Chapter 3

The research design for a holistic approach to weight management

The previous chapters have contextualised the need for developing a holistic approach to obesity management, particularly in primary care. A conceptual framework to inform this emerged through the examination of obesity perspectives from various disciplines and applied to weight management from a nursing perspective. This chapter now describes the rationale and design for the research approach. The design for the exploratory phase to ascertain the association between weight beliefs, physical, social and emotional well-being and their relevance to individuals with obesity is explained. This is followed by details of how the results from the exploratory phase were transferred into the development of materials for the planned intervention. Finally, the evaluative process to determine utility and relevance of the intervention for service development is delineated. The methodology and methods for each phase is described sequentially.

3.1 Research paradigms and rationale

Making decisions on research methodology and method is not necessarily straightforward. As Parahoo (2006) states these decisions should be based on the questions asked. Overall the study aimed to explore the complexity of obesity management and meet the requirements for nursing practice in primary care. In order to achieve that aim, consideration was given as to the most appropriate approach for data collection.
After reflecting on the different needs of the two phases laid out in Chapter 2 it was decided to take a pragmatic approach and implement a mixed methods design. This approach appears to offer a more comprehensive way of finding answers to research questions (Johnson and Onwuegbuzie 2004).

The initial exploratory phase required a design that would allow examination of the relationships between the concepts already identified in the literature review. The intention was not to intervene at this stage, nor to ascertain causal links, but simply to establish the prevalence of these relationships in obese individuals. Therefore, a correlational, more quantitative approach was taken (Parahoo 2006). To gain further insight, a longitudinal design was applied to identify changes in these relationships (Watson 1998) with weight change. This was carried out prospectively to access more robust data (Parahoo 2006). Although the dominant approach was quantitative, qualitative data was also gathered to provide illumination to some of the results (Clarke 2001). According to Parahoo (2006) different methods allow complex issues to be addressed.

The purpose of the second phase was to evaluate the implementation of the intervention developed from the first, exploratory phase. In order to reflect holism and person-centredness it was decided to take a qualitative approach to the research. In particular, the interpretive paradigm seemed applicable as it permits the multiple perceptions of both nurses and individuals to be explored and understood (Weaver and Olson 2006) in obesity management. Furthermore, it appeared that a predominately, qualitative approach would help gain insight into the process of applying the holistic approach in the practice context (Watson-Miller 2005). The process for carrying out the study is delineated in Figure 3.1.
Figure 3.1 Diagram of the Research Process
Figure 3.1 reflects the research process symbolised by the wheel and spoke to indicate how the research approach in the hub is the driver to explore the cycle of phases undertaken in the study to develop practice. The sections demonstrating the developmental process and intervention phase of this approach are divided by thick spokes running from the hub to the circumference. Within each of these sections dotted lines show the different stages used. The large arrows indicate the cyclical nature of practice development and how the current study goes through one cycle.

It is acknowledged that the design of the initial exploratory phase of the research may be considered unconventional. The research design for a fairly new area of nursing practice may be expected to begin with an in-depth exploration of the phenomenon, for example, through interviews or focus groups. In this case, the literature reviewed indicated that considerable evidence to inform the intervention already existed although it was not linked. Furthermore, the broad spectrum of that information appeared to support the need for a more comprehensive approach to management. However, these components needed to be amalgamated, incorporated and understood in the nursing context. Furthermore, there was a need to explore the relevance of this, to individuals with obesity therefore, there was a need to gain their perspective to inform a person centred approach (Lewin et al. 2007). For these reasons, a survey method for initial data collection was used and the results analysed to inform the development of an intervention.

Nursing interventions require in-depth explanation as well as description and need to be viewed in context as “The more closely that an intervention matches the manner in which the problem is experienced, the more effective it is” (van Meijel et al. 2004 p.87).
In addition, it was important to gain both the perspectives of individuals and nurses in primary care. The qualitative methodology/method seemed appropriate to gain insights into the processes of how the intervention worked in addition to understanding the limitations of the approach.

It appears that drawing on mixed methods would facilitate the study of a person centred holistic approach as it focuses on “doing research with and for people, rather than on people” (Meyer 1995). As one of the objectives of the study was to produce an acceptable and useful approach to weight management it was felt necessary to involve both individuals and nurses in the development as well as the implementation of the approach. With this in mind, the methods used were considered an appropriate way to encourage empowerment for change through collaborative participation for both nurse and individual while reflecting the complexity of these changes (Greenhalgh et al. 2004).

Therefore, using a pragmatic approach provided not only the means to measure outcomes, but also to illuminate the process of implementing the intervention, thereby addressing both the science and art of nursing. By combining methods it was hoped to bridge the gap between theory and practice.

3.2 Exploratory phase

The purpose of the first phase of the study was to explore physical, social and emotional aspects of weight management with individuals. Due to the wide-ranging nature of the stated aims and objectives, survey type questionnaires were used to obtain information about demographics, attitudes, beliefs (Oyster et al. 1987; Knapp 1998; Polgar and
Thomas 2000), to establish behaviours (Treece and Treece 1986), and to examine the relationship between these variables. A prospective study design was used to gather data. Since the purpose of the exploratory phase was to identify changes over time a longitudinal design was selected as being the best method to examine these changes (Carter 1991). The reason for doing so was to inform a new intervention for weight management, from a person-centred perspective, therefore, it was necessary to recruit individuals who had a great deal of experience of managing their weight. Hence the exploratory phase was carried out at a specialist, secondary care, outpatient clinic for obesity management. Those referred to the secondary care clinic would be familiar with approaches to weight management in primary care where they would have undergone some form of weight management, either in group sessions or one to one consultations, prior to referral. Trying to identify individuals in the primary care setting was not a viable option, therefore, individuals who attended the clinic from primary care, provided a convenient sample (Blacktop 1996). The types of interventions they received would probably be diverse according to which professional was consulted and whose knowledge and views of weight management may differ. The secondary care clinic covered a wide geographical area thereby providing access to a study population from city, suburban and rural areas who were often referred back to primary care for follow-up particularly if they lived a distance away.

To facilitate this method of data collection a questionnaire was developed using the conceptual framework, as described in chapter 2. Since the questionnaire was to be administered three times over a six-month period as explained below, booklets for each individual were compiled. Each booklet had three colour-coded questionnaires for easy identification at each visit. The time between visits was organised to coincide with clinic visits, which were usually 3 monthly, to lessen disruption to both individuals and
health professionals. It was also to try and minimise the loss of individuals to the study, which according to Watson (1998) is one of the problems with a longitudinal design.

3.3 Questionnaire design

The questionnaire (APPENDIX 1) was divided into sections to gather information on demographics, weight beliefs, weight loss expectations, physical, emotional and social aspects of weight management. Thus the questions resulted in the following information being collected.

3.3.1 Demographic information

General demographics of gender, age, marital status, household members, and occupation were collected to provide a picture of the context in which individuals lived. These were forced-choice questions with the exception of occupation, which was written in text and later coded for analysis according to the classification by the Office of Population Census and Surveys (1991). A history of the weights of the individual and their family members was also obtained.

3.3.2 Questions on the physical aspects of weight management

As both co-morbidities and lifestyle are implicated in physical well-being, questions about the physical aspects of weight management included standard measurements, co-morbidities, treatment, symptoms, functional ability and activity levels. The standard measurements of weight, height, Body Mass Index (BMI), body fat percentage, blood pressure and waist measurement (where appropriate) were extracted from the clinical data sheets while obesity related co-morbid data and treatment were obtained from patient notes. Treatment and co-morbidity questions were multiple choice with an
'other' category to permit further individual information to be included. Information about alcohol and tobacco usage in addition to dietary prescription was obtained. Ordinal scales of 1-10 were to assess severity of symptoms. The same measures were repeated in order to assess any changes over time. A 'not applicable' box was available should any symptom not apply.

It was decided to use five point Likert type scales (Likert 1932) to gain information and so start building a picture of everyday function and activity. This type of scale also allowed the assessment of changes over time that may be associated with weight management. Perceived functional ability detail was measured by assessing the frequency of difficulty with walking, going up or down the stairs, bending or stooping, getting in and out of the bath, dressing and doing household chores. The same Likert scales (Sechrist and Pravikoff 2001) were used to gain information on how often individuals chose to walk, take the lift, use the stairs and travel by car, bus or taxi. Similarly, to try and assess social activity, information on how often individuals spoke to family and friends, went out with them or had them visit was assessed on the same Likert type scale (Likert 1932) in addition to how often individuals went out on their own.

A different question design was selected to explore leisure activity. The matrix design was chosen to provide more comprehensive detail of activities and although more difficult to construct (Polit and Beck 2006) was more easily encoded and analyzed (Polgar and Thomas 2000). The aim was to continue building up a picture of everyday activity by accruing details of both active and passive pastimes during the course of a week. The difficulty was deciding on the time scales to employ as activities such as swimming would not be expected to last as long as, for example, watching television.
A variety of activities were suggested with three extra unspecified scales to allow individuals to add their own particular different pastimes.

3.3.3 Questions on the social aspects of weight management

Exploration of social aspects of weight management involved identification of the levels of perceived support which individuals felt they had from family, friends, colleagues, health professionals and community contacts. In an effort to cover all types of family situations, that section included husband/wife/partner, children, parents, other household members and an option to identify any other person. The friends section included both close friends and acquaintances. The work section included supervisor/manager and colleagues. The health professionals section covered general practitioner, specialist doctors, nurses, dietitians to try and identify the perception of support from those involved in weight management. As everyday contacts were thought to influence the level of support individuals feel they have, the general contacts section included clothes shop assistants, leisure centre staff and school/college staff. This section, like the other sections under social support, provided an option to identify ‘other’ supportive/unsupportive people. There was also a ‘not applicable’ option for each variable. Ordinal scales were the means by which data was collected and further information was gathered through a comments section.

3.3.4 Questions on the emotional aspects of weight management

To detect emotional aspects of weight management, questions were formulated to gain data about feelings, beliefs, expectations of weight loss, body satisfaction, anxiety and depression. Feelings and body satisfaction were assessed on ordinal scales of 1-10, as in other sections, to make data collection more consistent and analysis easier. However,
this section did not provide a ‘not applicable’ option as everyone experiences feelings. Examination of beliefs and expectations of weight loss on the other hand used Likert scales as these are more appropriate for attitudinal data (Sechrist and Pravikoff 2001). However, these methods did not allow more in-depth information to be gathered (Oppenheim 1992) so these questions were followed by an option to clarify or explain answers. Beliefs about weight management were thought to be an important aspect of motivation, particularly the level of control individuals perceived themselves to have over their weight. These beliefs may affect how much weight individuals expect to lose and what they perceive as success, especially if they have unrealistic expectations. Perception of failure and a lack of control may be associated with anxiety and depression.

Anxiety and depression was measured using the Hospital Anxiety and Depression Scale (HADS), (Zigmond and Snaith 1983) and incorporated into the questionnaire (APPENDIX 1). HADS is a validated tool to assess the prevalence and changes in anxiety and depression levels. Permission from Zigmond and Snaith (APPENDIX 2) was obtained to include the HADS in the questionnaire. The reason for choosing this scale was that it separates anxiety and depression while aiming to detect the presence of mild degrees of mood disorder in non-psychiatric patients. It also assesses the present state of mood that permits detection of changes over time and has the advantage of being brief, easily understood, with good reliability and validity. It has been used in different settings and issued in many languages, indicating cultural diversity (Herrmann 1997). Careful construction of the questions was required to allow patterns to emerge over three visits.
3.3.5 Face validity and internal consistency/Quality assurance in research design

Robust data will only be accessible if the questions asked are adequate and relevant (Parahoo 2006). Therefore, content was important. To ensure face validity of the questionnaire, it was reviewed by a hospital medical consultant and senior dietitians, all of whom were experienced in managing obesity. In addition, a researcher with experience of health surveys reviewed the questionnaire. After taking into account their comments and making small adjustments, the questionnaire was ready for piloting.

Further testing for internal consistency was undertaken. This was carried out after the first round of the questionnaire to look for consistency in response. The dimensions tested within the questionnaire were functional difficulty, perceived support from family, friends and colleagues, positive and negative feelings, internal and external beliefs and body satisfaction. Cronbach’s alpha-coefficient was applied as it “measures the extent to which item responses obtained at the same time correlate highly to each other” (MacInnes 2003, p.58). They ranged from $\alpha$ 0.64 to $\alpha$ 0.93. According to Anthony (1999), the acceptable level for Cronbach’ alpha-coefficient is 0.7 for this type of research. However, as all but one of the correlations were greater than $\alpha$ 0.70, no amendments were made. Therefore, the researcher was confident that the questions were applicable, that is, would gain answers to what was asked.

3.4 Pilot study for the exploratory phase

Prior to administering the questionnaire in the exploratory phase and testing for internal consistency it was vital to know how individuals would respond to the questions. That is, would they consistently understand the format and instructions for answering the questions and were the questions relevant to their weight management (Parahoo 2006).
Carrying out a pilot study by administering the questionnaire to a small sample of individuals attending the clinic was therefore undertaken. Another aim of the pilot study was to try out administrative processes at the busy clinic. Based on these findings any necessary changes were made.

Before commencing the pilot study, discussions took place with colleagues involved in the clinic to gain their co-operation so that there would be minimal disruption to both staff and individuals. A letter of invitation to the pilot study (APPENDIX 3) was sent out prior to clinic appointments to twelve individuals allowing them sufficient time to decide whether or not to take part. All of these individuals had a BMI $\geq 30$.

Since mailed questionnaires would have been more likely to be discarded (Barker 1991), thereby reducing the response rate and thus the validity (Polgar and Thomas 2000), the data was gathered at the specialist clinic. This was achieved prior to any intervention by clinic staff to reduce possible impact on responses. One person refused, one did not attend and ten completed the questionnaire. Individuals with a BMI $\geq 30$ were recruited over a two-week period after giving written informed consent. A room was made available for the study and an explanation about the questionnaire given by the same researcher who then left the individual to complete it in privacy to protect their rights (Polgar and Thomas 2008). Individuals were invited to give feedback about the questionnaire format. They were also eager to elaborate on personal issues raised by the questions. This seemed to confirm that the questions were very relevant and provided additional information to the evaluation sheets they were asked to complete.

However, it posed a difficulty for the researcher as some of the individuals participating in the study knew her as part of the clinic team thus making it challenging to
differentiate between the roles of researcher and practitioner. The researcher reflected on the effect her role and presence could have on the way individuals responded (Parahoo 2006). As a result, clarification of the researcher’s role was considered prior to the exploratory phase being undertaken. In addition, scrutiny of both the evaluation sheets and the pilot questionnaires led to slight adjustment of two questions in order to achieve more precise responses in the exploratory phase.

3.5 Exploratory phase

Following the pilot study and the revisions to the survey questionnaire the exploratory phase was initiated.

3.5.1 Sample

It was not feasible to carry out research on the whole clinic population of 474 due to costs and researcher time. The aim was to have a representative sample of the clinic population. Therefore, sample size, characteristics, setting and response rate were considered (Parahoo 2006). In order to achieve this purpose, consideration was given to clinic organisation, sampling methods and the overall aim of the research. A three month recruitment time was set for the study in an attempt to gain access to all return patients so that they would each have an equal chance of inclusion. Individuals were identified according to appointment time. Consideration was given to the sample size as in longitudinal studies there is a risk of a higher attrition rates (Watson 1998). However, it was anticipated that attrition rates would be similar to those for clinic appointments as data was not being collected outwith usual appointment times. Recruited individuals also had to fulfil the following criteria:
Male or female aged 18 or over.
BMI equal to or greater than 30
Not receiving concurrent psychiatric care
Had previously attended the clinic
Willing and able to give informed consent

3.6 Exploratory phase data analysis

The statistics package for the social sciences (SPSS 11) was used to analyse the data in the following order. The total sample was examined first, then the individuals grouped by weight gain, 0-5% body weight loss and >5% body weight loss. After these three groups were identified differences and similarities between the groups were examined. In addition, changes within groups were established. Analysis was therefore of primary, secondary and tertiary types.

3.6.1 Primary analysis

To gain an overview of the study population, descriptive statistics were applied systematically by working through the questionnaire. To provide an overall picture of the study population, demography, treatment, co-morbidity and weight history data were analysed by frequencies and crosstabs.

The data of scaled items in relation to each of the symptoms, each variable in the social support section, each feeling and each variable in the body satisfaction section were also analysed by descriptive statistics. In particular, modes identified the frequency of their severity indicating various physical, social and emotional issues for individuals. Likert
scales were analysed in the same way. The HADS questionnaire was scored by hand following the coding system laid down by Zigmond and Snaith (1983).

### 3.6.2 Secondary analysis

To make the data more manageable for this particular phase of the analysis each variable, with an ordinal scale of 1 to 10, was collapsed into nominal data to produce three categories: a score of \( \leq 3 \) being classified as low, scores 4-7 being classified as moderate and scores \( \geq 8 \) being classified as high. Likert scales were also collapsed to give three scores. Each of the ordinal scales within the sections for support from family, friends, work, health professionals and general contacts were combined to provide a mean score for each section. Body satisfaction scales were treated in a similar manner. Feelings, although analysed in the same way were first divided into positive and negative sections. Each leisure activity was also recoded into active and inactive to assess the amount of time being active as well as inactive.

To explore the strength of the association between various aspects of weight management for the whole cohort the full ordinal scales of 1 to 10 were analysed using Spearman's rank correlation. Negative correlations, where one variable increases and the other variable decreases, were preceded by a minus (-) sign. Once this was completed for the total study sample, the individuals were divided into three groups of weight gain, 0-5% body weight loss including those who were weight stable, and >5% body weight loss and Spearman's rank correlation reapplied.
3.6.3 **Tertiary analysis**

One-way Analysis of variance (ANOVA) or the Kruskal-Wallis non-parametric equivalent test was selected when the data was not normally distributed to examine the differences between the groups. ANOVA is concerned with testing means and there is some debate about whether ordinal data can be regarded as numerical for analysis purposes (Kinnear and Gray 2000). The advantage of using it in this study was that the three groups could be analysed simultaneously. Confidence intervals were set at 95%. In addition, the longitudinal nature of the study permitted changes over time to be examined within individuals. For this purpose, paired t-tests or Wilcoxon matched pairs tests were carried out. Paired t-tests are robust measures but if the data are not normally distributed, Wilcoxon matched pairs test is less resistant to outliers and therefore may be more appropriate for rank based data (Greer and Mulhern 2002).

On the basis of the results from the exploratory phase the relationships of the various beliefs, expectations, physical, social and emotional dimensions identified by the conceptual framework appeared to be applicable to weight management. Furthermore, differences were demonstrated within the dimensions between those individuals who gained and lost weight. These results were used to develop and inform the intervention phase of the study in primary care. While the aim of the intervention was to provide a comprehensive person-centred aid to weight management, consideration was also given to the time involvement for primary care nurses.

3.7 **Interpretative phase.**

The results of the exploratory phase were taken and considered in respect of significant relationships amongst physical, social and emotional factors. These results were used to
develop a booklet for individuals and nurses to work on together. As this approach was different to usual practice a booklet for nurses was also developed. Therefore two booklets were developed. (inserted in pocket of rear cover): an A5 booklet for individuals entitled ‘My Personal Approach to Weight Management’ and an A4 booklet, ‘A Holistic Approach to Weight Management’, for nurses.

3.7.1 Nurse booklet

The booklet for nurses contained background information about obesity for educational purposes. It also aimed to provide an explanation about implementing the holistic approach to obesity management. Interspersed in the booklet were six activities for nurses to complete, including two case studies and at the end, websites and other sources were cited to enable nurses to further their learning. In addition to the booklet, nurses were provided with a box of materials, some of which were produced by the researcher, and listed in APPENDIX 4. These materials were compiled to aid nurses in weight management practice and the implementation of the study.

3.7.2 Individual booklet

The underlying philosophy of the booklet ‘My Personal Approach to Weight Management’ was to help individuals participate in their care in a meaningful way and facilitated assessing, planning, implementing and evaluating care in what Roper, Logan and Tierney (RLT) termed ‘individualizing nursing’ (Roper et al. 2000). Rather than being bombarded with advice, this approach aimed to assist individuals to discover facts about themselves by completing the initial part of the booklet on their own, up to and including the ‘Weight Management Map’. However, there was flexibility as nurse and individual could complete it together if necessary as it was recognised that not everyone
is literate or at ease with completing forms. The aim was to provide a more structured but person-centred way to identify areas, which needed to be changed in order to improve weight management.

### 3.7.3 Cover design

In an effort to facilitate change, great care was taken in the wording of the booklet for individuals to create an atmosphere of encouragement rather than blame. The logo on the front cover of the booklet was also designed to be user friendly. It represents the individual’s journey, beginning with where they meet with the nurse in a non-threatening environment and work together on the various aspects of weight management which are indicated by the various coloured arrows. The cyclical nature of the coloured arrows leads towards a fainter arrow, indicating a move towards self-management. In order that individuals can work towards self-management Peplau (1988) describes the relationship with the nurse as being “on a continuum” (p.55) where the nurse provides support in various ways according to the psychological needs of the individual at a particular time. As individuals have these needs satisfied they may become more able to self-manage their weight. Roper, Logan and Tierney (2000) also view individuals as moving on a continuum between dependence and independence with the level of independence varying with changing life experiences.

### 3.7.4 Question design

Questions in sections one to five of the booklet “My Personal Approach to Weight Management” are designed to assist individuals consider various aspects of their weight management experience:
- why their weight began to increase
- existing and potential health factors associated with their weight
- the influences of home circumstances
- past experiences of ‘dieting’

It was anticipated that these first sections would start to stimulate thoughts of influences in a variety of areas before going on to complete the ‘weight management map’. The map was designed to further this process through the incorporation of data from the experience of individuals in the exploratory phase. Examples of what these individuals found influenced their weight were provided to stimulate thoughts for those in the intervention phase to help them complete their own personal maps. Consideration was given to the number of examples to be provided, as a long list in each may be viewed as simply a choice option and not help to stimulate their own ideas. However, a fuller list from the exploratory phase was provided in the nurses’ box of materials to aid recognition of the possible range of weight associations. After completing the map it was anticipated that the individuals looking at the associations between the variables would trigger thoughts and result in action planning in Section 7 onwards.

### 3.7.5 Weight management map

The weight management map fits with the holistic approach. It is based on the mind-mapping concept and employed to support individuals in decision making and establishing goals (Buzan and Buzan 2000). The layout of the map allows individuals to set their own priorities and takes the emphasis away from weight. It is relevant too in that the individuals themselves often have the answers, even if they are unaware of it. According to Irvine (1995) mind mapping is a useful instrument if individuals take responsibility for their own learning. She found that in nursing education, learning by
the mind mapping method was more meaningful. Likewise, it could be suggested that if individuals can be encouraged to think about what affects their weight management they may be more likely to set relevant goals to achieve this aim. In similar vein, Kathol et al. (1998) proposed that the maps could stimulate discussion between student and tutor, or in this case between individual and nurse.

The use of personalised mind maps rather than everyone receiving the same advice focuses very much on the individual from their perspective. Furthermore, it facilitates a holistic approach as the advantage of mind-mapping is that the “interconnectedness of one patient problem to another, connections that are vital to successful patient care” (Mueller et al. 2001, p.75) can be seen more clearly. Like the Grief Map developed by Clark (2001) the maps in this study are not prescriptive but used for assessment and education as well as a therapeutic tool.

3.7.6 Goal setting

Goal setting is part of the planning stage where both “each actual and potential problems” (RLT 2000, p.137) are addressed. For example, in the acute setting, it is crucial to set goals for every problem, but in weight management, goals should be set gradually rather than all at once if long-term changes are to be achieved. Nonetheless, Roper et al (2000) would agree with the clearly defined acronym SMART goals, taken from the world of industry, which suggests that goals should be Specific, Measurable, Attainable, Realistic and Time bound. Setting written goals provides an opportunity for the nurse to give positive feedback on achievements but also acts as a catalyst to discuss with individuals why some plans worked and others did not. Although Roper et al. (RLT) (2000) are more focused on goal setting by the nurse, this study was designed to encourage individuals to take more control. By writing the goals themselves,
individuals may take ownership of their plans and begin to monitor themselves as part of the evaluating stage (RLT 2000). Once goals have been set, self-monitoring is important in raising awareness of what aids or hinders weight management (Poston II and Foreyt 2000).

In addition to recording goals and levels of attainment a reward system was put in place. In other words, both short and long-term goals are set in line with Roper et al. (2000). People with obesity often feel that they do not deserve rewards therefore trying to change their mindset is important in raising self-esteem. By incorporating a non-food reward for themselves, for example a massage, individuals may be helped to strive more to reach their goals and see their efforts as being worthwhile. The cycle of achievement and reward is motivational on condition that the goals are not too easy (Weiner 1991). With each success comes a more consistent anticipation of future success (Weiner 1985). If goals are not achieved, however, self-esteem may not be protected if the individual internalises the reason for failure, creating feelings of guilt and shame (Weiner et al. 1987). It is therefore a difficult balance. Sometimes if the individual has not put in the effort they will blame external circumstances but they can be encouraged to learn how to deal with similar circumstances more appropriately in the future. The real test is whether or not theory works in practice.

3.8 Intervention phase

As in the exploratory phase, consideration had to be given to the methods used to evaluate the holistic approach keeping in mind the purpose of the intervention. One objective was to provide support for nurses to enable changes to occur (Mitchell et al. 2005), in a way that recognised their existing knowledge and skills while making available to them additional knowledge and guidance. A variety of approaches to
education were considered. As printed materials on their own appear to have minimal impact (Grimshaw et al. 2001; Freemantle et al. 2006) outreach visits (O’Brien et al. 2006) appeared feasible and desirable and fit with the holistic approach.

Nonetheless, the researcher recognised, from previous experience, that initiating change may sometimes be restricted by the context of nursing practice. Therefore, the aim was to be flexible in response to the fact that each nurse was the expert on their own situation (Holter and Schwartz-Barcott 1993). Taking these issues into account may aid evaluation of the approach through interviews by helping nurses feel that they would not be judged by their reflections.

The holistic approach was designed to facilitate nurses’ respect for each individual as an expert who has knowledge of their own life, and work with them in partnership to encourage them to reflect on their current situation (Koch et al. 2002) thereby enhancing self-management (Koch et al. 2004).

A longitudinal type design was again used but as no single method could address the complexity of this phase (Flemming 2007) a more qualitative method of data collection was required. In order to evaluate the holistic approach in practice, the design of the intervention phase aimed to facilitate the exploration of the process of implementing the approach in the context of primary care. Therefore, to carry out this phase of the research PNs were targeted for recruitment as they represented primary care staff in obesity management (NICE 2006). Furthermore, PNs targeted individuals already known to them who might benefit from weight management thus protecting the confidentiality of individuals (Soteriou et al. 2005).
3.8.1 Accessing nurses

In recruiting practice nurses the aim was to invite those who had experience of working in general practice and were willing to participate in the study. At the outset, access proved difficult as some gatekeepers viewed obesity management as strictly the domain of dietitians. After several local meetings and much discussion it was decided to target nurses Scotland wide to avoid further delays. A national body was contacted and agreed to email all their members with details of the project. The initial response was very poor until one practice nurse involved her nurse advisor. This ‘champion’ percolated information to practice nurses at one of their regional meetings by means of a flier (APPENDIX 5). A delay in the recruitment of some of the PNs who expressed an interest was due to them being at a crucial stage in their chronic disease diploma education. Eventually, a one-hour meeting with twelve interested practice nurses was arranged where study materials were dispensed following a presentation. Originally it had been envisaged that a study day be held to enable all participating nurses to develop their understanding of obesity. However, due to the widespread geographical location of the participating nurses, their individual time constraints and lack of funds to release the nurses from work, this plan had to be amended. Interest in the project was expressed by pharmacy and public health leads but they were not included in data collection as practice nurses were the targeted group.

Having initiated the project with one group of PNs, a second meeting with a different group of practice nurses, arranged by another ‘champion’, was proposed. However, the meeting did not materialise, due to time pressures for both individual practice nurses and recruitment deadline. Consequently, these nurses were visited individually by the researcher at their place of work, where a one-hour session on the study took place. The outcome from these visits meant that further recruitment was unnecessary, as the
target of recruiting ten nurses had been exceeded. The judgement of sample size for the intervention phase was based on gaining adequate in-depth data to understand the context and process of obesity management in primary care without being overwhelmed (Sandelowski 1995). The final group of 18 nurses comprised practice nurses, nurse practitioners, specialist practice nurses and a nurse advisor but to protect anonymity they are all generally referred to as practice nurses or nurses.

### 3.8.2 Data collection

Several methods were used for data collection to access both complementary and differing aspects of putting the intervention into practice (O’Cathain et al. 2007). Field notes, background questionnaires and interviews with PNs, the booklets and individual physical measurements and satisfaction questionnaires from the obese were all used to obtain data as shown in Table 3.1

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<th>Data collection methods</th>
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<td>Individuals Booklets Questionnaires Physical measurements</td>
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<td>Nurses Field notes Questionnaires Interviews</td>
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*Table 3.1 Table of data collection methods for individuals and practice nurses.*

Field notes (Ritche and Lewis 2003) were accrued throughout the study. They aided organisational aspects of the study in addition to providing a greater understanding of each practice and the nurse’s role within it.
3.8.3 Questionnaires

Two questionnaires were formulated for this intervention phase, one for nurses and one for individuals with obesity. The nurse questionnaire (APPENDIX 6) was devised to obtain general background information about participating nurses. The questions were devised to obtain demographic details, current practice area and their approach to weight management. The questionnaire for individuals (APPENDIX 7) was developed to gain insight into what individuals thought of ‘My Personal Approach to Weight Management’ booklet and their experience of using it. This was to complement the booklets themselves, which were also part of the data collection. The aim was to assess whether or not the individuals receiving care found it relevant to their needs. Relevance is an important aspect of evaluating the quality of care (Clarke 2001). The questions constructed in both questionnaires were a mixture of forced choice, closed and open questions to facilitate as much data as possible to be assimilated, although it should be noted that questionnaires by their nature are restrictive in data gathering (Roberts et al. 2001). Careful consideration was given to the warning by Roberts et al. (2001), who wrote “Attention to the construction and design of a questionnaire is imperative, especially for self-administration where there are limited opportunities to expand on meaning” (p.19).

In addition to the questionnaires, a separate sheet (APPENDIX 8) was produced for nurses to document physical parameters of each individual they recruited. Measurements of height, weight, waist and blood pressure in addition to age were requested. The materials were collated in a ring binder and box file, which also contained some extra practical items to aid practice (APPENDIX 9). At the end of the study, interviews were carried out to gain further insight into the context in which the PNs practiced and their experiences of using the holistic approach.
3.8.4 Interviews

Careful consideration was given as to the method of data collection for gathering information regarding the experience of PNs using the holistic approach. Focus groups would have been less time consuming (Daly and Carnwell 2001) but the idea was quickly discarded for the following reasons: in addition to the logistics of gathering everyone together which was not possible due to the geographical spread and time constraints, it was felt that some nurses might be inhibited by the presence of senior colleagues in spite of belonging to a cohesive group. Individual interviews were therefore selected as a means of obtaining rich data as they “can be versatile, flexible and adaptable, adding to understanding of events and thus enhancing the process of evaluation.” (Roberts, et al. 2001, p.23). Furthermore, interviews are a useful tool for exploring complex interventions (Clarke 1999). Telephone interviews were selected as the best option due to the travel distances involved for the researcher and to keep costs down (Barker 1991). The drawback of this type of interview is that since they are not face-to-face, non-verbal reactions cannot be observed. However, the advantage of carrying out interviews which are not face-to-face may reduce the pressure on the PNs to participate (Parahoo 2006), particularly when carried out at the end of the study.

On the other hand, as the nurses and researcher had previously built a rapport and hopefully trust, it may have been easier for them to freely express their opinions. The added dimension of both the researcher and PNs being female and practising nurses may have helped the PNs to be more willing to share what they perhaps perceived as being common experiences (Fielding 1994; Wibberley and Kenny 1994).

The interviews were semi-structured to explore the context, process and outcomes of using the holistic approach in primary care. This type of interview was selected as it
came at the end of the study. This meant that data already collected could provide a basis for more focused questions (Clarke 1999). Nevertheless, to gain insight into the nurse experience of using this approach demanded that the structure was not too rigid. The ongoing data collection through the nurse background information sheet, field notes and practice visits influenced the formulation of open questions. For example, it became apparent that there were issues concerning the continuing education of PNs. Interview schedules (APPENDIX 10) were developed using questions to cover the main areas whilst flexible enough to permit exploration of some areas in more depth. PNs who were unable to recruit individuals also agreed to be interviewed. Therefore, another more appropriate schedule (APPENDIX 11) was devised by omitting the questions about their experience of using the approach and the data produced from these interviews provided further insights.

3.8.5 Carrying out the interviews

Of the 18 participating nurses 16 agreed to a semi-structured, telephone interview, which was tape-recorded. Apart from one nurse, who had to cancel due to work commitments, all nurses who recruited individuals were interviewed. Of those interviewed, 7 nurses had been unable to recruit individuals but their contribution provided valuable insight into implementing nursing research in primary care in general and obesity research in particular.

The telephone interviews were arranged at times suitable to the PNs. Prior to recording the interviews, suitability about the timing was confirmed to avoid interruptions, assurance sought on their continued willingness to participate and confidentiality reiterated. The approximate length of time for the interview was established as being 40-50 minutes with the proviso that they could terminate it at any time.
The interview guide developed by the researcher ensured that the main topics were covered. However, open-ended questions encouraged PNs to talk freely about their work and experiences of using the holistic approach to weight management. Techniques such as clarification and non-directive probes helped obtain accurate responses (Parahoo 2006). The nature of these interviews sometimes resulted in scheduled questions not being followed in order.

During the interview the researcher endeavoured to listen attentively as it has been shown that this is crucial to good interviewing (Ritchie and Lewis 2003). This enabled cues to be identified for further exploration, perhaps at a later time in the interview. Time was also allowed for silences when it was sensed that interviewees were thinking. On completion of the interview they were thanked and asked if they had any questions.

There were, however, limitations to this process of interviewing. Repeat interviews may have provided the opportunity for more robust data to be elicited. The potential for bias may have been avoided had someone other than the researcher carried out the interviews.

3.9 Intervention phase data analysis

The analysis contained both quantitative and qualitative data to try and capture the intricacies of human interactions (Sandelowski 2000) in addition to outcomes. Nursing research, according to Clarke (2001) “is not only about measuring the effectiveness of particular interventions..., but also about illuminating the processes going on within nursing care” (p.12). Therefore, although quantitative analyses measured outcomes the qualitative data provided clarification about the process of arriving at these outcomes. The analysis procedure can be seen in Figure 3.2.
Figure 3.2 Analysis Framework for the intervention phase data
3.9.1 Concurrent data analysis

Analysis of quantitative data in the intervention phase was carried out using SPSS 13. Two databases were created, one for nurses and one for individuals. The nurses’ database contained demographic details and information from the coded background questionnaire. The database for individuals contained similar information with the addition of physical measurements and coded quantitative information from the booklets. Qualitative data was obtained from individual booklets, nurse interviews and field notes. Initial analysis provided details for individuals and nurses as separate groups. Data from individuals in the primary care setting allowed comparisons to be made with the individuals from the secondary care out-patient clinic. This was particularly relevant when assessing the validity of using individuals in different settings. Secondary analysis treated each practice as a unit to allow the process and outcomes of implementing the holistic approach to be identified.

Before secondary analysis could take place, the researcher transcribed the nurse interviews verbatim. These transcripts were read repeatedly before being coded. Significant statements in the transcripts were highlighted and coded in the margins, often being recoded manually as data analysis progressed (Miles and Huberman 1994). Copies of the coded statements were cut into clusters on a large board to develop categories, keeping in mind the broad themes of context, process and outcome. Qualitative data from the individual booklets, questionnaires and field notes, were treated in a similar manner before being combined with interview transcripts to identify emerging concepts. Personal biases were set aside as much as possible during analysis in an effort to ensure validity.
Descriptive displays of data were analysed firstly to look at within-case analysis (Kinnear and Gray 2000) for nurses to build up a picture of the PNs who participated in the study. This was repeated for individuals and aided changes over time to be identified. After examination of the within-cases, data was organised by for each practice. Conclusions were drawn from the data and explanatory displays arranged to identify emergent themes (Miles and Huberman 1994).

In an effort to understand not only the similarities but also the differences the emergent themes from the exploratory phase analysis were applied to two case studies: the practice where individuals lost most weight and the practice where most individuals gained weight. On completion of data collection and analysis, respondent validation was sought by taking the results back to the group of nurses who participated in the research (Ritchie and Lewis 2003). The response confirmed the interpretation of the data by the researcher. Before going on to present the results, the ethical aspects of both phases are now considered.

### 3.10 Ethical considerations

It is crucial that ethical considerations be addressed prior to any research procedures being undertaken. While there were some common ethical aspects between each phase of the study, there were also differences. However, there was one overarching premise that applied to both phases, in that, according to Hippocrates, the greatest ethical imperative was to 'do no harm' (non-maleficence). With this in mind, firstly, the particular ethical issues for the exploratory and intervention phases are discussed respectively.
3.10.1 *Exploratory phase ethical considerations*

To ensure specialist dietetic and medical supervision for individuals in the exploratory phase, the study was carried out with the permission of the consultant in charge of the specialist clinic. Since individuals were being assessed for anxiety and depression psychological harm had to be considered (Firby 1995). Consequently, a psychiatrist was consulted regarding the use of the HADS as a precautionary measure.

A further ethical consideration was obtaining informed consent (APPENDIX 12), underpinned by the philosophical concept of 'respect for persons' (Burnard and Chapman 1993). This was to ensure that participants understood that taking part was entirely voluntary and that they had the right to withdraw at any time (Royal College of Nursing 2004). Furthermore, it was particularly important in the clinic setting to guard against the possibility of coercion (Firby 1995).

Another ethical issue, again particularly important in the clinic setting, is that of 'justice' which includes the protection of privacy (Oyster et al. 1987). Having previously being sent written information (APPENDIX 13) as to what was involved in the study, their continued willingness to participate was confirmed and questions answered. A brief explanation of the questionnaire booklet was given to ascertain that they understood how to complete it before leaving them to do so in private. An additional reason for leaving them was to avoid any researcher influence on the answers they provided.

Another aspect of privacy is confidentiality of the data collected. The nature of the longitudinal study meant that it was necessary to identify individuals for repeated administration of the questionnaires. Accordingly, each person was allocated a unique
number, known only to the researcher (Behi 1995). All the above concepts of 'doing no harm', 'respect for persons' and 'justice' are included in the Nursing Code of Professional Conduct (2002) and were addressed in the application for ethical approval from the Local Ethics Committee who granted permission for the study (APPENDIX 14).

3.10.2 Intervention phase ethical considerations

Before undertaking the intervention phase, an amendment to the study was submitted to the local ethics committee and once approved (APPENDIX 15) an application was made to research and development units for approval (APPENDIX 16) outwith the local area as per new regulations (COREC 2005).

Recruited PNs gave oral consent for the study and obtained permission from their respective practices before recruiting individuals. A quick reference guide for carrying out study procedures was provided to assist nurses, particularly in the recruitment of individuals, to reduce potential ethical problems. For nurses who invited the researcher to share a consultation, further oral permission was first sought by them from the individuals involved (Soteriou et al. 2005).

To ensure confidentiality of the data collected each practice was coded by letter. The researcher was the only person outwith the practice who knew the codes and these were kept in a secure location (Cerinus 2001). However, the PN was asked to give each recruited individual a number so that all data taken from the practice was anonymous.
3.11 Researcher’s reflections

Throughout the study, the researcher was aware of the possibility of introducing bias into the results. The exploratory phase was carried out at a clinic where some of the recruited subjects had previously shared consultations with the researcher. As a result it was difficult for the researcher to stand back from being involved in their care. However, the survey design using a questionnaire helped to minimise the researcher’s influence on the outcomes. In the intervention phase of the study carried out in primary care where PNs were responsible for implementing the intervention, the researcher had little influence on outcomes. The exception to this was when the researcher was invited to share consultations with PNs and individuals in their care.

On the other hand, in the role of educator, there was a deliberate intention to influence PNs in their mode of practice. Sharing consultations with PNs when they saw individuals with obesity was not a planned event. It was requested by one PN and subsequently offered to all PNs to ensure an equal opportunity of access to support of this type. During the shared consultations the researcher was aware of the possibility of disempowering the PNs. This caution was warranted as when presenting the results back to PNs they revealed that their previous experience had been that ‘outsiders’ took over the consultations. They appreciated that this was not the case in this study as their expertise was respected. Previous experience may also have been one of the reasons why only two PNs accepted the offer of shared consultation with the researcher.

Keeping in contact with PNs was difficult. There appeared to be other reasons for this apart from the researcher’s base being a considerable distance away. Many of the PNs were not at ease with the email system and telephone contact was difficult due to
pressure of time and their work commitments, particularly as the study was in addition to their normal workload. The researcher knew from previous experience of a national study, where both GPs and PNs were involved, that communication difficulties were not unique to this study.

The telephone interviews with PNs worked well. The opportunity to build a rapport with PNs and see them in the context of their work was achieved through several visits and other means of contact prior to any interviews being carried out. Consequently, this meant that when it came to interviews the researcher had greater knowledge and understanding of the individual PNs and context of their working environment. Although telephone interviews prevented the interpretation of body language they enabled the researcher to change roles from educator to researcher. It appeared that this resulted in PNs giving open and honest feedback on the implementation of the intervention, thus providing extremely valuable insights into weight management in primary care.

The variety of methods used for data collection was beneficial as they complemented each other and provided both detailed and rich data (Risjord et al. 2002). However, the quantity and breadth of data collected made it difficult to structure the results in an ordered fashion without losing accuracy or reporting (Horsburgh 2003). Moreover, it is acknowledged that the interpretation of results was possibly influenced by the researcher’s own philosophy despite attempts to remain neutral (Parahoo 2006).

Optimal data collection was not achieved in either phase of the study. In the exploratory phase, the lack of visit 2 data restricted further analysis where it had been
intended to examine the change in individuals’ expectations with weight change over time. In the intervention phase, the data collected were not always complete. However, the fact that individuals sometimes missed appointments or dropped out of studies simply reflects real life.

Although there has been debate in the literature about the criteria for judging qualitative research (Rolf 2006; Hope and Waterman 2003; Cutcliffe and McKenna 1999; Sandelowski 1993) this study draws on the criteria proposed by Lincoln and Guba (1985). They recommended that trustworthiness should be assessed, that is, credibility, transferability, dependability and confirmability. It was envisaged that the longitudinal nature of both the exploratory and intervention phases in addition to the researcher sustaining contact with primary care nurses over time would increase credibility (Speziale and Carpenter 2007). Visiting practices would also provide the opportunity to validate findings from other data such as field notes. These in turn, would aid reflection for further feedback. In addition to other data collection methods, questionnaires and recorded interviews may further aid credibility (Tuckett 2005) and dependability (Miles and Huberman 1994). It may be that recruiting practices in different areas would provide insight into similarities and differences in various contextual situations.

This chapter has given an overview of the complex methodology used in each phase of this study. A description of the development of materials for the intervention phase was also included. The next chapter presents the evidence from the exploratory phase which was then incorporated into the materials for the intervention phase.