lifestyle programmes for clients.

Chapman et al. (2005) focused on relatives and paid carers having an instrumental role in liaising and collaboratively designing a physical activity programme for PwLD with a physiotherapist, who led the weight loss intervention. The physiotherapist's intervention included providing resources on activity levels, diet, health issues, local directories, food guidance and producing and sharing a care plan with PwLD and their carers. The PwLD intervention group (n=38) was compared to a no intervention

control group (n=50). Findings showed significant group differences with BMI reduction in the intervention group over 12 months and significant weight gain in the control group.

In the second study Kneringer and Page (1999) also involved DCS in planning a healthier lifestyle programme but with regards to PwLDs' nutrition. A multiple baseline design was used to explore the nutritional roles of DCS (n=13) after three one-hour training sessions on food storage, menu development and meal preparation across two group homes with five residents. DCS had an instrumental role in planning, providing and encouraging healthy diets for PwLD. Covert observations (84-97% interobserver agreement) indicated improved: food storage, menu development; posting and adherence; meal preparation; portion sizes; client involvement; and staff praise, which were maintained at one year. Improvements were also found in clients' reduced weight, blood pressure and cholesterol. However, it is important to note that the DCS participants all had Bachelor's degrees which may not be representative of a typical DCS population.

Two studies focused on involving DCS in actively supporting and developing goals with PwLD (Gephart & Loman, 2013; Melville et al., 2011). In the study by Gephart and Loman (2013), partially described in section 4.1.1, paid carers participated in an hour weight management educational session (n=106) focused on using an individualised communication tool, weight and physical activity goals, dietary orders and were provided with monthly ongoing support. Trained nurses then completed weight goals, weight monitoring and health instructions using a communication book for 65 American youths with multiple diagnoses, 98% with an LD. DCS interviews

(n=48) were then completed to assess weight status perceptions, daily food and physical activities. Across four months the results showed an improvement in PwLDs' BMI, 80% achieving their weight goal, and an increase in fruit and vegetable consumption. However, there was a reduction in physical activities over this period. DCS showed no improvement after the intervention for their weight status perceptions, physical activity and health risk. Despite this, DCS commitment to the provision and encouragement of healthier diets did improve.

Melville et al. (2011) completed a nine month multi-component intervention which was evaluated using both quantitative measures and the qualitative exploration of staff and family carers' experience of the intervention (Spanos et al., 2013). This intervention also explicitly described the roles of carers (paid and relatives), where appropriate, in: developing physical activity and dietary goals with clients; engaging clients in behavioural change; actively including PwLD in decisions about meals; food shopping; cooking; and motivating PwLD in household tasks. The intervention itself (n=47) was led by a dietician and a medical sports medicine graduate, and incorporated an energy deficient diet and behavioural strategies. Results showed significant weight loss, with 17 PwLD losing more than 5% of their weight, and reduced sedentary behaviour over 24 weeks. No weight loss differences were found between participants supported by relatives (n=17) or DCS (n=33).

Of the carers that participated in Melville et al's (2011) study, 24 (16 DCS and 8 relatives), participated in semi-structured interviews on their experiences of PwLD health and the intervention (Spanos, et al., 2013). A thematic analysis showed that carers reported that unsuccessful weight loss was due to teams not consistently

complying with recommendations and some DCS finding the intervention too complex. Of the DCS whose clients did lose weight they described how praise and positive encouragement had been a successful strategy. They reported improved knowledge and particular benefits of progress monitoring, such as weight checks, food diaries and reviewing flexible targets during the intervention. DCS considered that some staff had limited nutritional knowledge and that others prioritised clients' free diet choice over supporting clients to make informed decisions with healthier options. Some DCS perceived this to cause poor recommendation adherence by staff and poor communication within the teams and with external staff. DCS believed that to facilitate health, more individual time was needed, with smaller supportive teams, stable shift patterns, health training and accessible health resources.

The four studies in this section have demonstrated that DCS can have important roles in the development of healthy menus with appropriate portion sizes, designing physical activities, setting collaborative health goals with PwLD, and providing PwLD with encouragement. These roles were found to contribute to improved health and weight loss when in conjunction with broader weight management interventions.

4.2.3 DCS leading weight management programs. Four studies were found relating to weight interventions that involved DCS leading health programs (Wu, et al., 2010; Yen, Lin, Wu & Hu, 2012; Jones, et al., 2007; Marks, Sisirak & Chang, 2013). The first three studies relate to DCS facilitating an exercise programme and the final study incorporated both diet and exercise management.

The first to evaluate a DCS-led physical activity intervention was a small study by Jones et al. (2007). They evaluated the impact of staff facilitating a 16 week rebound therapy, which involved using a trampoline to provide “therapeutic exercise and recreation” (Anderson, 1969, p.1), and low impact passive exercise for obese clients with profound LD (n=8). Physiotherapists, nurses and day centre staff received one day of rebound therapy training and delivered the ongoing exercise programme. Findings showed that across this intervention PwLD showed improved alertness, quality of life and reduced CB, but no weight loss (weights reported for only four PwLD). The authors concluded that trained, motivated care staff can overcome many obstacles to successful ongoing exercise.

Two studies included DCS in designing and leading an exercise programme for clients with mild to profound LD in Taiwan (Wu et al., 2010; Yen et al., 2012). These interventions included 40 minutes of exercise, for example dancing and walking, four times a week with DCS’s assistance. In both studies PwLD were weighed and measured before and after the intervention on the V shape sit to reach test, timed sit-ups and a 200m run. The original study by Wu et al. (2010) discovered that after a six month intervention (n=146) there were significant decreases in BMI, improvements in the V-shape sit to reach test and sit-ups but no improvement in the 200m run. Wu et al’s (2010) study also showed that those with mild LD had more significant reductions in BMI. Yen et al. (2012) in the nine month intervention of this programme (n=135) discovered that only men showed significant BMI reductions and there were no improvement in the V shape sit to reach test but they did discover improvements in the 200m run.

The final study on DCS-led programmes related to the efficacy of the HealthMatters Program Train-The-Trainer Model where 44 DCS participated in an eight hour workshop incorporating Bandura's (1977; 1986) social cognitive theory of learning and the Transtheoretical Model of behaviour change (Marks et al., 2013). The transtheoretical model of behaviour change includes five stages: precontemplation; contemplation; preparation; action; and maintenance, over which people gain knowledge, skills and readiness to change their behaviour (Prochaska & DiClemente, 1983). The social cognitive theory of learning proposes that behavioural change is impacted by an individual's perceived pros and cons of change, self-efficacy and social support (Bandura, 1977; 1986).

Marks et al (2013) study supported staff to comprehend the theoretical foundations for embracing health behaviours prior to them facilitating a 12 week health promotion programme to increase long-term physical activity and healthy food choices in adults with mild to moderate LD. The training included: the importance of physical activity and nutrition; identifying supports for motivating and engaging clients; teaching strategies to convey key concepts; and developing tailored physical activity and nutrition activities. Sixty seven PwLD were randomised into either this DCS-led health education programme or a control group. PwLD psychosocial and physiological health status, knowledge, skills and fitness levels were measured. Findings showed that clients in the intervention group had significantly reduced cholesterol and glucose, increased knowledge for nutrition and activity, improved fitness and higher self-efficacy for exercise. There was also a small decrease in intervention group weight, although this was not statistically significant.

The studies in this section illustrate that DCS-led exercise and multi-component weight management programmes can have a positive effect on PwLD health and quality of life, but not necessarily upon weight loss. However several study sample sizes were low meaning that the lack of statistical weight loss may have been due to insufficient power (McCarran & Andrasik, 1990; Kneringer & Page, 1999; Jones et al., 2007; Marks et al., 2013).

4.2.4 DCS disseminating health knowledge. The final study was also theoretically underpinned by Bandura's (1986) social cognitive theory which incorporated DCS disseminating health promotion across services. Bergström et al. (2013) investigated the impact of a novel three-component programme (n=130) targeting both Swedish residents with mild to moderate LD and their carers. DCS took on ambassador roles where they: attended network meetings to learn about health behaviours; disseminated knowledge to peers; and organised health promotion activities. In addition, DCS participated in residence study circles to discuss and plan their service's health promotion. The third component of this intervention involved an external course leader running a ten week health course to improve health literacy and behaviours in PwLD.

Findings from pedometer readings showed increased levels of physical activity after the health intervention but only in homes with supported living (intervention n =8, control n= 14) and not in group homes (intervention n =24, control n= 23).

Questionnaires with managers and paid carers showed an improvement in work routines, general health promotion work and physical activity. No effect was found on BMI, dietary quality or satisfaction with life. This was the first known randomised control trial aimed to address both DCS and PwLD in weight management.

Overall the studies in this review demonstrate that DCS can have effective roles in leading physical activity, multicomponent programmes, and disseminating health knowledge across teams in addition to liaising with health professionals to improve clients' health. In combination with the PwLD intervention DCS involvement is suggested to be effective in increasing physical activity and health indicators but not consistently in the promotion of weight loss across all types of residence and all levels of LD.

5. Discussion

The literature reviewed has indicated that DCSs' weight management understanding plays an important role in supporting PwLD to manage their weight. However, studies have shown that DCS have poor understanding of PwLDs' weight status and often lack the health knowledge to support their clients optimally. Moreover staff acknowledged barriers to PwLD engaging in healthier diets and increased physical activities, but often prioritised different benefits and barriers to their clients. The second section of the review has suggested that with sufficient training and support DCS can have roles in collaborating and setting goals with PwLD and other health professionals as well as leading interventions and disseminating health knowledge for PwLD weight management.

Although these interventions have been varied in their success in facilitating weight loss in PwLD they have improved PwLDs' physical activity and nutrition. These lifestyle factors positively impact physical (Penedo & Dahn, 2005) and emotional wellbeing (Royal College of Psychiatrists, 2014), regardless of weight loss, and are consistent with the government's agenda to improve the nation's health (DoH, 2010;

2012). Before conclusions can be drawn with regards to the reliability and validity of these findings several methodological and clinical factors should be considered.

5.1 Methodological critique and implications for future research

The research critique framework by Caldwell et al (2005) for both qualitative and quantitative methodologies (see appendix D, E, F & G) was used to assess the rigor of the studies reviewed.

As previously mentioned the majority of the studies on DCS's perspectives of weight management barriers and facilitators relied heavily on previous studies' findings, such as Messent et al (1999) who investigated barriers and facilitators during a particular weight loss intervention. Therefore they are likely to have neglected other perceived weight management barriers and facilitators from non-intervention based settings. Future qualitative studies would be of use to explore DCS barrier and facilitator perspectives more broadly.

The studies on carer perspectives and their contribution to exercise participation (Heller et al, 2002; Heller et al, 2003) had a regression design where the independent variables and extraneous variables were not controlled for. Therefore cause and effect of DCS perspectives on PwLD health cannot be established. However, future controlled studies could investigate the impact of various DCS training on perceived outcomes, benefits, overcoming barriers and facilitators on DCS beliefs and PwLD's activity, nutrition and weight.

Only four of the eight studies included in the DCS roles in weight loss interventions had a control group, three of which were not treatment groups (Chapman et al, 2005;

Marks et al, 2013; Bergström et al, 2013). Only two controlled studies were randomised by individuals (Marks et al, 2013) or by residences (Bergström et al, 2013) and the other two were either balanced according to IQ and disability (McCarran & Andrasik, 1990) or through non-randomised referrals (Chapman et al, 2005). To investigate the specific effect of the DCS roles taken a treatment as usual control group without active DCS input should be used. Treatment as usual is a more stringent control method to help assess the active facilitators of change and to control for other active comparators (Freedland, Mohr, Davidson, & Schwartz, 2011), such as interpersonal interaction, focus on lifestyle choices and the abilities of PwLD to make their own health change.

Furthermore few of these studies appeared to investigate the extent to which DCS adhered to their roles and relied on self-reports, open to inflation through the impact of socially desirable answers (Kaminska & Foulsham, 2013). Therefore fidelity could be explored in future studies through more objective methods.

Only five of the ten intervention studies included a follow-up, one of three months (Jones et al, 2007), one of four months (Gephart & Loman, 2013), one of 24 weeks (Melville et al, 2011) and two at one year (McCarran & Andrasik, 1990; Kneringer & Page, 1999). Future longitudinal research on interventions should assess the maintenance of PwLD health benefits and cost efficiency of an intervention (Penn et al, 2013).

None of the three qualitative studies explicitly discussed their philosophical orientation, only one of which briefly discussed the impact of the researcher on the

research (Spanos et al, 2013) and none completed respondent validation (Temple & Walkley, 2007; Jones et al, 2011; Spanos et al, 2013). Respondent validation relates to researchers receiving participant feedback about the accuracy of the data and the researcher's interpretation of the data. Studies would have benefited from further reflections on how the researchers and research context may have contributed to the data received, for example the power dynamics between healthcare professionals in the researcher role with DCS and PwLD and the social desirability bias that was likely to arise in DCS when discussing their clients' weight. Moreover further clarity is required around the PwLD and carer sample demographics, for example throughout the literature researchers have combined DCS and relatives and a distinction should be made between these discrete populations who differ in emotional investment, roles, training and expertise.

Many studies also had small sample sizes that impact on the robustness of, and the appropriateness of, generalising their findings. This critique supports claims made by Hamilton et al's (2007) review that the LD weight management field generally includes studies with low sample sizes. Participants were often recruited through health professionals or from weight management referrals which may be biased in relation to participants being particularly health conscious or have poor health knowledge (e.g. Chapman et al, 2005). A randomised selection would be important with the use of reliable and valid procedures and a-priori power calculations, which are also lacking in this literature.

5.2 Future directions

The literature in this review highlights some important ways forward for research.

These would be to investigate:

- Current DCS adherence to weight related health recommendations through observation. This may provide a more direct measure of intervention adherence and illuminate possible validity issues by triangulating (Denzin, 1970) observable and self-report data.
- Whether DCS's weight attributions of their clients' impact on their weight-related helping behaviours to PwLD. This would be to explore the mechanisms of change that influence the association between DCS perspectives and PwLDs' lifestyle choices.
- How weight related health communication and continuation can be fostered within teams and between internal and external staff. Poor communication has been repeatedly highlighted as having detrimental consequences for PwLD (Mencap, 2007) with the drive for community organisations to work together to promote health being part of the government's agenda (DoH, 2011).
- DCS perspectives around PwLD's physical activity, nutrition choice and autonomy to explore DCS's understanding of clients' capacity to make informed decisions about their health. This would be important to enable DCS to support clients with adapted communication and choices in accordance with national policies (DoH, 2009; 2010).
- The comparable benefits of DCS various key roles in physical activity and diet promotion through using longitudinal studies, as health benefits are only found if health change is maintained (Hamilton et al, 2007).
- To explore cost effective ways to support training in weight management for DCS and PwLD. The economic consequences of interventions are vital to

assess for their practical utility across services (Jinks, Cotton & Rylance, 2010).

5.3 Clinical Implications

The literature reviewed on DCSs' knowledge and roles in physical activity, diet and overall weight management has clinical implications on how DCS, service provider organisations and governmental policies support PwLD to manage healthy lifestyle choices and weight. However, all conclusions about DCS understanding and roles should be taken tentatively as the literature is still in its infancy.

5.3.1 DCS.

DCS are often minimally paid and have limited education which may mean they are at more socioeconomic risk of poor health choices. This may therefore affect their skills and confidence of taking part in health interventions as well as their ability to model the healthy behaviours required of them by PwLD (Temple, 2009). Minimal pay and high staff turnover may also compromise staff motivation, expertise and continuity when considering health promotion. This may explain why DCS and family carers are not able to accurately assess PwLD's weight difficulties, despite professionals often assuming that they are. As it is vital to ensure clients are referred to health professionals for weight interventions, DCS should be active in monitoring weight, diet and physical activity regularly for PwLD or to ensure PwLD attend their annual GP health check-ups so that weight problems can be identified and appropriately addressed.

DCS report that weight loss is successful when participants are able to implement these independently, however, where this is not possible weight loss interventions should be aimed at empowering clients to engage in decision making, portion sizing,

goal setting, attainment, self-regulation, shopping, cooking healthier meals and doing more household tasks. Furthermore this literature regularly referred to improved physical activity rather than exercise to shift the view from exercise regimes as the only way to support PwLD to exert more physical effort regularly (e.g. Hawins & Look, 2006; Melville et al, 2009). Making small changes with clients' activity levels and diet according to their preferences would therefore be important to incorporate into the DCSs' role, for example home-based activities which would also overcome financial and staffing barriers to promote a healthy culture (e.g. Melville et al, 2008).

DCS may be more effective in motivating PwLD for physical activity and diet if it is fun and stimulating with social opportunities. DCS should also share their health knowledge with PwLD and access PwLDs' perspectives on the benefits of exercise to motivate PwLD according to clients' valued benefits. DCS can also provide PwLD with accessible information for those with limited reading and comprehension abilities so that they can access fitness centres and use exercise equipment if clients wish to exercise in this way.

5.3.2 Organisational considerations

Organisations would benefit from training staff on healthy diet and physical activities and providing continued staff support to enable them to feel motivated in maintaining these high on the agenda when there are other pressures in services. Facilitating a healthier diet and improved physical activity will reduce the health inequalities faced by PwLD and will improve their overall health and quality of life, regardless of weight loss, which would be beneficial for the client and to the service that is required to meet their needs. Furthermore these activities could be offered as part of a solution to manage challenges that staff face, for example with CBs. This could be done with

peer support or through supervision with constructive criticism and positive reinforcement from managers.

Agencies need to prioritise funding resources and pool their expertise and assets to minimise costs and maximise clients' health benefits for physical activity. One way to reduce the burden on already low staffing rates would be to work more collaboratively with external organisations, such as leisure centres, to share skills and improve communication and confidence in the internal and external agencies involved. Those who work in community-based fitness centres would benefit from training related to accommodating issues for PwLD, including specific issues relating to disability, such as earlier age related decline, potential heart difficulties, cognitive limitations in understanding instructions to ensure their services are accessible to PwLD (Heller et al, 2003).

DCS have a key role in supporting PwLD to manage their weight and therefore the DCSs' responsibilities in weight management interventions need to be defined and communicated in job specifications. It would also be vital to provide training on: the benefits of exercise; how to promote exercise; and developing successful safe individualised physical activity programs (Heller et al, 2003). Educational programmes and multicomponent interventions can be provided with DCS and clients on exercise, healthy cooking and nutrition. Potential training using social cognitive theory model (e.g. Heller et al, 2003; Bergström et al, 2013) is likely to be at least partially effective. DCS may also be encouraged by the evidenced examples of effective staff-led weight management programmes.

5.3.3 Governmental strategies and local policies.

There is need for key LD and health policies to highlight weight health promotion as key to service provisions for PwLD. The DoH (2009) policy advocates assisting PwLD to have more choice and for staff to respect these choices, however, when adults lack the capacity to assess the long-term consequences of unhealthy lifestyles DCS need to be supported on how to balance considerations of informed choice, preferences and health promotion effectively.

6. Conclusions

In conclusion DCS understand the importance of physical activity and diet but have limited knowledge of how to successfully implement these. Due to differing staff views and poor communication health interventions can also be provided inconsistently. DCS are under pressure and have stringent resources to implement health interventions and are often considered additional rather than an essential part of their and their organisation's role. Further work to support and train staff is needed through policies emphasising organisations' responsibility to provide this.

Overall interventions that incorporate staff are most beneficial in weight loss if DCS are motivated and are provided sufficient time and training. DCS can have a significant impact on improving their clients' weight and health in various key roles that need organisational and government ongoing advocacy. However, more rigorous research is needed in this area to investigate the processes by which organisation and DCS can improve PwLDs' weight management.

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Section B

Staff attributions and helping responses to obesity in people with intellectual disabilities: A cognitive-emotional analysis.

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Contents: Empirical paper.

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Abstract

Purpose: This study explored the application of Weiner's (1979; 1980) attribution model of helping behaviour to care staff working with overweight people with learning disabilities.

Methodology: Staff were asked to consider a significantly overweight client and to complete self-reports on their attributions, affect, optimism and willingness to help the client with their weight.

Findings: Staff rated the causes of their client's weight to factors that were more internal to, and less controllable by, their clients and these beliefs were highly stable. Staff reported low levels of positive and negative emotion but high levels of sympathy, optimism and willingness to help. No associations were found between attributions or affect and willingness to help. Only optimism was associated with willingness to help. The findings did not support the applicability of Weiner's attribution model to weight helping in people with learning disabilities. This contributes to the inconsistent literature on the relevance of Weiner's model to staff helping in LD services.

Research Implications: Future research should clarify whether willingness to help relates to effective health helping strategies and to explore this further in service contexts.

Clinical Implications: Staff training should include enhancing staff's optimism for, and skills in constructively engaging clients in, lifestyle change.

Key words: Learning disabilities, staff, attributions, helping.

1. Introduction

The learning disability (LD) population has a higher prevalence of obesity than the general population and this has significantly increased over the past two decades, affecting people's quality of life and life expectancy (Melville, Hamilton, Hankey, Miller, & Boyle, 2007). People with LD (PwLD) are also less likely to engage in physical activity and have a poorer diet (Emerson & Baines, 2010). Excess weight is associated with a range of chronic health conditions, such as type II diabetes, high blood pressure and cancer (Weight-Control Information Network, 2012), which cost the NHS more than £5 billion annually (Department of Health [DoH], 2013). The DoH (2007) have prioritised health equality nationally as PwLD are four times more likely to die from avoidable diseases (The Disability Rights Commission, 2006), experience delayed diagnoses and suffer from chronic disorder complications due to inequalities in services (Royal College of Nursing, 2013).

These health inequalities are often associated with socioeconomic factors, such as unemployment and poor education, as well as difficulties in PwLD accessing health services (Emerson & Hatton, 2008; National Obesity Observatory, 2010; Michael, 2012). PwLDs' lifestyle and dietary choices can often be complex due to their cognitive disabilities which potentially impedes their understanding of the importance of health, its possible long-term consequences and their accessible choices (Smyth & Bell, 2006). Therefore, several papers and policies have highlighted that this vulnerable group require support to improve their health, have active healthier choices and to be better informed about their health (DoH, 2005; Mencap, 2007).

1.1 Direct Care Staff Responses to Obesity

PwLDs' quality of life can be significantly influenced by their carers (Smyth & Bell, 2006). A recent systematic review on PwLD's weight management interventions (Spanos, Melville & Hankey, 2013) has highlighted the importance of defining carers' roles in weight management. DCS awareness, attitudes and responses to the people with whom they work influences the service's overall quality (Rose, 1999; Wanless & Jahoda, 2002). Unfortunately, direct care staffs' (DCS) responses to clients' behaviours and preferences are not always conducive to their overall best interests (Grieve, McLaren, Lindsay & Culling, 2009).

A review on weight loss interventions with PwLD (Hamilton, Hankey, Miller, Boyle, & Melville, 2007) indicated that DCS's motivation and understanding of weight loss strategies positively impacts weight loss success. For example they reviewed a study where intervention non-completion was strongly correlated with lack of carer involvement (Harris & Steven, 1984). Furthermore, the staff perceived benefits of physical activity have been found to predict PwLD's physical activity participation (Heller Hsieh & Rimmer, 2003).

Although some research has explored DCSs' roles in PwLD's weight management programmes, little research has investigated their understanding and willingness to help their clients with their weight.

1.2 Weiner's model of helping

One influential model of helping behaviour is that of Weiner (1980) and his cognitive-emotion-action theory of motivated behaviour which relates to how an individual provides causal explanations for others' behaviours.

Originally Heider (1958) distinguished between people perceiving the causes for other's behaviour either to internal attributions, such as: a person's personality; mood; or effort exerted, or external attributions, such as: the task being completed; other people; or luck. Weiner's (1979) theory of motivation extended this to focus on how people attribute their own successes and failures with an aim to address the psychological consequences of people's causality beliefs. This argues that in a person's search for the reasons behind events an individual assesses their own level of ability, exerted effort, task difficulty and luck. All of which are factors which can influence causal beliefs.

In understanding one's own achievements (Weiner, 1979) and our responses to others' behaviours (Weiner, 1980) three causal dimensions were proposed: the 'locus of causality' (whether the causes are internal or external to the individual); stability (how fixed a cause is); and controllability (how much a person can control their behaviour). For example, luck as a perceived cause may fall into the causal classification of external, unstable and uncontrollable.

Weiner (1980) proposed a link between the attributions of others' behaviours and an observer's affect. Internal controllable explanations of negative behaviours in others are associated with negative emotions, such as disgust and anger, on the part of the observer. When negative behaviours are perceived as not being in the person's control more positive emotions, such as sympathy and pity, are associated.

These emotions are believed to influence observers' responses to a person's problem behaviour. Negative emotions are hypothesised to promote avoidance behaviours whereas positive emotions promote helping behaviours. Therefore overall people are more willing to help someone if the behavioural cause is external and not controllable by the individual. Where behaviours are perceived as internal and controllable by the person help is withheld as a person has the potential to help themselves. Weiner's (1986) theory of achieved motivation proposed that when people's behaviours are attributed to stable causes this reduces the observer's optimism for change and, therefore, reduces their effort to help.

Wiener (1979) initially used his theory to describe helping behaviour in the classroom but this has since been extended to helping behaviours across social and health professions. Although it has been argued that health professionals have a moral obligation to help in health settings, Sharrock, Day, Qazi, and Brewin (1990) propose that often professionals are required to make decisions about who to help within a restricted timeframe and with limited resources. DCS attributions are thought to potentially impact on this decision making. Evidence has supported the application of these attribution theories to professionals' helping behaviour in a range of settings (Marteau & Johnson, 1987; Marteau, 1995).

1.3 Weiner's model in learning disability literature

After a search of the literature no attribution research was found related to chronic health conditions in PwLD. However previous LD research has drawn on Wiener's (1979; 1980) attributional model to explore DCS's attributions and responses to

challenging behaviours (CB) exhibited by PwLD (e.g. Dagnan, Trower & Smith, 1998).

As some clients are unable to manage their weight independently (Smyth & Bell, 2006) DCS are required to act as intermediaries to support clients and facilitate a healthier environment. In the same way DCS are required to intervene to meet clients unmet needs to reduce PwLD's CB. Both presentations are associated with inefficient communication in meeting PwLDs' needs by teams (Scope, 2015). For decisions on whether to intervene or not DCS are required to make judgements about their clients' behaviours. For example, DCS could blame clients for their health or CBs and walk away or facilitate a healthier context to help PwLD to manage their weight or CBs, for example through appropriate referrals (Whitehouse, Chamberlain, & Tuna, 2000).

Despite these parallels, CB typically relates to unexpected behaviours that cause immediate distress to clients or others opposed to the chronic health behaviours which have the accumulative negative effect towards obesity. Therefore although the consideration of the CB attribution literature is relevant there are likely to be significant differences in staff attributions to health behaviours compared to CB presentations in PwLD.

Dagnan et al (1998) first applied Wiener's model to understand DCS's responses to CB using six vignettes. A path analysis showed that DCS's controllable and stable attributions were associated with DCS's negative affect, lowered optimism and reduced helping.

Stanley and Standen (2000) extended this to explore the impact of manipulating six vignettes by CB topography and client dependency. CB topography was discovered to influence staff attributions and willingness to help was mediated by positive affect but not optimism. However, the level of client dependency influenced DCS levels of optimism, which the authors argued was due to dependency being perceived as a stable cause. Overall more dependent PwLD who engaged in self-directed behaviours were perceived by DCS to have greater stability, resulting in DCS reporting greater positive affect and increased willingness to help. However DCS perceived the outer-directed behaviours of more independent clients as more controllable, resulting in increased negative affect and reduced willingness to help. The impact of CB topography (Morgan & Hastings, 2008) and LD severity (Tynan & Allen, 2002) has been replicated numerous times. In addition the proposed function of the CB has been shown to be important (Noone, Jones & Hastings, 2006) and perceived internal controllable causes of CB are associated with higher expressed emotion (Weigel, Langdon, Collins & O'Brien, 2006).

The attribution literature in CB has been heavily criticised for using vignettes and questionnaires however interviews (Cudre-Mauroux, 2010) and real incidents of CB (Lucas, Collins & Langdon, 2009) have also shown some support for this theory. Affective responses to real events have been found by some researchers to be more intense with stronger associations between attributions and helping (Wanless & Jahoda, 2002; Lucas et al, 2009).

A systematic review on the application of attribution theory in CB with PwLD (Willner & Smith, 2008) found overall inconsistent results. They reported that the research

provided partial support through correlations (e.g. Hill & Dagnan, 2002; Dagnan & Cairns, 2005) but raised concerns about the problematic research methodologies, including the over reliance on vignettes. To improve the external validity of the results of future research, real cases could be used.

1.4 Attribution theories in obesity literature

Obesity stigmatisation is extremely prevalent with undesirable attitudes towards obese people being described as one of the last socially acceptable forms of discrimination (Puhl & Brownell, 2002). Attributions of controllability, as well as negative views of “fatness” (Crandall et al., 2001; Hilbert, Rief & Braehler, 2008), and internal attributions (Sikorski et al, 2011) have repeatedly been associated with stigmatising attitudes towards obese people. This has led to general ideas of blameworthiness (Zwickert & Rieger, 2013). However stigmatisation and discrimination have been shown to exacerbate weight problems in obese populations (Sikorski et al, 2012).

GPs, clinical psychologists (Harvey & Hill, 2001) and dieticians (Harvey et al, 2002) have been shown to attribute internal causes for weight gain. GPs were more likely than psychologists to attribute obesity to a lack of willpower and personality. Both GPs and psychologists’ attitudes to overweight people were neutral to negative whereas dieticians’ attitudes were mainly neutral to positive. However, generally dieticians perceived people to be responsible for their excess weight and their practices varied according to their causal beliefs of the individual’s obesity.

In 1988 Weiner studied peoples’ perceived attributions of the causes of several physical and mental health conditions. Overall conditions considered to be of

behavioural and psychological origin, such as obesity and drug addiction, were perceived as more internal and controllable than physical health conditions, such as cancer, resulting in higher levels of anger, less pity and reduced willingness to help. Later Menec and Perry (1998) tested Weiner's model using vignettes to nine different stigmas, including obesity, using structural equation modelling. Obesity causation was manipulated to be due to either excessive eating or a glandular dysfunction. Obesity was found to be attributed by others as controllable and unstable but more stable in the glandular dysfunction condition. Although obesity evoked more anger and less pity and helping than physical stigmas people's attributions of these causes of obesity did not adhere to Weiner's (1979, 1980, 1986) mediation model. Hilbert, Rief and Braehler (2012) also found that people attributed a person's obesity to internal, controllable causes which has been shown to aggravate negative reactions and less pity and is associated with reduced willingness to help an obese person.

Research has also indicated that these stigmatising beliefs can be changed through providing causal information. Similarly to Menec and Perry's (1998) study, Jeong et al (2007) also manipulated the causality of obesity but used news stories opposed to vignettes. News stories which offered gene-based explanations for obesity, compared to combined genetic and behavioural explanations, decreased people's perceived controllability for obesity and increased people's willingness to help particularly in participants with low prior health control beliefs. Hilbert et al (2008) found that when people attribute a hereditary causes to obesity to or label obesity as 'an illness' this predicted less stigmatisation. Stigmatising attitudes were associated with support for obesity prevention but reduced willingness for financially support.

1.5 Study rationale

To pursue potential avenues for staff training and management for enhancing clients' health it would be important to explore how DCS attribute PwLDs' obesity and how this impacts their motivation to intervene with their health behaviours and in supporting a healthier environment.

1.6 Research aims

This study aims to explore the application of Weiner's cognitive-emotional model of helping behaviour (1980) and achieved motivation (1986) to DCS working with obese PwLD.

Hypothesis 1: DCS will attribute obesity in PwLD as internally controllable and this will be negatively correlated to willingness to help which will be mediated by positive (such as sympathy and pity) and negative (such as anger and disgust) emotions (Figure 2).

Hypothesis 2: DCS will attribute obesity in PwLD as stable and this will be negatively correlated with willingness to help, mediated by optimism.

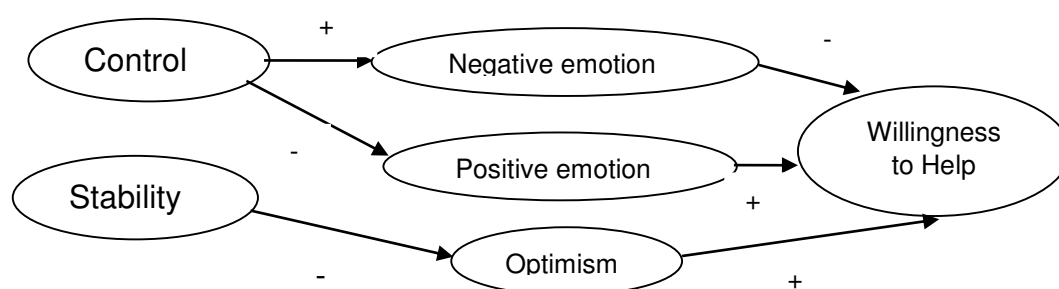


Figure 2: Proposed mediation model.

2. Method

2.1 Design

Using Weiner's (1980; 1986) attribution theory as a conceptual framework, cross sectional, self-report, online and paper questionnaires were implemented. These measures were administered at one time-point to explore DCS's perceptions of causality around a participant generated case.

The causal factors: locus of control; controllability; and stability (attributions) were measured in relation to the proposed outcome, DCS willingness to help, and in addition to the proposed mediators, affect and optimism. A factor analysis and correlational, a measurement-of-mediation, design was used to analyse the mediational relationship between these factors.

2.2 Procedure

2.2.1 The piloting phase. The questionnaire was piloted by three trainee clinical psychologists who had previously been LD DCS and two LD nurses who were actively working with a client whose unhealthy behaviours were impacting their team. Feedback was received and the questionnaire's wording was adapted.

2.2.2 The recruitment phase. Non-NHS and NHS staff were approached directly through local LD care providers and inpatient services using a convenience sampling method. Services that agreed to participate were sent paper and/or online questionnaires. Paper questionnaires were anonymously returned to researchers through self-addressed envelopes or were collected by the researcher from the services. Recruitment was then extended to conferences, training organisers and special interest groups through disseminating flyers and website advertisements.

Snowball sampling was also encouraged to enable DCS to distribute questionnaires to their networks. Informed consent was gained by staff through a consent form attached to the questionnaire and a tick box consent page on the online questionnaire.

2.2.3 Data preparation. Data was collected and transferred by the researcher manually into SPSS (version 21). Data accuracy was checked by the researcher to minimise errors.

2.3 Stimulus Material

Participants were asked to consider a client with LD that they currently have, or have previously had, direct daily care responsibilities for who is/was significantly overweight or obese. The exclusion criterion included clients who had Prader-Willi syndrome. This condition was excluded as uncontrolled overeating would have been the primary symptom of this syndrome and would have had a specific management plan that was not generalisable to the LD population.

2.4 Participants

2.4.1 Sample Size. A sample of 92 LD DCS was originally proposed. This was calculated through GPower by selecting for a two-tailed t and f linear multiple regression- fixed model analyses using a medium effect size, power of 0.8 and with five predictors (Controllability, stability, positive affect, negative affect and optimism). However, it was anticipated that reaching this sample size might be challenging and an alternative approach to analysis was deemed appropriate.

The Preacher and Hayes (2008) bootstrapping methodology was planned due to the anticipated small sample. This is an asymptotic and resampling strategy for

evaluating and comparing the indirect effects in multiple mediator models through generating bootstrapped confidence intervals. The bootstrapped analysis was planned to have 1,000 resamples with a 95% confidence interval. This method is not reliant on the data being normally distributed across a large sampling size supporting the use of a smaller sample size. Therefore an a priori power calculation was not calculated but it was estimated that a sample of 60 would be obtainable. This sample size was above the typical sample reported in the CB literature (e.g. Bailey, Hare & Limb, 2006).

2.4.2 Inclusion/Exclusion criteria. The inclusion criteria involved staff who were responsible for daily direct care to PwLD, such as support staff or inpatient LD nurses as they were the most likely people to support PwLD with their eating and activity patterns. Participants were excluded if they had worked with PwLD for less than six months to ensure they were sufficiently familiar with the client group.

2.5 Measures

A questionnaire was built using a number of well trialled items and short questionnaires developed to measure the variables of interest, some of which were adapted to be suitable for the current context. An extensive search was completed across the attribution literature to explore measures which had been used previously. Decisions were made on the appropriateness of the questions and measures through their face validity and applicability to this study's weight focus, as well as their psychometric properties. The questions and measures used in the questionnaire pack were also considered to eliminate overlapping themes and to ensure its time appropriate completion for participants. Where suitable, questions and measures were chosen in line with the measures in the LD attribution literature

as these have been administered repeatedly used with DCS when considering PwLDs' behaviours. Please see Appendix M for a copy of the questionnaire materials and below for further explanation.

2.5.1 Staff's attributions of clients' obesity.

Stability. One item was used to assess stability and this was 'how much do you think that the internal causes for your client's obesity will continue to affect them?'. This question was adapted from the Adapted Attributional Style Questionnaire (Dykema, Bergbower, Doctora & Peterson, 1996) where the original item was 'How likely is it that the cause that you give will continue to affect you'. Previous vignette-based research in the CB literature used a single seven-point Likert scale to assess for stability (Hill & Dagnan, 2002; Noone, Jones & Hastings, 2006). This item was adapted to make it appropriate for a third person's perspective and to a participant's real case example of obesity rather than the fictional vignette, where internal and external causal information was manipulated.

Controllability. Four Likert scales from the obesity attribution literature (Jeong, 2007) were used to assess for controllability. These items involved participants indicating their agreement on a seven-point Likert scale to the following four statements: 'People who are obese are responsible for their own health', 'It's one's own fault when one becomes obese', 'People who are obese could have prevented their health condition' and 'People can avoid being obese through wilful action'. These items were previously found to be internally consistent ($\alpha = .88$) (Jeong, 2007) and were adapted to apply to an individual client. Through piloting, 'wilful action' was deemed as problematic wording therefore this statement was slightly adapted. The

final items were; 'This client is responsible for their own health', 'It's the client's own fault that they became obese', 'This client could have prevented their health condition' and 'This client can avoid being obese by making a conscious effort'. This scale was chosen over measures common in the CB literature as it appeared more relevant when considering obesity. For example, the CB Attributions Scale (Hastings, 1997) is based on aggressive and stereotyped behaviours and asked DCS whether a behaviour is to "avoid uninteresting tasks" or "because someone she/he dislikes is nearby". This measure appeared less applicable to excess weight, limiting this measures face validity in a weight context.

Locus of control. Participants completed the three locus of control items from McAuley, Duncan and Russell's (1992) revised Causal Dimension scale (CDS-II) but adapted for third person attributions and to make items specific to obesity. The overall CDS-II was found to be internally consistent (McAuley et al., 1992) and Jones and Hastings' (2003) adaption to a third person perspective of the CDS-II was also found to have internal reliability for locus of control ($\alpha = .79$). The adapted version of the CDS II has been used repeatedly in the attribution literature (Jones & Hastings, 2003; Wills, Shepherd, & Baker, 2013; Dolphin & Hennessy, 2014). The original CDS-II questions were: 'Is the cause(s) something that reflects an aspect of yourself or reflects an aspect of the situation', 'Is the cause(s) something inside of you or outside of you' and 'Is the cause(s) something about you or something about others' and consisted of a nine-point Likert dichotomous scale. These questions were adapted in the current study to: 'The cause/s of your client's obesity reflects as aspect of this person or the situation', 'The cause/s of your client's obesity is inside

of them or outside of them' and 'the cause/s of your client's obesity is something about them or something about others'.

2.5.2 Staff affect ratings. Due to the lack of psychometrically valid measures for both positive and negative emotions in the context of staff working with overweight PwLD, we developed a rating scale of the commonly reported positive and negative affects from the CB literature that appeared appropriate for the current context. A seven-point Likert scale was used to assess staffs' emotional response to their client's obesity by rating nine emotions. At piloting the emotions used by Dagnan et al (1998) were trialled but the 'loving' variable was changed to 'affection' to be more appropriate. These affect items therefore included anger, disgust, sympathy, pity, depressed, relaxed, anxious, happy and affection, with higher scores indicating higher emotional intensity. Dagnan et al. (1998) showed that these items were factored into negative emotions (anger, disgust, depression and anxiety) and positive emotions (sympathy, pity and love), however, Dagnan et al. (1998) did not report reliability analyses for these. Again these emotion items have been used throughout the attribution literature (Dagnan et al., 1998; Wanless & Jahoda, 2002; Rose & Rose, 2005).

2.5.3 Optimism. A five-point Likert scale was used for staff to indicate their level of agreement across five items of optimism of changing their client's health behaviours. These optimism items were derived from Sharrock et al. (1990) which were in turn derived from work by Garety and Morris (1984), Moores and Grant (1976) and Allen, Gillespie and Hall (1989). A seven-point Likert type scale has been repeatedly used in the CB literature with different numbers of items from

Sharrock et al.'s (1990) study (Dagnan et al., 1998; Wanless & Jahoda, 2002; Rose & Rose, 2005; Lucas, Collins & Langdon, 2009). However internal reliability was not assessed for this seven-point Likert scale version whereas Sharrock et al.'s (1990) eleven item five-point Likert Scale had a good internal reliability ($\alpha = .76$). Therefore four items from the original five-point Likert scale were adapted from Sharrock et al.'s (1990) measure.

Two questions were adapted from this scale to improve their suitability for DCS with significantly overweight clients. The first was to change 'All one can do for this patient is to look after his/her basic physical and emotional needs' to 'All one can do is look after their basic physical needs' so that this was more appropriate for LD clients who have weight problems. The second was to change 'There is little point in arranging psychotherapy for this patient' to 'There is little point in arranging an assessment with the clinical psychologist for this person's behaviour' as psychology input would be more familiar to DCS in LD services than psychotherapy. In addition to these, a fifth item, 'There is little point in arranging an assessment with a dietician for their person's behaviour', was included as nutritional support from a dietician would be beneficial for overweight clients.

2.5.4 Helping Behaviours. DCS were asked two questions to indicate their level of willingness to help change their client's health behaviour. One of the seven-point Likert items from Sharrock et al. (1990) was used, 'How much extra effort would you be prepared to give to help this patient' was adapted to 'how much extra effort would you be prepared to give to help this person with their health', and a second item was included from Todd and Watts's (2005) study on the attribution

model of behaviour assessment in dementia, 'How willing would you be to try different approaches to help this person change their behaviour', was used to improve the robustness of this helping measure. The first item has been used extensively within the CB literature (Dagnan et al., 1998; Wanless & Jahoda, 2002; Lucas et al., 2009).

2.6 Ethical considerations

Informed consent was obtained from the DCS and their organisational context was made anonymous. DCS were asked not to disclose the name or any identifiable details of the client who they used for their case material. All questionnaire data were collected by the researcher and were kept confidentially. Ethical approval was obtained from a university ethics panel.

2.7 Data analysis

The Baron and Kenny model (1986) was proposed to assess the mediational relationship with the Preacher & Hayes (2008) bootstrapping methodology. The Baron and Kenny Model (1986) is a process where a mediation relationship can be established through three stages, exploring whether: the independent variable significantly predicts the dependent variable; the independent variable significantly predicts the mediating variables; and the mediator significantly predicts the dependent variable. This planned to analyse whether there are mediator effects (indirect effects) of negative emotions, positive emotions and optimism between staff attributions and helping behaviour.

2.8 Data preparation

2.8.1 Reliability of measures. Although many of the items used have been adapted from Likert scales that were used extensively in the CB literature, many of

these were not psychometrically assessed. Therefore Cronbach's Alpha were calculated on each measure to evaluate their reliability. The items in the Controllability measure were found to be highly reliable ($\alpha = .831$) and measures for the Locus of Control ($\alpha = .756$), five Optimism items ($\alpha = .751$) and the two Helping items ($\alpha = .732$) were of good reliability.

2.8.2 Principle component analysis of the emotion items. A principle component analysis (PCA) was completed to explore how particular items contributed to the emotional components (positive and negative) and explored whether these emotions cluster in a similar structure to Weiner's (1979) model and the previous literature.

All nine emotional responses were subjected to a PCA. Initially a correlation matrix was completed to examine the data's appropriateness for a PCA. The determinant of the matrix was greater than the necessary value of 0.00001 (Determinant = .084), therefore multicollinearity (independent predictor variables being highly correlated) (Field, 2005) was not a problem in this data. In addition the emotion responses correlate considerably well but none of the correlation coefficients are particularly large and therefore singularity (predictor variables being perfectly correlated) (Field, 2005) was also unlikely to be a problem. The Kaiser-Meyer-Olkin measure of sampling adequacy was adequate at .644. On examination of the diagonal elements of the anti-image correlation matrix all emotion variable values were above .5 meaning that no variables needed to be excluded from the analysis. The Bartlett's test was highly significant (Test value = 176.07, $p < .001$) meaning that the correlation matrix is not an identity matrix (1 on the diagonal & 0 on the outside the

diagonal), therefore the PCA was appropriate. Initial statistics from the PCA were used to form a scree plot which showed that the steepness of the curve reduced clearly at three factors.

A PCA was then completed with a Varimax Rotation (e.g. Dagnan et al, 1998) and provided a three factor solution, accounting for 64% of the total variance rotation.

The results of this analysis is summarised in table 2.

Table 2:

Principle component analysis of affect items.

Item	Factor Loadings		
	Factor 1 (Negative Emotion)	Factor 2 (Positive Emotion)	Factor 3 (Empathy)
Disgust	.818*	.106	-.157
Depressed	.739*	.010	.135
Anger	.694*	-.142	.181
Pity	.692*	.084	.405
Happy	.142	.812*	.019
Relaxed	-.190	.795*	-.170
Affection	.081	.606*	.550*
Sympathy	.041	-.067	.779*
Anxious	.511*	-.049	.615*

* Indicates the initial factoring of items to the three factors.

Items were selected for inclusion when loadings were 0.4 or higher (Rose, 1999) to the factor they most affiliated with. The three factors extracted from the analysis represent three dimensions of affect: negative emotion (four items, accounting for

27.8% of the variance); positive emotion (three items, accounting for 18.9% of the variance); and empathy (two items, accounting for 17.3% of the variance). Internal consistency for the three scales were examined using Cronbach's alpha. The alpha was good for negative emotion ($\alpha = .744$), adequate for positive emotion ($\alpha = .615$) and poor for empathy ($\alpha = .485$).

Due to the poor internal consistency for empathy a decision was made to explore the internal consistency if anxiety was incorporated into the negative emotion factor, where it also loaded highly. Once anxiety was included within the negative emotion factor this variable was found to have good internal reliability ($\alpha = .783$). Therefore anxiety appeared to statistically fit best with the negative emotion. For the remainder of the analysis the negative emotion factor will therefore include: Disgust; Depressed; Anger; Pity; and Anxiety, the Positive Emotion factor will include: Happy; Relaxed; and Affection, and the, newly labelled, Sympathy factor will only include the Sympathy item.

Wiener (1979) has previously included pity and sympathy together as positive emotion and disgust and anger together in negative emotion. Dagnan et al (1998) in their original study of CB grouped Anger, Disgust, Anxiety and Depression and negatively correlated relaxed into a 'Negative Emotion' variable and Sympathy, Pity and Loving into 'Positive Emotion'. Happy was excluded as it did not sufficiently load onto a factor. However, the current factors most accurately represent the affect experienced by this sample in relation to working with overweight PwLD. Therefore, for the remainder of the analysis, negative emotion, positive emotions and sympathy were used in line with the PCA and Cronbach's alpha above.

2.7.3 Testing for parametric appropriateness. Prior to testing the hypotheses all key variables were tested for their suitability for parametric statistical analyses. Kolmogorov-Smirnov, Shapiro-Wilk and Kurtosis tests were completed to determine whether each of the variables were normally distributed (Table 3). These tests showed that Controllability, Stability, Negative Emotion, Sympathy, Optimism and Helping were not normally distributed. These variables were subjected to squareroot and logarithm transformations but only log Controllability and log Negative Emotion became normally distributed as examined through further Kolmogorov-Smirnov tests. The other key variables: Stability; Sympathy; Optimism; and Helping, remained deviant from normal distribution after these transformations, violating the assumptions of normality.

3 Results

3.1 Participant Demographics

Eighty DCS participated in this study, 67 females and 13 males, ranging from 21 to 60 years old (s.d. 2.15). Eighteen participants worked in NHS services, 20 worked in private residential services, eight worked in private day services and 27 worked in other services, such as local council services, agency and supported living. Twenty six participants had been working with PwLD for six months to five years, 24 participants from five to ten years and 30 participants for more than ten years. Fifty three of these participants had no formal training on obesity, 14 had limited training, six reported a fair amount of training, four had received detailed training and three reported having had extensive training.

Table 3:

Kurtosis and normality assessments of the key variables.

Variable	Kurtosis	Shapiro-Wilk	Kolmogorov-Smirnov
Locus of control	0.126 (0.532)	0.979	0.092
Controllability	-0.981 (0.541)	0.94**	0.13**
Stability	-0.701 (0.532)	0.893**	0.176**
Negative emotion	-0.201 (0.538)	0.918**	0.137**
Sympathy	-0.230 (0.538)	0.921**	0.191**
Positive emotion	-.0634 (0.545)	0.959*	0.093
Optimism	0.84 (0.541)	0.915**	0.129**
Helping	1.865 (0.538)**	0.611**	0.415**
Log controllability	-1.071 (0.541)*	0.943**	0.101
Sqrt controllability	-1.153 (0.541)*	0.951**	0.101*
Log negative emotion	0.962 (0.538)	0.959*	0.088
Sqrt negative emotion	-0.726 (0.538)	0.95**	0.104*

Note: Significant results indicate a significant deviation from normality

** A significant result at the statistically significant level of 0.01.

*A significant result at the statistically significant level of 0.05.

3.2 Case Example Demographics

Of the clients that participants chose as their case examples 45 were male and 35 were female. Fifteen clients were between the ages of 16 and 25 years, 17 between 26 and 35 years, 25 between 36 and 45 years, 17 between 46 and 55 years and six from 56 years and older. Eleven of these clients were reported to have had mild LD, 49 had a moderate LD, one had a moderate to severe LD, 16 had a severe LD and three had a profound LD. When reporting their client's level of independence three were of complete independence, 12 with modified independence, 24 required

supervision, 18 required minimal assistance, 18 required maximal assistance and four were completely dependent. One case example's level of dependency was missing.

3.3 Key Variable Descriptives

Descriptive statistics were calculated on the key variables to ascertain overall: how DCS perceived obesity across the causality dimensions; their affect; their level of optimism; and their willingness to help.

The means and standard deviations from each key variables are represented in Table 4. Overall DCS reported their clients' excess weight as fairly stable, neutral in locus of control and low on controllability. DCS reported high level of optimism, low levels of negative and positive emotion and moderate to high levels of sympathy. Overall DCS reported high levels of willingness to help and there was very little variation in this measure.

Table 4:

Descriptive statistics for key variables.

Variable (Scale)	N	Mean (sd)	Range
Stability (1-7)	80	5.33 (1.45)	2-7
Internality (1-9)	80	5.01 (1.63)	1-9
Controllability (1-7)	77	2.72 (1.27)	1-5.75
Optimism (1-5)	77	4.06 (0.79)	1.40-5
Negative emotion (1-7)	78	2.38 (1.14)	1-5.40
Positive emotion (1-7)	76	2.83 (1.23)	1-6
Sympathy (1-7)	78	4.76 (1.55)	1-7
Willingness to help (1-7)	78	6.67 (0.60)	5-7

3.4 Correlations

Baron and Kenny (1986) report that to test for mediation, each variable must be significantly correlated with one another. Therefore each variable was reviewed in terms of their correlations. Due to the responses being ordinal data and not normally distributed, Spearman's correlations were completed using 1,000 bootstrapped samples (see table 5).

Weiner's attribution theory (1980; 1986) predicts that the two hypothesised attribution variables, Controllability and Stability, would be associated with Willingness to Help. The current data found that Controllability ($r = -.127$, n.s.) and Stability ($r = .038$, n.s.), were not significantly correlated to Willingness to Help.

Weiner (1980) hypothesised that controllability would be positively correlated with Negative Emotion and negatively correlated with Positive Emotion (including Sympathy). However the current data showed no significant correlations between Controllability and Sympathy ($r = .203$, n.s), Negative Emotion ($r = -.033$, n.s.) or Positive Emotion ($r = -.016$, n.s.). This model also hypothesises that Positive Emotion, which included Sympathy, should be positively correlated with Willingness to Help and Negative Emotion should be negatively correlated to Willingness to Help. However neither Negative Emotion ($r = .006$, n.s.), Positive Emotion ($r = -.119$, n.s.) nor Sympathy ($r = -.059$, n.s.) were correlated with reported Willingness to Help.

Weiner (1986) hypothesised that Stability would be negatively correlated with Optimism and that Optimism would correlate with Willingness to Help. The current data indicates that Stability is not significantly correlated to Optimism ($r = .034$, n.s),

but Optimism was significantly correlated to staff reports of Willingness to Help ($r = .394, p < .01$).

The basic conditions required to enable the testing for a mediated effect were not met (Baron & Kenny, 1986). These basic conditions included the significant correlations between: the causal attribution dimensions (the proposed causal variable) and helping behaviour (the proposed outcome); the causal attribution dimensions (the proposed causal variable) and affective dimensions and optimism (the proposed mediators); and optimism and affect (the proposed mediators) and helping behaviour (the proposed outcome).

From these correlations we can see that several of the variables correlated have been found in the previous literature despite not being predicted by Weiner's (1980; 1986) theories. As expected there was a significant correlation between Stability and Controllability attributions ($r = .258, p < .05$), a significant positive correlation between Negative Emotion and Sympathy ($r = .339, p < .01$) and a significant negative correlation between Negative Emotion and Optimism ($r = -.232, p < .05$). Figure 3 provides a visual representation of the positive and negative associations found using these correlations.

Table 5:

Correlations for the key variables in Wiener's model.

	Correlation Coefficients (Bootstrapped 95% confidence intervals)						
	Stability	Controllability	Sympathy	Negative Emotion	Positive Emotion	Optimism	Helping
Stability		.236* (-.007 -.458)	.025 (-.196-.232)	.046 (-.163 -.254)	.092 (-.139-.305)	.034 (-.209-.278)	.038 (-.191-.272)
Controllability			-.203 (-.395 -.007)	-.005 (-.232-.229)	-.016 (-.245-.205)	-.060 (-.281-.163)	-.127 (-.358-.107)
Sympathy				.320** (.085-.548)	.035 (-.179 -.253)	.100 (-.131-.308)	-.059 (-.249-.142)
Negative Emotion					.023 (-.217-.261)	-.250* (-.457--.017)	-.006 (-.221-.219)
Positive emotion						-.088 (-.326-.161)	-.119 (-.342-.102)
Optimism							.394** (.189-.579)
Helping							

** A significant result at the statistically significant level of 0.01.

*A significant result at the statistically significant level of 0.05.

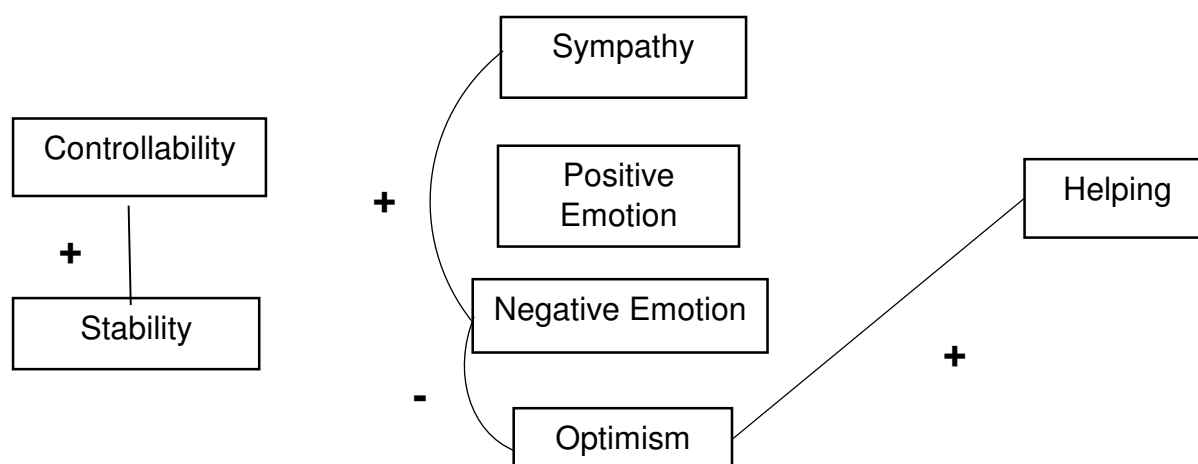


Figure 3: Representation of the significant correlations found with key variables.

An assessment of all correlations (see table 6) indicates that there also appears to be an expected positive correlation between participant age and LD experience ($r = .413$, $p < .05$) and LD severity and level of dependence ($r = .353$, $p < .01$). There was also a negative relationship between LD severity and controllability ($r = -.381$, $p < .01$), a negative correlation between LD severity and internality ($r = -.284$, $p < .05$) and a negative correlation between level of dependence and controllability ($r = -.273$, $p < .05$).

Table 6: Correlations between all key variables measured.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.Participant age	.413** (.18-.60)	-.013 (-.26-.21)	-.114 (-.34-.11)	-.065 (-.31-.18)	.135 (-.12-.36)	.203 (-.03-.42)	-.060 (-.28-.16)	.115 (-.12-.34)	.216 (.00-.40)	-.034 (-.27-.20)	-.059 (-.30-.19)	.075 (-.16-.30)	.168 (-.10-.43)	
2.LD experience		.222 (-.03-.41)	-.078 (-.30-.15)	-.051 (-.29-.17)	-.022 (-.26-.21)	.131 (-.09-.34)	-.134 (-.35-.09)	-.054 (-.28-.18)	.040 (-.21-.26)	-.147 (-.40-.13)	.086 (-.19-.33)	.143 (-.09-.37)	.263* (.04-.48)	
3.Obesity training			-.066 (-.27-.16)	-.070 (-.28-.16)	.042 (-.18-.26)	-.003 (-.24-.26)	.092 (-.14-.31)	.106 (-.15-.35)	.109 (-.12-.35)	.117 (-.12-.34)	.189 (-.04-.40)	-.027 (-.26-.19)	-.213 (-.46-.03)	
4.LD severity				.353** (.11-.58)	.167 (-.08-.41)	-.170 (-.38-.05)	-.381** (-.57-.18)	-.284* (-.48-.07)	.007 (-.22-.26)	-.032 (-.26-.21)	.012 (-.19-.24)	-.014 (-.24-.20)	.148 (-.10-.37)	
5.Level of dependence					.117 (-.12-.34)	-.105 (-.32-.13)	-.273* (-.46-.06)	-.141 (-.38-.11)	.137 (-.09-.37)	.057 (-.15-.29)	-.032 (-.28-.18)	.121 (-.14-.36)	.072 (-.18-.33)	
6.Client age						.147 (-.09-.38)	-.037 (-.25-.18)	.215 (.01-.41)	.081 (-.14-.29)	-.054 (-.28-.17)	.119 (-.10-.35)	-.021 (-.25-.20)	-.028 (-.25-.20)	
7.Stability							.237* (-.00-.45)	.385** (.16-.58)	.026 (-.19-.23)	.048 (-.15-.25)	.098 (-.12-.32)	.034 (-.22-.29)	.030 (-.20-.26)	
8.Controllability								.496** (.30-.67)	-.203 (-.40-.01)	-.009 (-.26-.21)	-.026 (-.24-.2)	-.058 (-.28-.18)	-.121 (-.37-.12)	
9.Locus of Control									.022 (-.23-.26)	.057 (-.18-.29)	.088 (-.14-.32)	-.087 (-.34-.15)	-.154 (-.36-.05)	
10.Sympathy										.321** (.08-.55)	.035 (-.19-.27)	.099 (-.12-.30)	-.062 (-.27-.13)	
11.Negative Emotion											.023 (-.24-.28)	-.251* (-.45-.01)	-.003 (-.23-.23)	
12.Positive Emotion												-.090 (-.33-.17)	-.096 (-.31-.15)	
13.Optimism													.399** (.17-.59)	
14.Helping														

**Significant at the 0.01 statistical significance level.

*Significant at the 0.05 statistical significance level.

4. Discussion

4.1 The aims of the study

The present study aimed to assess the application of Weiner's cognitive-emotion-action of motivated behaviour (1980) and theory of achieved motivation (1986) to DCS working with overweight PwLD. It was hypothesised that staff would perceive obesity in PwLD as: internally controllable; that this would be negatively correlated to willingness to help; and mediated through positive emotions (such as sympathy and pity) and negative emotions (such as anger and disgust). Stable attributions were also originally hypothesised to be negatively correlated with willingness to help, a relationship mediated by optimism.

Overall the findings do not support these models as attributions for obesity did not have a primary role in staffs' willingness to help, affect was not sufficiently associated with causal attributions or willingness to help, and optimism was associated with willingness to help but not stability. Due to a lack of basic associations between: attribution and helping; attribution and affect and/or optimism; and affect and/or optimism with willingness to help, it was not possible to progress to a mediation analysis.

4.2 Weiner's theories of helping behaviour

DCS controllability attributions for overweight PwLD were not associated with willingness to help nor to sympathy, negative emotion or positive emotion.

Furthermore neither sympathy, positive nor negative emotion were associated with willingness to help. The CB literature has also found particularly varied results in Weiner's (1980; 1986) model of helping behaviour with several studies not

discovering any association between controllability and positive and negative emotion (e.g. Sharrock et al., 1990; Rose & Rose, 2005) and some not finding an association between controllability and helping (Jones & Hastings, 2003; Dagnan & Cairns, 2005). However, Dagnan et al. (1998) found a full mediating effect of negative affect between controllability and willingness to help. Overall there is little evidence for the applicability of Weiner's (1980; 1986) attribution model in this weight context.

4.3 Individual key variables

4.3.1 Attributions. Increased internal attributions were associated with more stable and controllable attributions of clients' excess weight. Overall DCS attributed client's obesity as stable, neutral in terms of internality and low in controllability. These findings were contrary to the obesity literature where obesity has been associated with internal and controllable attributions by professionals (e.g. Harvey & Hill, 2001) and the general population (e.g. Sikorski et al., 2012).

Jeong et al. (2007) and Menec and Perry (1998) have demonstrated that when biological causes for obesity are given, perceived controllability is reduced and the CB literature indicates that reduced controllability is associated with clients' dependency (Stanley & Standen, 2000) and LD severity (Tynan & Allen, 2002). The current study also shows the expected positive association between LD severity and dependency and a negative relationship between LD severity and controllability and internal attributions. Furthermore increased dependency was associated with lowered controllability attributions. It is possible that LD DCS attribute clients' weight management problems to biological, such as factors associated with their LD, factors or due to their cognitive ability and levels of independence. DCS could also consider

the task difficulty (external, unstable and uncontrollable factor) and level of ability (internal, stable and uncontrollable factor), as proposed in Weiner's (1979) model, in adhering to healthy lifestyles in PwLD as more of a causal factor than exerted effort (internal, unstable and controllable factor), positively impacting their willingness to help. In addition, as DCS's perceived external causes were not assessed in the study it is uncertain whether external controllability and stability influenced their willingness to help.

4.3.2 Affect. Weiner's (1980) model discussed anger and disgust as negative emotions and sympathy and pity as positive emotions. The current findings demonstrate that with PwLDs' obesity, DCSs' pity and sympathy did not factor together. Instead pity factored onto negative emotion with disgust, anger, anxiety and depression. Affection, happiness and relaxed factored onto the variable labelled positive emotion and sympathy remained an item on its own. This is an important finding especially as other researchers have not investigated the reliability of their emotion variables.

Overall DCS responded to their clients' weight with low levels of negative and positive emotion but with moderate to high levels of sympathy. Again although the PCA indicated that sympathy and negative emotions had different underlying structures, DCS sympathy appeared to be positively associated with negative emotions, which was surprising. Previous CB literature has used emotional items inconsistently, for example only anger and sympathy (e.g. Wanless & Jahoda, 2002) or the Emotional Responses to CB scale separating emotions into depression/anger and fear/anxiety (e.g. Mitchell & Hastings, 2001), and the obesity literature discusses

feelings of anger or pity (e.g. Menec & Perry, 1998). The current study poses questions about the appropriateness of pity and anger being grouped as opposing emotions. Future studies should assess for reliability of emotional factors.

4.3.3 Optimism. Overall DCS were optimistic about health change and this was inversely associated between negative affect. The previous research in CB has shown that staff have low reported optimism (Rose & Rose, 2005), however, the obesity literature did not explore optimism (Weiner, Perry, & Magnusson, 1988; Menec & Perry, 1998; Jeong, 2007).

4.3.4 Willingness to Help. DCS were very willing to help, with little variation in this measure indicating a possible ceiling effect. Rose and Rose (2005) also discovered that staff showed strong willingness to help PwLD who engage in CB. It is questionable whether it is valid to ask paid carers, whose profession is to care for others, if they are likely to be willing to help their clients or not. As argued by Sharrock et al (1990) that professionals are required to make decisions about who to help when restricted in time and resources and attributions may impact this decision making. However these contextual factors are not considered and future research would benefit from observational studies in a typical busy context.

4.3.5 Demographics. Several associations were also found between DCS demographics and controllability with willingness to help, however as these were not originally hypothesised so should be taken with caution. There was a positive association between years of LD experience, but not level of training, and willingness to help. Furthermore as expected the higher LD severe the lower the reported

internality and controllability. Higher levels of dependence were also associated with lower controllability ratings as anticipated by previous research in CB in PwLD (e.g. Tyrn & Allen, 2002). Therefore DCS's LD experience, LD severity and dependency are likely to be areas of future research interest in PwLDs' weight management.

4.4 Understanding current findings

Weiner's (1980; 1986) theory was originally proposed for low frequency behaviours and may be less appropriate for regular behaviours to which staff may habituate (Sharrock et al, 1990; Bailey et al., 2006). This may be particularly relevant in relation to chronic obesity behaviours, such as inactivity and unhealthy diet, which may not have the same challenge for staff as self-injurious behaviour (e.g. Elgie & Hastings, 2002). Therefore staffs' emotional reactions and attributional processes may differ.

Despite this, previous studies on obesity has shown support for attribution theory in the general public. When asking people to attune to issues of obesity research has shown that 'behavioural' causes, compared to genetic causes, were associated with considerably higher controllability, greater anger and less pity where pity was associated with willingness to help (Menec & Perry, 1998).

Several studies have linked staff attributional styles, affect and helping behaviours to staff coping and burn out (Mitchell & Hastings, 2001; Hill & Dagnan, 2002). The current study indicated that DCS reported low levels of emotions, apart from sympathy, and controllability. Therefore it would be interesting to explore staff ways of coping with clients' inactivity and unhealthy dietary habits on a daily basis.

4.5 Strengths and Limitations

This was the first study to our knowledge on DCS perceptions of obesity in the LD population using Weiner's attributional model. Previous research in the CB area has focused on hypothetical situations and hypothetical people (e.g. Dagnan et al., 1998) rather than use real clients' situations and this study addressed this limitation.

The current study included staff recalling an overweight client that they currently or previously have worked with and then completed ratings on their reactions to their weight. When asking staff to recall previous clients and their responses to their health behaviours it is possible that the temporal distance influenced respondents' understanding of their client's behaviour and their reactions. Despite this several other CB studies have used staff reports with a temporal delay (Bailey et al., 2006). Future research should aim to explore staffs' real-time reactions to health behaviours.

Reported willingness to help may not adequately map onto staff's actual helping behaviours (Bailey et al, 2006). Firstly there are concerns around whether staff's reported willingness to help would match their actual willingness to help. Secondly, some staff's notions of helping behaviour may not be efficacious responsive to behaviours, for example through inadvertently reinforcing unhealthy behaviours, or using counter-productive strategies, such as stigmatising language in an attempt to motivate clients in making healthier choices (Puhl & Heuer, 2010). Furthermore the rating items for staff's willingness to help was not sufficiently sensitive and, therefore, a ceiling effect was found. This measure's lack of sensitivity may have had a significant impact on the non-significant findings in the study. In future a combination

of observational studies and ratings relating to proactive and counter-productive methods of helping may be beneficial.

DCS were not asked for any contextual information about their client, for example why they chose their client and whether this was influenced by feeling particularly sympathetic towards them or finding their behaviour particularly challenging.

Factors, such as client's ability, effort and task difficulty in their context, specific to their health would have provided further clarity on why DCS chose their particular causality dimensions and how this impacted their responses. The questionnaire was structured to focus on internal stability and did not address DCS perceived attributions of external stability which may have biased their reported willingness to help. According to Wiener's (1980) model if external causal factors were also viewed as unstable then DCS would have been more likely to feel that they had self-efficacy in improving the environment, therefore high optimism and willingness to help in health change. Further contextual information, for example external factors, would be helpful in future studies to provide clarity and reduce potential bias.

The impact of service limitations and environmental factors were also not taken into consideration in this study. Dilworth, Phillips and Rose (2011) discovered that lower levels of controllability attributions for CB were linked to a higher quality organisation, where the physical and social environment was appropriate and well structured. Therefore the environmental factors and how these relate to staff attributions are likely to be important in future research on staff attributions of obesity.

4.6 Clinical implications

The current findings pose questions around why DCS are willing to help with PwLDs' weight but PwLD continue to have high levels of obesity, inactivity and unhealthy diets. DCS were shown to attribute an individual's excess weight slightly more to internal factors meaning that DCS may not be fully aware of the extent to which a service's obesogenic environment, poor nutritional options and a lack of activity choices impacts on an individual (Lennox, 2002). In addition this vulnerable population is strongly influenced by the effectiveness of the system around them (Joint Commissioning Panel for Mental Health, 2013), therefore it may be expected that more complex organisational factors are at play in LD services compared to the general population. This may mean that the impact of DCS attributions on helping behaviour may be diluted through other multiple factors which would need to be considered, such as staff self-efficacy, staffing levels and service funding of healthier lifestyle choices.

It would be helpful for staff to improve their health knowledge by having further training on how to support their clients to engage in healthier behaviours in a constructive way. This is particularly pertinent as 66% of the staff sample did not have any formal weight management training. DCS's optimism for health change was a promising finding and considering this was positively associated with willingness to help it would also be important for services to continue to support their staff and guard against burnout, which is common in LD services (Rose, Mills, Silva & Thompson, 2013).

4.7 Future research

Future research should endeavour to address the limitations highlighted by investigating:

- Staff beliefs about the internal causes of obesity in their clients.
- How client's perceived cognitive functioning and dependency are related to DCS's obesity attributions and how they support their clients with their health.
- How DCS help their clients' with their health behaviours and how these are associated with their attributions, affect and optimism through using observational methods.
- The impact of environmental factors, such as staff ratios, available activities and health choices, on staff attributions, affect and helping behaviours.
- How staff emotionally cope with overweight clients with poor health behaviours, for example do DCS lack affect due to habituation or their coping strategies?
- The impact of staff health training on managing attributions, affect, optimism and the type of helping behaviour provided.

4.8 Conclusion

Weiner's (1980; 1986) attribution theories were not supported for DCS in the context of PwLD weight management. DCS reported as being very willing to help their clients but this was not associated with their attributions or affect, however there was an association between optimism and willingness to help. Further research is required to explore helping behaviour in staff using more direct methods and to distinguish between staff willingness to help and actual effective helping behaviours. This research has clinical implications for staff training.

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SECTION C: APPENDICES

List of Appendices

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Appendix A:

Study data extraction of the DCS understanding research.

<u>Study/ location</u>	<u>Study design and theory</u>	<u>Theory</u>	<u>Sample size</u>	<u>Sample characteristics</u>	<u>Methodology</u>	<u>Main results</u>
Gephart & Loman (2013) United States	Caregiver weight-management intervention	None stated	56 DCS 40 youths	Age range: 8-20years %female: 20% % LD: 97.5% Diagnoses: mixed %Overweight: 22.5%	The Health Assessment Interview	Reduction in youth BMI Increased fruit and vegetable intake. DCS perceptions remained inaccurate on weight.
Heller et al. (2002) United States	Cross sectional regression design.	Social-cognitive model	83 Clients – family and paid carers	Age range: 30-79 years %female: 53% %LD: 80.7% Diagnoses: Cereb. Palsy. %Overweight: not stated.	Quantitative interviews with carers	Caregiver perceived benefits of exercise and type of residence predicted exercise frequency.
Heller et al. (2003) United States	Cross sectional regression design	Social-cognitive model	44 clients – family and paid carers	Age range: 30-57 %female: 41% %LD: 100% mild to mod. Diagnoses: Down Syn. %Overweight: not stated.	Quantitative interviews with carers and PwLD	Carers' perceived outcomes of exercise and access barriers predicted exercise participation.

Hawkins & Look (2006)	Physical activity diary and interview-survey design. England	None stated	19 clients - 5 Team leaders and 5 day service leaders	Age range: 22-55 years %female: 16% %LD: 100% mild-severe Diagnoses: mixed %Overweight: 65.4%	Semi-structured interviews with staff.	Five barriers: Clients' lacking understanding of exercise benefits, clients' mood, clients' lack of awareness of available options, risk concerns and financial constraints. Level of LD impacted on perceived barriers.
Temple & Walkley (2007)	Qualitative study: barriers and facilitators to physical activity. Australia	Precede/proceed model for health promotion.	9 PwLD 24 staff 7 parents	Age range: 18-41 years %female: 36% %LD: 100% Diagnoses: not stated %Overweight: not stated	Qualitative Interviews and focus groups. Thematic analysis.	Three themes: motivation for participation, social support and political and financial support. Lack of clear policies.
Melville et al. (2009)	A cross-sectional survey. Scotland	Comparison against national recommendations.	61 paid carers	Age range: Not stated %female: Not stated %LD: Not stated Diagnoses: Not stated %Overweight/obese: Not stated	Quantitative questionnaires	Poor knowledge of public health recommendations. Greater importance placed on diet benefits over those of physical activity. Intrapersonal

						barriers were viewed as most important.
Johnson et al. (2011) Canada	Qualitative study	None stated.	28 PwLD 7 managers 21 DCS	Age range: 20-64 %female: 12/28 %LD: 100% mild to moderate Diagnoses: mixed. %Overweight/obese: Not stated.	Qualitative interviews with PwLD Focus groups with managers and DCS.	Seven themes: safety concerns, poor eating habits, low transferable skills, limited funding, staff training needs, resource needs and social relationships.

Appendix B:*The barriers and facilitators across the five studies*

<u>Barriers</u>	<u>Barrier studies</u>	<u>Facilitators</u>	<u>Facilitator studies</u>
	<u>Intrapersonal Barriers</u>		<u>Training for PwLD</u>
Lack of motivation	Heller et al. (2003), Hawkins & Look (2006), Temple & Walkley (2007), Melville et al. (2009)	On benefits of exercising for both PwLD and DCS	Heller et al. (2002), Heller et al. (2003)
Client mood	Hawkins & Look (2006)	Use health promotion curriculum for clients and DCS.	Heller et al. (2003)
Lack of time and energy	Heller et al. (2003)	Accessible Information on fitness centres, equipment and nutrition	Heller et al. (2003) Johnson et al. (2011)
Health concerns	Heller et al. (2003)		Training for carers
Lack of understanding the benefits	Heller et al. (2003), Hawkins & Look (2006)	Identifying and overcoming barriers to change	Melville et al. (2009)
Not knowing how to use equipment	Heller et al. (2003), Melville et al. (2009)	Tailor individualised programs	Heller et al. (2002), Heller et al. (2003)
Lack of knowledge of where to go	Heller et al. (2002), Heller et al. (2003)	Education on carer attitudes and expectations regarding exercise	Heller et al. (2003)

Lack of awareness of available options	Hawkins & Look (2006)	Safety monitoring of physical activity and food skills	Heller et al. (2002), Heller et al. (2003), Johnson et al. (2011)
Low levels of transferability of skills	Johnson et al. (2011)	Fitness centre staff training on LD considerations	Heller et al. (2003)
Poor eating habits	Johnson et al. (2011)	Success stories of staff-led physical activity initiatives for motivation	Temple & Walkley (2007)
Health access barriers		Physical activity and nutrition opportunities	
Financial constraints	Hawkins & Look (2006), Heller et al. (2002), Heller et al. (2003), Temple & Walkley(2007), Johnson et al. (2011)	Involvement in more recreational sports.	Heller et al. (2003)
Transport problems	Temple & Walkley (2007), Heller et al. (2002), Heller et al. (2003)	Develop accessible fitness programs	Heller et al. (2003)
Lack of equipment in the house	Heller et al. (2002)	Provide other motivators and making physical activities enjoyable and stimulating with social opportunities	Heller et al. (2003) Johnson et al (2011)
Fitness centres not accessible	Heller et al. (2003)	Inclusion of physical activity in all individual program plans	Temple & Walkley (2007)

Individual preferences/lack of personal choice	Temple & Walkley (2007) Melville et al (2009)	Buying home exercise equipment	Heller et al. (2003)
		Accompanying people to exercise activities	Heller et al. (2003)
	Interpersonal barriers		Organisational changes
Staffing constraints	Heller et al. (2003), Temple & Walkley (2007)	Paying for fitness centre memberships	Heller et al. (2003)
Lack of staff interest, knowledge, skill and confidence.	Temple & Walkley (2007)	Staff criteria to include knowledge, confidence and motivation in PA	Temple & Walkley (2007)
Lifestyle choices of others	Melville et al (2009)	For central administration to create policy directions	Temple & Walkley (2007)
Safety concerns	Hawkins & Look (2006), Temple & Walkley (2007), Johnson et al. (2011)	Development of safe and appropriate exercise guidelines.	Heller et al. (2002)
External staff lack of LD understanding.	Temple & Walkley (2007)		

Appendix C:

Study data extraction from the care staff roles research.

<u>Authors & Place</u>	<u>Intervention/ theory</u>	<u>Sample</u>	<u>Design</u>	<u>DCS input</u>	<u>Measures</u>	<u>Key Findings</u>
McCarran & Andrasik (1990) United States	Rotatori & Fox (1990) 14 week self-control, calorie reduction and increased physical activity behavioural weight loss program.	Sample: 8 PwLD Distribution: Four Allocation: matched for IQ and disability level. Age range: 19-42yrs Diagnosis: Cerebral Palsy LD: IQ 50-80 %female: 88% %Overweight: 100% Carers: Parents & DCS.	Two by four repeated measures Control: no carer liaison group. Follow-up: 1 year.	Written material transmitted weekly to parents /caregivers.	Body weight Skin fold calipers Body mass index Behavioural observations of habit change.	DCS group showed clinically more weight loss which was seen also at follow-up but weight gain was found in no home-help at follow-up. No difference in improved observed behaviours.
Kneringer & Page (1999)	Three, one hour staff training on	Sample: 5 staff,13 DCS Distribution: n.k.	Multiple baseline design.	DCS role in storage of nutrients,	Observations on staff meal adherence.	Improved storage, healthy menu development

United States.	proper storage, menu development and meal preparation.	Group allocation: n.k. Age range: n.k. Diagnoses: n.k. Level of LD: n.k. %female: n.k. %Overweight: n.k. Carer input: n.k.	Control: One month of baseline measures Follow-up: 1 year	development of healthy menus, meal preparation, portion sizes, staff-consumer interactions.	Weight, blood pressure, cholesterol & tricep fatfold. Questionnaire on client weight, appearance, energy level, menu adherence & knowledge	and menu preparation Reduced body weight, tricep fatfold, blood pressure and cholesterol.
Chapman, Craven & Chadwick (2005) United Kingdom	Fighting fit: Physiotherapist completed home visits, advice and designed activity programs,	Sample: 88 clients Distribution: 50 control, 38 in group. Allocation: Referrals. Age range: 19-70yrs Diagnoses: n.k. Level of LD: n.k. %female: 43% %Overweight: 78%	Prospective pre/post intervention design. Control: non-intervention group. Follow-up: 12 months	Carer liaison and physical activity collaborative design.	Body mass index Demographics	The no input group increased in BMI over time. Reduction in BMI in the intervention group which showed statistical significance.

	current diet strategies.	Carers: staff&relatives.				
Wu et al (2010) Taiwan	6 month physical fitness program. Activities 40 minutes, four times a week, e.g. sports, acrobats, jogging, stairs, walking and dancing.	Sample: 146 Age range: 19-67 Diagnoses: n.k. LD level: mild to profound %female: n.k %Overweight: 47.9 Carers: "institutional carers"	Design: repeated measures Control: None Follow-up- None	Designing and leading exercise programs. Guiding participants through activities.	BMI Weight V shape sit to reach tests Sit ups (30 and 60 seconds) Shuttle run (200m run)	Reduced weight and BMI. Those with mild LD showed more BMI reduction. Improvement in the V shape sit to reach test and sit ups in 30s and 60s tests. No improvements in the shuttle run.
Yen et al (2012) Taiwan	9 month physical fitness program. Activities for 40 minutes four times a week, e.g. acrobats, jogging, stairs,	Size: 135 Age range: 33-69 Diagnoses: mixed Level of LD: mild to profound %female: 33% %overweight: 49.3%	Design: repeated measures Control: None Follow-up- None	Designing and leading exercise programs. Guiding participants	BMI Weight V shape sit to reach tests Sit ups (30 and 60 seconds)	Decreases in BMI and weight but significant BMI differences only in males. Improvement in sit ups and shuttle run activities but no improvement

	walking and dancing.	Carer input: "institutional carers"		through activities.	Shuttle run (200m run)	in the V shape sit to reach test.
Jones et al (2007) Scotland	Rebound therapy Strategies: Rebound therapy Low impact exercises Duration: 16 weeks	Size: 8 Age: mean 41.3yrs Diagnoses: mixed LD level: profound %female: n.k. %Overweight: n.k. Carer input: day staff, nurses and physiotherapist.	Pre-post 3 month follow-up design. Control: no control Follow-up: 3 months	1 day training Adhering to safety policy and use of equipment DCS co-facilitating the exercise program.	Pulse, blood pressure, weight, BMI. Seizures, activity levels, counts of CB quality of life and alertness.	No physiological changes. Increase in quality of life and alertness. Reduction in CB.
Melville et al (2011) Scotland	Take 5 – 9 session multicomponent weight intervention. Minimal caloric intake to 1500kcal. Increased	Size: 47 Distribution: n/a Group allocation:n/a Age range: 23-71 yrs Diagnoses: mixed LD: mild to profound %female: 59% %Overweight: 100% Carer: DCS and family members.	Design: Pre-post design. Control: no control. Follow-up: 24 weeks	Supporting PwLD to develop knowledge and skills relevant to weight loss and provided encouragement and motivation	Accelerometer, international physical activity questionnaire -short. Waist circumference, BMI.	Reduction in weight, weight circumference. 17 lost more than 5% of their weight. Reduction in sedentary behaviour.

	physical activity.			for behavioural change.		
Spanos et al (2013) Scotland	Take 5 – multicomponent weight intervention. (Extension of the study above)	Size: 24 carer, 16 paid and 8 relative. Age range: 23-71yrs Diagnoses: mixed LD: mild to profound %female: 59% %overweight: 100%	Design: Qualitative study using interviews. Control: no control. Follow-up: Not applicable	Same as above	Carers' perceptions of weight loss Intervention challenges and strengths.	Three themes: Lack of the sufficient support from internal and external sources. Poor communication among carers. The need for accessible resources.
Bergström, Hagströmer & Elinder (2013) Sweden	12-16 month intervention focused on physical activity and diet. Three components	Sample: 129 clients Distribution: intervention 73, control 66 PwLD. Group allocation: randomised. Age range: 20-66yrs. Diagnoses: mixed.	A cluster randomised control trial. Control: No intervention control. Follow-up: none.	Attend network meetings to provide health information to colleagues, organise health promotion activities, and	Attendance at network meetings and number of sessions held. Physical activity.	Increased physical activity. Residence was the moderator and work routines. No improvement on body mass index,

1) Appointment of a health ambassador, 2) a study circle of for caregivers and 3) a health course for the residents.

LD:mild to moderate.
%female: 57.8%
%Overweight: 69.6%
Carer input: DCS

attend circles to improve work routines and the environment.

BMI, waist circumference, diet quality, satisfaction with life, Work routines.

waist circumference, dietary quality and satisfaction with life.

Marks, Sisirak & Chang (2013) United States

Health Matters Program: 8 hour train the trainer workshop to increase physical activity and health food choices.

Size participants: 67 clients
Staff size: 34 DCS
Distribution: 32 intervention group, 35 control group.
Group allocation: randomised
Age range: 30-64yrs
Diagnoses: n.k.
LD: mild to moderate

Control: no intervention
Follow up: None

Leading weight management programs

BMI, cholesterol, glucose, Strength based exercises.
Carer scale for perceived general health status and client

Significant improvement health status, knowledge, self-efficacy Fitness.

Duration: 12
week PwLD
intervention.
%female: 52%
%overweight: n.k.

self-efficacy
and
knowledge
scale.

Gephart &
Loman
(2013)
United
States

Prevention and
prevention Plus

Sample n: 65
Age range: 8-20yrs
Diagnosis: Mixed
LD: mild to profound
% female: 20%
%overweight: 22.5%

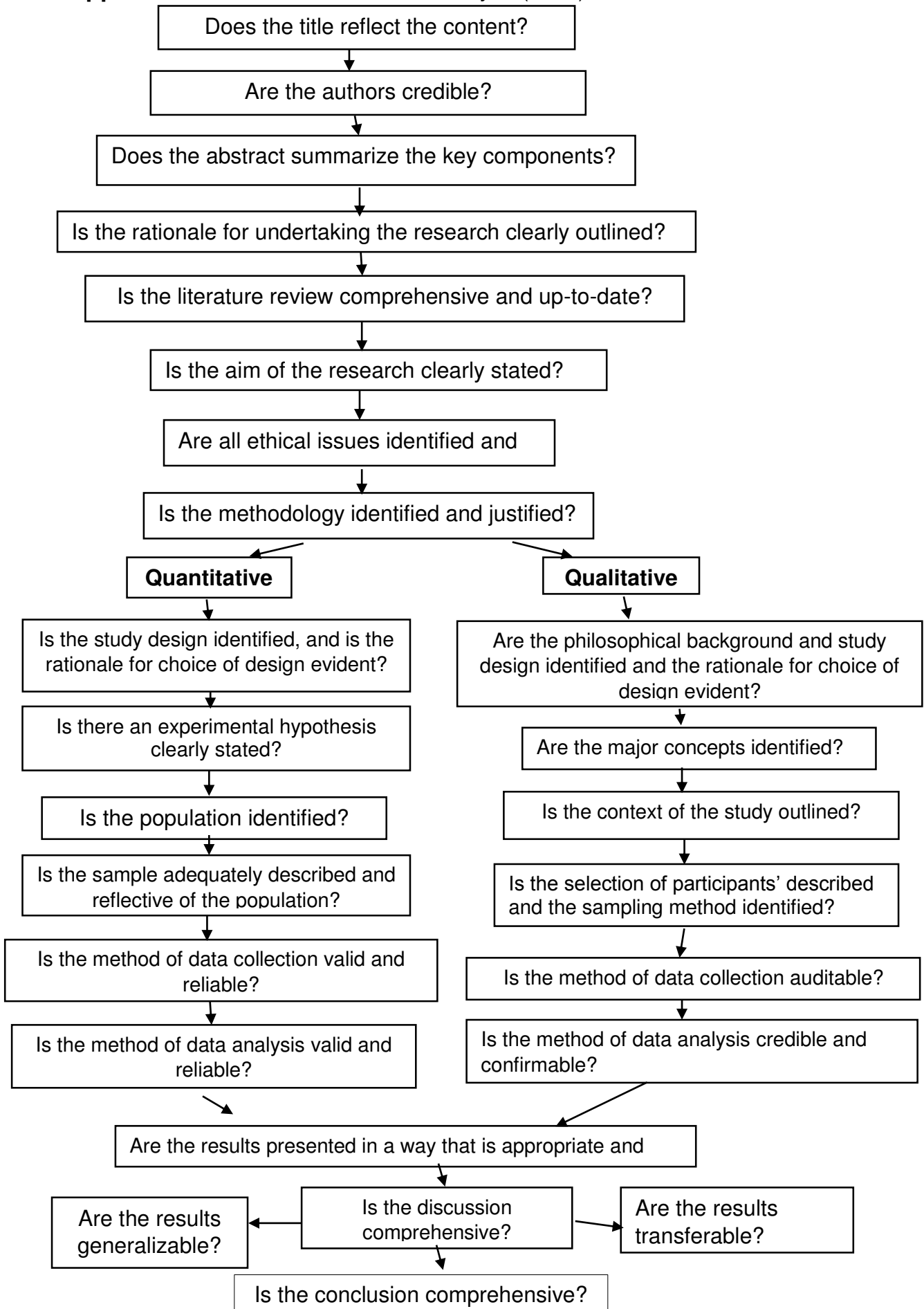
Repeated
measures
design
Control group:
None

Paid carers
participation in
training on
communication
tool, weight and
physical activity
goals, dietary
orders.

Health
awareness
interviews.
Staff
interviews on
nutrition and
physical
activity
practices.
PwLD weight
and BMI.

Decreased BMI
80% reached their
weight goals
Increased fruit and
vegetable intake.

Appendix D: Caldwell, Henshaw and Taylor (2005) health research framework.



Appendix E: Critique of quantitative studies included on DCS understanding.

<u>Criteria</u>	<u>Hawkins & Look (2006)</u>	<u>Melville et al (2009)</u>	<u>Heller et al (2002)</u>	<u>Heller et al (2003)</u>
Does the title reflect the content?	Yes	Yes, but implies qualitative study	Not very specific.	No, it implies cause and effect.
Are the authors credible?	Yes	Yes	Yes	Yes
Does the abstract summarize the key components?	Yes, but no information on analysis	Yes	Yes	Yes
Is the literature review comprehensive and up-to-date?	Limited with older papers summarised.	Little information on carer impact research.	Yes	Yes
Is the aim of the research clearly stated?	Yes	Yes	Yes	Yes
Are all ethical issues identified and addressed?	No and no ethical approval.	Ethics approval discussed and further considerations.	No	Consent mentioned
Is the methodology identified and justified?	Identified but not justified.	Identified but not justified.	Yes identified but not justified.	No information on type of regression.
Is the study design clearly identified, and is the rationale for choice of design evident?	No	No rationale provided.	Design not stated	No No.

Is there an experimental hypothesis clearly stated? Are the key variables clearly defined?	No Not clearly stated.	No	Yes.	No
		No	Yes, both independent and dependent variables.	
Is the population identified?	No, community supported accommodation?	Yes	Yes, clearly.	Yes
Is the sample adequately described and reflective of the population?	One area, funded by one trust and one social service. Five homes and one day centre.	Described but chosen through professionals and therefore potentially biased.	Described yes but two distinct samples appear to be used and therefore not reflective of the population.	Yes, but only ages 30-57 years.
Is the method of data collection valid and reliable?	Only used descriptive statistics rather than statistical analysis.	No reporting of reliability or validity measures. Lacks face validity. Participant rating provided benefits and barriers but not spontaneously.	Reliability of scales provided. Is physical activity frequency an accurate representation? The measures are carer reporting rather than a more objective method.	yes

Are the results presented in a way that is appropriate and clear?	A difference form of graph would have provided a better visual representation.	Only descriptive analyses for comparisons.	Yes, tables presented clearly.	Yes
Is the discussion Comprehensive	Yes	No, muddled and not systematic with little details provided.	Yes	Yes
Are the results generalizable?	No, small sample	Small sample with three group homes and one day centre. One service provider?	Not to the general LD population.	Too small a sample
Is the conclusion comprehensive?	Yes.	Yes	Yes	No, implies causation.

Appendix F:

Critique of quantitative studies included on DCS roles.

<u>Criteria</u>	<u>Gephart & Loman (2011)</u>	<u>Bergstrom et al (2013)</u>	<u>Marks, Sisirak & Chang (2012)</u>	<u>McCarran and Andrasik (1999)</u>	<u>Melville et al (2011)</u>
Does the title reflect the content?	Yes	Yes	Yes	Yes, but involvement not described.	Yes.
Are the authors credible?	Yes	Yes	Yes	Yes	Yes.
Does the abstract summarize the key components?	Yes	Yes	Yes	Yes	Yes.
Is the literature review comprehensive and up-to-date?	Yes	Yes	Yes	Yes	Limited review of obesity interventions in LD but they do

					refer to a literature review from 4 years prior to their study.
Is the aim of the research clearly stated?	Yes	Yes	Yes	Yes	Yes.
Are all ethical issues identified and addressed?	No	Yes	Yes,	Signed statements of participants only.	Consent was discussed.
	discussion of ethics around consent		comprehensively.		
Is the methodology identified and justified?	Identified as mixed methods but not justified	Yes	Yes.	Yes, patched up groups. Not fully justified why groups balanced according to these characteristics.	Yes

<p>Is the study design clearly identified, and is the rationale for choice of design evident?</p>	<p>No, unclear and rationale not provided.</p> <p>One question related to staff perceptions but then completed a quantitative interview.</p>	<p>Yes</p>	<p>Yes, with some rationale.</p>	<p>Yes</p>	<p>Not identified</p>
<p>Is there an experimental hypothesis clearly stated?</p> <p>Are the key variables clearly defined?</p>	<p>No.</p>	<p>Yes</p>	<p>Yes</p>	<p>No</p>	<p>Yes.</p> <p>No, variables not clearly defined.</p>

Is the population identified?	Mainly but level of LD not included.	Level of LD not assessed.	Yes, those with mild to moderate LD.	Yes	Yes
Is the sample adequately described and reflective of the population?	65 youths, who had multiple diagnoses and 48 caregivers	Yes. 130 participants with multiple conditions.	Clients with severe and profound LD not included.	No sample size. Female dominated sample.	Yes, although only those referred to dieticians.
Is the method of data collection valid and reliable?	No control group. No interrater reliability during the interview.	Yes. Intervention fidelity included. Valid and reliable measures and	Authors have signposted readers to other articles for the psychometric properties of their measures. The knowledge and	Interrater reliability on observations but records not reliable or valid.	IPAQ's not previously valid or reliable for adults with LD. Accelerometer cut offs have not been explained.

	Validated interrater interview tool.	reliability used.	skills scales were reported as reliable.		
Are the results presented in a way that is appropriate and clear?	Yes.	Yes	Clear and with tables.	Yes	Yes
Is the discussion Comprehensive	Yes	Yes	Yes	No, mixed with results but not comprehensive	Yes
Are the results generalizable?	No long term follow up. To group home only.	Yes to those in group homes in Sweden.	Sample size was achieved through a power calculation. Yes to those with mild to moderate LD.	No, too small sample.	Pilot study only – small sample size. Only those who have been referred and not ethnically diverse.

Is the conclusion comprehensive?	Yes	Yes.	Yes	Limited,	Yes, brief overview.
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Appendix F:

Critique of qualitative studies included continued.

<u>Criteria</u>	<u>Chapman et al (2005)</u>	<u>Kneringer & Page (1999)</u>	<u>Jones et al (2011)</u>	<u>Wu et al (2010)</u>	<u>Yen et al (2012)</u>
Does the title reflect the content?	States that it is an evaluation to improve “healthy living” and “reduce obesity” but only weight and BMI measured.	Yes.	Yes, but it does not include the physiological factors measured in the study.	Yes.	Yes
Are the authors credible?	Yes	Yes.	Yes	Yes	Yes
Does the abstract summarize the key components?	Limited information on implications for clinical practice.	Yes.	Yes, all key factors included.	Yes.	Yes.

Is the literature review comprehensive and up-to-date?	Yes.	No. Very limited.	Yes	Limited, only providing a rationale.	A broad overview with little information of previous findings.
Is the aim of the research clearly stated?	Yes	Yes.	Yes	Yes.	Yes.
Are all ethical issues identified and addressed?	None discussed.	No discussion of ethics.	Approval and other ethical considerations discussed.	No discussion of ethics.	No discussion of ethics.
Is the methodology identified and justified?	Methodology identified but not justified.	Little evidence for the type of intervention chosen and why.	Yes	Yes, but rationale for 6 months not provided.	Yes, but rationale for 9 months not provided.

Is the study design clearly identified, and is the rationale for choice of design evident?	Yes.	Yes, Multiple baseline design. Little rationale provided.	Yes, although rational for 3 month follow-up duration was not discussed.	No design specified.	No design specified.
Is there an experimental hypothesis clearly stated?	Hypotheses not stated.	None stated.	No.	No hypotheses stated. Variables discussed briefly.	No hypotheses stated. Variables mentioned but with no rationale.
Are the key variables clearly defined?	Variables highlighted in outcome measures section.				
Is the population identified?	Poorly and with limited inclusion and exclusion criteria.	Direct care providers in community-based group homes.	People with profound learning disabilities but no other factors of	PwLD in institutions, but no further discussion of the population.	PwLD in institutions.

			the population explicitly stated.		
Is the sample adequately described and reflective of the population?	Poorly described and the intervention group included those referred to a healthy living practitioner and the control were those who had not been referred. Therefore biased.	No. Only 13 staff from two homes and these all had bachelor degrees – unlikely to be representative of the direct care staff population.	Only age range provided. No other demographics provided for the sample.	Gender not discussed. Good mix of client's with different levels of LD.	Twice as many men as women included, of similar age ranges and across a range of LD levels.

Is the method of data collection valid and reliable?	Reliable physiological measure used and valid in general population. No information of whether this is suitable in the LD population.	Good interrater reliability on observations. No psychometrics reported for the questionnaire used.	No reliability measures provided for the BILD life experience checklist and alertness scales. Yes, although due to sample size on descriptive statistics were completed on BMI.	No psychometric properties of the measures discussed. No rationale provided to why those measures were chosen.	No psychometric properties of measures discussed.
Are the results presented in a way that is appropriate and clear?	Yes. Clearly described with tables.	Yes, graphically represented.	Yes, although due to sample size on descriptive statistics were completed on BMI.	Yes, in clear tables and descriptions.	Yes, results discussed clearly.

Is the discussion Comprehensive	Yes.	Very limited with no study limitations discussed.	Yes.	Limited and does not discuss the limitations of the research.	Fairly comprehensive linking to previous research.
Are the results generalizable?	Questionable due to the allocation of the groups.	Limited generalisability, results based on only 5 clients and 13 staff members.	Very few participants had their BMIs taken and therefore questionable generalisability.	To those in institutes in Taiwan. However, how these findings generalise to the community-based support in the UK is questionable.	To those in institutes in Taiwan. However, how these findings generalise to the community-based support in the UK is questionable.
Is the conclusion comprehensive?	No conclusion.	No conclusion.	Yes.	No conclusion.	No conclusion.

Appendix G:

Critique of qualitative studies included

Qualitative Criteria	Temple & Walkley (2007)	Johnson et al (2007)	Spanos et al (2013)
Does the title reflect the content?	Yes	Provides little information on what the study aims to do.	Yes
Are the authors credible?	Yes	Yes	Yes
Does the abstract summarize the key components?	Yes	Yes	Yes
Is the literature review comprehensive and up-to-date?	Yes	They form an argument for the purpose of the study but little context of the area.	Lacks some of the key studies?
Is the aim of the research clearly stated?	Yes	Yes	Yes
Are all ethical issues identified and addressed?	Approval discussed.	Informed consent and ethics approval discussed.	Approval but no additional ethics considered.

Is the methodology identified and justified?	Yes	Yes, interviews and focus groups with justification.	Thematic with established framework.
Are the philosophical background and study design identified and the rationale for choice of design evident?	Theoretical framework and rationale for design rationalised.	“a pragmatic approach for a real world practice orientation” rationalised. Design justified.	No information on the philosophical stance of the research. No but interview schedule rationalised.
Are the major concepts identified?	Yes	Yes.	Yes
Is the context of the study outlined?	Little information on the carers' service.	Limited context provided in this short report.	Yes
Is the selection of participants described and the sampling method identified?	Yes, limited information on recruitment method through.	Recruitment through staff and purposive sampling justified.	Yes, staff distribution unknown.
Is the method of data collection auditable?	Yes	Yes.	Yes

Is the method of data analysis credible and confirmable?	Yes	<p>They discussed the constant comparative method being used to guide the research but summarised the responses according to the specific questions posed.</p> <p>This questions whether this comparison method was completed adequately.</p>	<p>These into pre-organised categories.</p> <p>No second rater provided.</p>
Are the results presented in a way that is appropriate and clear?	Table of key themes would have been helpful.	<p>Yes, through a clear diagram. However at times the themes discussed by different respondents became confusing.</p>	Yes

Is the discussion comprehensive	Yes	Yes, clear practice implications highlighted at each level.	Yes, but little critique.
Are the results transferable?	Little information to make this judgement.	50% of staff attended from one agency. Not enough context was provided to assess the transferability of the findings.	No, specific to Take 5.
Is the conclusion comprehensive?	None	No conclusion.	Yes and information on researcher impact.

Appendix H: Research Advert.

We are recruiting for direct care staff to participate in short questionnaire on staff perceptions of service users who have learning disabilities who are obese.

What is this project about?

People with learning disabilities have a significantly higher rate of obesity than the general population which negatively impacts their long-term health and quality of life. This study aims to find out what direct care staff's views are of obesity with this group so that we can produce appropriate weight management interventions for staff and service users.

What does the study involve?

Completing a 30 minute online questionnaire on your view of one service-user that you have worked, or currently work, with who is obese or significantly overweight.

Who is completing this project?

The lead researcher for this project is Laura Bird, a trainee clinical psychologist, with Canterbury Christ Church University. Professor Jan Burns from Canterbury Christ Church University and Dr Jane Edmonds, from the [HOST] Trust, are supervising this project.

Can you participate?

- Are you a learning disability nurse or support staff member?
- Do you have direct daily responsibility in caring for people with learning disabilities?

- Can you identify one service-user that you have worked with or currently work with who is obese or significantly overweight, but does not have Prader Willi Syndrome?

If you answered yes to the above we would really appreciate **your** contribution.

What are the benefits to taking part?

- To contribute your views in an area where there is little research to support interventions for the long-term health outcomes for people with learning disabilities.
- Your service will be contacted to invite you to a half day workshop on considerations for obesity in the learning disabilities population in 2015.
- You will be put in a prize draw for £75!

How do I take part?

- People can start to participate in this project from mid-August 2014.
- There will be both paper and online questionnaires available to complete.
- If you are an individual or organisation interested in participating or distributing these to your direct care staff members please contact me on l.m.bird500@canterbury.ac.uk or by leaving your name and contact details on a 24hour voicemail 03330117070 and I will get back to you as soon as possible.

Appendix I: Information sheet for staff.**Information about the research****Staff perceptions about obese clients who have learning disabilities.**

Hello. My name is Laura Bird and I am a trainee clinical psychologist at Canterbury Christ Church University. I would like to invite you to take part in a research study. Before you decide it is important that you understand why the research is being done and what it would involve.

What is the purpose of the study?

The purpose of the study is to investigate care staff's responses to obese clients who have learning disabilities. There has been an emphasis on promoting the "Health to all" but people with learning disabilities continue to have significantly higher rates of obesity than the general population. Research shows that support staff have a vital role in influencing clients' lifestyle and we would like to investigate how staff's thinking about clients can potentially influence their ability to help them. People have many different views and feelings on this topic and it is important to be as honest as possible in your responses so that the research can be as helpful as possible. This information will contribute to other research to inform future interventions, such as targeted training for support staff.

Why have I been invited?

You have been invited as you work as part of a care team with people with learning disabilities in the region in which the research is taking place. All participants' responses will be confidential and anonymised.

Do I have to take part?

No. It is up to you to decide to join the study. If you agree to take part, please select that you have provided consent in the following section.

What will happen if I don't want to carry on with the study?

If you do not wish to continue the research any point during the completion of the questionnaire do not submit your form at the end.

Once you have submitted your completed questionnaire you will be unable to withdraw your responses from the study as the questionnaires are anonymous and we will be unable to locate your particular form.

What will happen to me if I take part?

A set of these anonymous paper questionnaires will be available for you to complete about your views on a client you currently work, or have previously worked, with who is obese. Your client's name should NOT be provided at any stage during the study.

This can be completed at a time most convenient to you and will take approximately 30 minutes. These paper forms will be picked up by the researchers from a confidential box your work place.

What are the possible disadvantages and risks of taking part?

Risks to completing this study may include some distressing feelings arising about clients that you are referring to during the questionnaires. If this is the case we would recommend you discuss this with your manager or supervisor.

What are the possible benefits of taking part?

We cannot promise the study will help you but the information we get from this study will help improve the treatment of people with obesity with learning disabilities and their care staff to manage these concerns. We hope that the information we receive from this study will help us to understand direct care staff views and so suitable training and support can be given to improve clients' health.

We will be holding a half-day workshop on obesity in people with learning disabilities in 2015 for staff and clients to attend. This will address staff and clients' needs in managing weight and informed

consent considerations. Your provider will be contacted with the invites if you would like to attend. In addition, you have the choice to opt into a prize draw for £75 when you participate in this research.

Will my taking part in this study be kept confidential?

Yes. We will follow ethical and legal practice and all information about you will be handled in confidence during and after the study. Your paper questionnaire and consent form will have a code on them to link them. However this will only be for the purpose of ensuring consent forms are completed for all those who take part. Any contact information you give to join the prize draw will be separated from your responses as soon as the researcher receives them. Consent forms and responses will also be separated at the earliest point and kept confidential. All data will be stored anonymously and securely.

Your name will not be needed on your questionnaire responses and you should not provide your client's name during the study. All information which is collected about you during the course of the research will be kept strictly confidential as your name will not be linked with your responses or data.

The raw data will be viewed by Laura Bird, lead researcher, Professor Jan Burns, academic lead supervisor, and Jane Edmonds, second supervisor. Your anonymised data will be kept confidentially as part of the Canterbury Christ Church University protocol for ten years.

What will happen to the results of the research study?

This study is a thesis project which is part of a clinical doctorate qualification. A report will be written up for this purpose but is also intended to be published in a peer-reviewed journal. There will not be any identifiable information written in any report and therefore your responses will be anonymous.

There will be an option for you to provide your contact details if you would like to have a summary of the report's findings. This will be kept separately from your responses to maintain your anonymity.

As part of the Canterbury Christ Church University procedures participant's anonymised data will be confidentially stored for 10 years.

What if there is a problem?

If you have any concerns regarding this research please contact me via the following details.

If you would like to speak to me and find out more about the study or have questions, you can leave a message for me on a 24-hour voicemail phone line at 03330117070. Please say that the message is for me, Laura Bird, and leave a contact number so that I can get back to you.

Complaints

If you wish to make a formal complaint, you can do this by contacting Professor Paul Camic, Research Director, at Canterbury Christ Church University on 03330 117 114 or contacting him via his email address: paul.camic@canterbury.ac.uk.

Who is organising and funding the research?

Canterbury Christ Church University is organising and funding this research with support from [HOST] Trust.

Who has reviewed the study?

All research completed by Canterbury Christ Church University is looked at by independent group of people, called the Salomons Ethics Panel, to protect your interests. This study was approved by the University's Salomons Ethics Panel.

Further information and contact details

If you would like to speak to me and find out more about the study or have questions about it answered, you can leave a message for me on a 24-hour voicemail phone line at 01892 507673. Please say that the message is for me Laura Bird and leave a contact number so that I can get back to you.

Appendix J:

Ethics approval.

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Appendix K:

R & D approval.

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Appendix L:

Consent form.

09/08/2014

**Participant consent form****Staff perceptions about obese clients who have learning disabilities.****Name of Researcher: Laura Bird****Please initial box**

1. I confirm that I have read and understand the information sheet dated 09/08/2014 (Version 3) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.

3. I understand that the data collected during the study may be looked at by the lead supervisor [Jan Burns]. I give permission for these individuals to have access to my data.

6. I agree to take part in the above study.

Name of Participant _____ **Date** _____

Signature _____

Name of Person taking consent _____ **Date** _____

Signature _____

Appendix M:
Questionnaire material.



Staff Questionnaire

This questionnaire will take approximately 30 minutes to complete. Please be as honest as possible when completing the questions. People have lots of different views and feelings on this topic and so your truthful responses would be most helpful. This will support us more effectively in providing appropriate support for staff and service-users.

- 1) How old are you? *(Please tick)*
- 16-20
 - 21-25
 - 26-30
 - 31-35
 - 36-40
 - 41-45
 - 46-50
 - 51-55
 - 56-60
 - 61-65
 - 66+
- 2) What gender are you? *(Please tick)*
- Female Male
- 3) What type of service do you work for? *(Please tick one)*
- NHS Service Private Residential Service Private day service
- Other *(Please Specify)*.....
- 4) How long have you been working with people with learning disabilities?
(Please tick one)
- 6 months -1 year
 - 1 year and one month – 3years
 - 3 years and one month– 5years
 - 5 years and one month- 10 years
 - 10 years+

5) What training have you received on weight management in learning disabilities? *(Please tick one)*

- No formal training on obesity
- Limited training (1 or 2 short courses only)
- A fair amount of training (Several courses)
- Detailed training (Many courses or a coverage on a professional course).
- Extensive training (specialism on the management of nutritional training or a similar level of training).

You will now be asked to think of a client who you previously have had, or currently have, direct daily caring responsibilities with. This client must be significantly overweight or obese and has a learning disability. Please **exclude** clients with Prader-Willi Syndrome. Your client's name or any other identifiable information **should not** be provided.

6) Where would you say this client is on the learning disability continuum? *(Please tick one)*

- Mild
- Moderate
- Severe
- Profound

7) How independent or dependent would you say this client is in their daily living? *(Please tick one)*

- Complete independence
- Modified independence
- Requires supervision
- Minimal assistance
- Maximal assistance
- Complete dependence

8) What is this service user's gender? *(Please tick)*

Female

Male



9) How old was this service user when you worked with them? *(Please tick)*

16-20

21-25

26-30

31-35

36-40

41-45

46-50

51-55

56-60

61-65

66+

Please respond to the remainder of this questionnaire's questions based on your thoughts, feelings and behaviour regarding this particular client (*The client that you have described on the previous page*) and their weight.

10) The cause/s of your client's obesity reflects an aspect of: (*Please tick one*):

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	8	7	6	5	4	3	2	1
This person						The situation		

11) The cause/s of your client's obesity is: (*Please tick one*)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	8	7	6	5	4	3	2	1
Inside of them						Outside of them		

12) The cause/s of your client's obesity is: (*Please tick one*)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	8	7	6	5	4	3	2	1
Something about them						Something about others		

13) How much do you think that the internal causes for your client's obesity will continue to affect them? (*Please tick one box below*)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4	5	6	7
Will never affect them			Will always affect them			

To what extent do you agree or disagree with the following statements.

14) This client is responsible for their own health.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4	5	6	7
Strongly Agree			Strongly Disagree			

15) It's the client's own fault that they became obese.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4	5	6	7
Strongly Agree			Strongly Disagree			

16) This client could have prevented their health condition.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1	2	3	4	5	6	7	
Strongly Agree							Strongly Disagree

17) This client can avoid being obese by making a conscious effort.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1	2	3	4	5	6	7	
Strongly Agree							Strongly Disagree

18) When thinking about this particular service-user and their weight how did you feel? *(Please indicate the extent to which you felt the emotions below)*

a) Anger

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1	2	3	4	5	6	7	
Not at all							Extremely

b) Disgust

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1	2	3	4	5	6	7	
Not at all							Extremely

c) Sympathy

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1	2	3	4	5	6	7	
Not at all							Extremely

d) Pity

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
1	2	3	4	5	6	7	
Not at all							Extremely



e) Depressed

1 2 3 4 5 6 7

Not at all

Extremely

f) Relaxed

1 2 3 4 5 6 7

Not at all

Extremely

g) Anxious

1 2 3 4 5 6 7

Not at all

Extremely

h) Happy

1 2 3 4 5 6 7

Not at all

Extremely

i) Affectionate

1 2 3 4 5 6 7

Not at all

Extremely

Again when thinking of this same client and their weight please complete indicate below how much you agree or disagree with the following statements.

What can one do for a person who does not look after their health?

21) All one can do is look after their basic physical needs (*Please select one*).

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4	5
Strongly agree				Strongly disagree

22) There is little point in arranging an assessment with a clinical psychologist for this client (*Please tick one*).

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4	5
Strongly agree				Strongly disagree

23) There is little point in arranging an assessment with the dietician for this person's behaviour (*Please tick one*).

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4	5
Strongly agree				Strongly disagree

23) This client's weight problems are so ingrained that they will be unresponsive to treatment. (*Please tick one*)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4	5
Strongly agree				Strongly disagree

24) There is little point in reasoning with this client. *(Please tick one)*

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4	5
Strongly agree				Strongly disagree

25) How much extra effort would you be prepared to give to help this person improve their health. *(Please tick one)*

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4	5	6	7
<i>No extra effort at all</i>			<i>As much extra effort as possible.</i>			

26) How willing would you be to try different approaches to help this person change their behaviour? *(Please tick one)*

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4	5	6	7
<i>Not at all willing</i>			<i>Extremely willing</i>			

Thank you very much for completing this questionnaire your responses are very much appreciated.

Prize Draw Information and Research Report Feedback

If you would like a copy of the results of this research and/or would like the chance to win £75 please fill in your details below.

I would like a copy of the research results for this study.

Name:.....

Email Address:.....

Other preferred contact details:.....

.....
.....
.....
.....
.....

I would like to be placed in the prize draw.

Name:.....

Email Address.....

Other preferred contact details:.....

.....
.....
.....
.....
.....

Appendix N:

Summary of project for participants.

Canterbury Christ Church
University
Runcie Court
David Salomons Estate
Broomhill Road
Tunbridge Road
TN3 0TF

DATE:

Dear Participants.

You have recently participated in a piece of research on staff perceptions about obese clients who have learning disabilities. I would like to take this opportunity to thank you for your participation and taking the time out of your busy schedules to contribute to research in this field. During your participation you opted to be sent a summary of the report and I am contacting you to provide you with this summary.

Background information:

Carers have an instrumental role in the quality of life of people with LD and it is vital that their roles in interventions are clear. Previous research has shown that healthcare professionals are influenced by their beliefs which can affect intervention, decisions and also influence clients' beliefs. A model by Wiener (1980) has been used widely to explore carers' helping behaviours in CBs previously.

Weiner's (1980) model suggests that people believe others' behaviour to be due to either internal or external factors to the person, that this behaviour varies in its stability (whether it will always continue to be in the case in the future) and whether the person is in control of these behaviours or not. This theory argues that if people believe others' behaviours are internal and controllable by the person who is behaving in a certain way that they are more likely to feel disgusted and angry with them which contribute to them avoiding the person showing the behaviour. However if a person views the persons behaviour as uncontrollable for the person they would be more sympathetic and show pity towards the person meaning that they would be more likely to help. Also if a person's behaviour is seen to have more stable causes it is suggested that people would show less optimism for change and therefore put less effort in to help a person with their behaviour.

The study aims:

The aim of this study was to explore the application of Weiner's model to direct care staff working with obese clients with learning disabilities.

We hypothesised staff perceptions of obesity in those with LD as:

- 1) Internal controllable attributions will be correlated to negative emotions (such as anger and disgust) reported in staff and negatively associated with positive

emotions (sympathy and pity). Both negative and positive emotions will be associated with less willingness to help.

- 2) Internal stable attributions will be negatively correlated with optimism for change in obesity which will be associated with less willingness to help.

Findings:

Staff rated their clients' weight as being slightly more due to internal factors than external factors, being low in controllability and high in stability. Staff reported low levels of positive and negative emotion but high levels of sympathy, optimism and willingness to help.

Hypothesis 1 findings: No associations were found between attributions or affect and willingness to help.

Hypothesis 2 findings: Only optimism was associated with willingness to help.

Conclusion: The findings did not support the applicability of Weiner's attribution models to staff supporting overweight people with learning disabilities. Staff were shown to have consistently high levels of willingness to help and this was strongly linked to their optimism for health change. These findings contribute to the inconsistent literature on the applicability of Weiner's model to staff helping in LD services.

Future research and clinical implications:

Future research should investigate whether willingness to help relates to the helpfulness of staff's responses to people who are overweight and to explore the challenges to staff's willingness to help in the context of busy services.

It is positive to see how direct care staff are willing to support their clients with their health but training is needed to support staff and services to maintain their optimism for health change and provide skills in constructively engaging client's in healthier behaviours. Supporting client health is a challenging area and so funding and training are needed to be prioritised so client's with learning disabilities do not continue to be affected by the health inequality that they currently face.

If you have any further queries relating to this research and the findings please feel free to contact me, Laura Bird, on a 24-hour voicemail phone line at 01892 507673. Please say that the message is for me, Laura Bird, and leave a contact number so that I can get back to you.

Thank you again for participating in this research.

All the best,

Laura Bird
Trainee Clinical Psychologist

Appendix O:

End of study notification.

Ethics Panel Chair
Canterbury Christ Church University
Runcie Court
David Salomons Estate
Broomhill Road
Tunbridge Wells
Kent
TN3 0TF

Canterbury Christ Church
University
Runcie Court
David Salomons Estate
Broomhill Road
Tunbridge Road
TN3 0TF

DATE:

Dear Ethics Panel.

In August 2014 you granted me full ethics approval on a project titled: Staff attributions and helping responses to obesity in people with intellectual disabilities: A cognitive-emotional analysis. The panel requested a short report on the progress and completion of the research and I am writing to you to provide you with this short report which I hope fulfils the necessary requirements.

Study Summary:

The study was completed in accordance with the ethics approval and overall 80 care staff participated.

Background information:

Carers have an instrumental role in the quality of life of people with LD and it is vital that their roles in interventions are clear. Previous research has shown that healthcare professionals are influenced by their beliefs which can affect intervention, decisions and also influence clients' beliefs.

Weiner's (1980) cognitive-emotion-action theory of motivated behaviour proposes that people ascribe dimensions of locus of control (internal or external), stability and controllability to other's actions and that internal controllable explanations are associated with disgust and anger which promote avoidance behaviours whereas uncontrollable explanations are associated with sympathy and pity which promote helping. Weiner (1974; 1979) also proposed a theory of achieved motivation that links stable causes to reduced optimism for future change associated with reduced effort.

Aims:

The aim of this study was to explore the application of Weiner's model to direct care staff working with obese clients with learning disabilities.

We hypothesised staff perceptions of obesity in those with LD as:

- 1) Internal controllable attributions will be correlated to negative emotions (such as anger and disgust) reported in staff and negatively associated with positive emotions (sympathy and pity). Both negative and positive emotions will be associated with less willingness to help.
- 2) Internal stable attributions will be negatively correlated with optimism for change in obesity which will be associated with less willingness to help.

Findings:

Staff rated their clients' weight as being slightly more due to internal factors than external factors, being low in controllability and high in stability. Staff reported low levels of positive and negative emotion but high levels of sympathy, optimism and willingness to help.

Hypothesis 1: No associations were found between attributions or affect and willingness to help.

Hypothesis 2: Only optimism was associated with willingness to help.

Conclusion:

The findings did not support the applicability of Weiner's attribution models to staff supporting overweight people with learning disabilities. Staff were shown to have consistently high levels of willingness to help and this was strongly linked to their optimism for health change. These findings contribute to the inconsistent literature on the applicability of Weiner's model to staff helping in LD services.

Future research should investigate whether willingness to help relates to the helpfulness of staff's responses to people who are overweight and to explore the challenges to staff's willingness to help in the context of busy services.

Funding and training is required to support staff and services to maintain their optimism for health change and provide skills in constructively engaging client's in healthier behaviours so client's with learning disabilities do not continue to be effected by the health inequality that they currently face.

If you have any further queries relating to this research and the findings please feel free to contact me for further clarification.

All the best,

Laura Bird

Trainee Clinical Psychologist

Appendix P:

Tizard Learning Disability Review author guidelines

Submit to the journal

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Submit your manuscript

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	Article files should be provided in Microsoft Word format. LaTeX files can be used if an accompanying PDF document is provided. PDF as a

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Biographies and acknowledgements	Authors who wish to include these items should save them together in an MS Word file to be uploaded with the submission. If they are to be included, a brief professional biography of not more than 100 words should be supplied for each named author.
Research funding	Authors must declare all sources of external research funding in their article and a statement to this effect should appear in the Acknowledgements section. Authors should describe the role of the funder or financial sponsor in the entire research process, from study design to submission.
Structured Abstract	<p>Authors must supply a structured abstract in their submission, set out under 4-7 sub-headings (see our "How to... write an abstract" guide for practical help and guidance):</p> <p>Purpose (mandatory)</p> <p>Design/methodology/approach (mandatory)</p> <p>Findings (mandatory)</p> <p>Research limitations/implications (if applicable)</p>

	<p>Practical implications (if applicable)</p> <p>Social implications (if applicable)</p> <p>Originality/value (mandatory)</p> <p>Maximum is 250 words in total (including keywords and article classification, see below).</p> <p>Authors should avoid the use of personal pronouns within the structured abstract and body of the paper (e.g. "this paper investigates..." is correct, "I investigate..." is incorrect).</p>
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Literature review. It is expected that all types of paper cite any relevant literature so this category should only be used if the main purpose of the paper is to annotate and/or critique the literature in a particular subject area. It may be a selective bibliography providing advice on information sources or it may be comprehensive in that the paper's aim is to cover the main contributors to the development of a topic and explore their different views.

General review. This category covers those papers which provide an overview or historical examination of some concept, technique or phenomenon. The papers are likely to be more descriptive or instructional ("how to" papers) than discursive.

Headings

Headings must be concise, with a clear indication of the distinction between the hierarchy of headings.

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Notes/Endnotes

Notes or Endnotes should be used only if absolutely necessary and must be identified in the text by consecutive numbers, enclosed in square brackets and listed at the end of the article.

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Surname, Initials (year), *Title of Book*, Publisher, Place of publication.

e.g. Harrow, R. (2005), *No Place to Hide*, Simon & Schuster, New York, NY.

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e.g. Calabrese, F.A. (2005), "The early pathways: theory to practice – a continuum", in Stankosky, M. (Ed.), *Creating the Discipline of Knowledge Management*, Elsevier, New York, NY, pp. 15-20.

<i>For journals</i>	<p>Surname, Initials (year), "Title of article", <i>Journal Name</i>, volume, number, pages.</p> <p>e.g. Capizzi, M.T. and Ferguson, R. (2005), "Loyalty trends for the twenty-first century", <i>Journal of Consumer Marketing</i>, Vol. 22 No. 2, pp. 72-80.</p>
<i>For published conference proceedings</i>	<p>Surname, Initials (year of publication), "Title of paper", in Surname, Initials (Ed.), <i>Title of published proceeding which may include place and date(s) held</i>, Publisher, Place of publication, Page numbers.</p> <p>e.g. Jakkilinki, R., Georgievski, M. and Sharda, N. (2007), "Connecting destinations with an ontology-based e-tourism planner", in <i>Information and communication technologies in tourism 2007 proceedings of the international conference in Ljubljana, Slovenia, 2007</i>, Springer-Verlag, Vienna, pp. 12-32.</p>
<i>For unpublished conference proceedings</i>	<p>Surname, Initials (year), "Title of paper", paper presented at Name of Conference, date of conference, place of conference, available at: URL if freely available on the internet (accessed date).</p> <p>e.g. Aumueller, D. (2005), "Semantic authoring and retrieval within a wiki", paper presented at the European Semantic Web Conference (ESWC), 29 May-1 June, Heraklion, Crete, available at: http://dbs.uni-leipzig.de/file/aumueller05wiksar.pdf (accessed 20 February 2007).</p>
<i>For working papers</i>	<p>Surname, Initials (year), "Title of article", working paper [number if available], Institution or organization, Place of organization, date.</p> <p>e.g. Moizer, P. (2003), "How published academic research can inform policy decisions: the case of mandatory rotation of audit appointments", working paper, Leeds University Business School, University of Leeds, Leeds, 28 March.</p>
<i>For encyclopedia entries (with no author or editor)</i>	<p><i>Title of Encyclopedia</i> (year) "Title of entry", volume, edition, Title of Encyclopedia, Publisher, Place of publication, pages.</p> <p>e.g. <i>Encyclopaedia Britannica</i> (1926) "Psychology of culture contact", Vol. 1, 13th ed., Encyclopaedia Britannica, London and New York, NY, pp. 765-71.</p> <p>(For authored entries please refer to book chapter guidelines above)</p>

For newspaper articles (authored) Surname, Initials (year), "Article title", *Newspaper*, date, pages.
e.g. Smith, A. (2008), "Money for old rope", *Daily News*, 21 January, pp. 1, 3-4.

For newspaper articles (non-authored) *Newspaper* (year), "Article title", date, pages.
e.g. *Daily News* (2008), "Small change", 2 February, p. 7.

For archival or other unpublished sources Surname, Initials, (year), "Title of document", Unpublished Manuscript, collection name, inventory record, name of archive, location of archive.
e.g. Litman, S. (1902), "Mechanism & Technique of Commerce", Unpublished Manuscript, Simon Litman Papers, Record series 9/5/29 Box 3, University of Illinois Archives, Urbana-Champaign, IL.

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e.g. Castle, B. (2005), "Introduction to web services for remote portlets", available at: <http://www-128.ibm.com/developerworks/library/ws-wsrp/> (accessed 12 November 2007).
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