

Feasibility and benefits of implementing a Slimming on Referral service in primary care using a commercial weight management partner

JH Lavin PhD¹, A Avery BSc², SM Whitehead MB³, E Rees MPH³, J Parsons MBChB⁴, T Bagnall⁵, JH Barth MD⁶, CHS Ruxton PhD⁷

¹ Slimming World, Clover Nook Road, Somercotes, Alfreton, Derbyshire DE55 4RF

² Greater Derby Primary Care Trust, Derwent Court, 1 Stuart Street, Derby DE1 2FZ

³ Formerly Southern Derbyshire Health Authority, Derwent Court, 1 Stuart Street, Derby DE1 2FZ

⁴ Charnwood Surgery, 5 Burton Rd, Derby DE1 1TH

⁵ Park Farm Medical Centre, 3 Park Farm Centre, Allestree, Derby DE22 2QN.

⁶ Leeds General Infirmary, Great George Street, Leeds, LS1 3EX

⁷ Nutrition Communications, 6 Front Lebanon, Cupar KY15 4EA

Correspondence to Dr Jacquie Lavin, Slimming World, Clover Nook Road, Somercotes, Alfreton, Derbyshire DE55 4RF. Telephone 0870 330 7733. Email jacquie.lavin@slimming-world.com

Funding

The study was funded jointly by the former Southern Derbyshire Health Authority and Slimming World

Competing interests

JL is employed by Slimming World, AA was funded by the former Southern Derbyshire Health Authority and Slimming World to undertake the study, JB has received consultancy fees from Slimming World for medical advice, CR received a consultancy fee from Slimming World for writing this paper.

Reference for this article:

Lavin JH, Avery A, Whitehead SM, Rees E, Parsons J, Bagnall T, Barth JH, Ruxton CHS. (2006). Feasibility, practicality and relative cost of implementing a 'Slimming on Referral' service in primary care using a commercial weight management partner. *Public Health*; 120: 872-81.

Abstract

Objectives To assess participation in a costed Slimming on Referral service and identify factors associated with success.

Study design Simple intervention offering participation in a new service to 100 eligible patients. The setting was two Derby general practices; one inner city, and one suburban.

Participants 107 patients (mean age 50 years) attending surgery for non-obesity reasons. Inclusion criteria: BMI \geq 30, age \geq 18 years, not pregnant, no recent commercial weight management group membership, willingness to attempt weight loss.

Methods Patients were offered free attendance at a local Slimming World group for 12 consecutive weeks. Body weight and height were measured at baseline, and questionnaires established perceived health, motivation to lose weight, employment, concerns, responsibilities and well-being. Weight was measured at each group visit. The main outcome measures were (1) changes in body weight at 12 weeks and 24 weeks; (2) social and demographic factors associated with barriers to enrolment, continued attendance and successful weight loss.

Results 91 (85%) patients attended a group, with 62 completing 12 weeks. Average weight loss in participants was 5.4kg (6.4% baseline weight). 47 then chose to self-fund, with 34 (37% original group), completing a further 12 weeks. Average weight loss over the total 24 weeks was 11.1kg (11.3% baseline weight). Regular attendance was affected by income, financial concerns (independent of actual income), age, perceived importance of weight loss and initial weight loss success. Well-being of patients significantly improved between baseline and both 12 and 24 weeks.

Conclusions Collaboration with an appropriate commercial weight management organisation offers a feasible weight management option which is either similar to, or better than, other options in terms of attrition, efficacy and cost.

Keywords

Obesity, treatment, primary care, feasibility

Introduction

Obesity is a serious but preventable challenge to health. Currently more than 20% of adults are obese ¹, i.e. a body mass index (BMI) over 30, increasing their risk of cardiovascular disease, metabolic syndrome, some cancers, depression and poor mobility². While the benefits of treating obesity are clear, not least as a way of helping to meet clinical targets for hypertension, hyperlipidaemia and type 2 diabetes, less is known about how to manage obesity within the resource and training constraints of primary care.

The most effective treatment for obesity is reported to be a combination of diet, exercise and behavioural therapy ². However, the availability of treatments varies across the UK. A survey of 340 Primary Care Organisations (PCO) found that less than 50% of these offered an obesity service and, where one existed, patients from only 25% of GP clinics were able to access it ³. Reasons for this may include low prioritisation of specialist obesity services or uncertainty about effectiveness ⁴. Inadequate provision of obesity services has also been highlighted by a UK Government White Paper (Choosing Health) ⁵ which recently set out new policy ideas to address the deficit. The introduction of drugs for weight control, notably Orlistat and Sibutramine, has also advanced treatment options for primary care, although the costs of these remain a legitimate concern. In addition, these drugs are approved for use by the National Institute for Clinical Excellence (NICE) only as adjuncts to core lifestyle advice and not as stand-alone treatment ^{6,7}. Indeed, there is better standardisation for the provision of drugs and surgery than for core advice, e.g. for dietary intake and physical activity. This needs to be addressed, particularly to support prescribing in line with the guidance of NICE ^{6,7}.

Choosing Health ⁵ recommended that obesity services be upgraded across England and Wales to include regular monitoring and personalised advice on diet, physical activity and behavioural strategies to tackle the causes of over-eating and under-exercising. Offering free or reduced cost attendance at commercial weight management groups was recognised in this document and others as a means of expanding PCO capacity ^{5,8}. There is evidence from the USA that regular slimming group attendance leads to clinically significant weight loss which is maintained in the long-term. Two randomised controlled trials compared commercial weight management group attendance with a self-help programme at 4 weeks ⁹, 26 weeks ¹⁰ and 2 years ¹¹. Weight loss for subjects attending the commercial programme was significantly greater than after the self-help programme (4.8kg more at 26 weeks; 2.9kg more at two years). Weight regain is a problem for all weight management methods, with reports that 30% of lost weight is regained within a year, and virtually all by 5 years ¹². However, people attending commercial weight management groups do better than predicted at 5 years ¹³, perhaps due to frequent contact and group support, both known to influence better outcomes ¹⁴.

No UK studies have been carried out to assess the feasibility of building commercial weight management group referral into primary care. Nor has there been an assessment of potential barriers to enrolment and attendance – an important aspect since accessibility is a key factor for any new service. To remedy this, a collaboration was developed between public sector stakeholders in Southern Derbyshire and Slimming World (SW), generating the research reported here.

Aim

The aim of the study was to assess the feasibility of referring obese patients from primary care to a commercial weight management group. Outcomes were:

- enrolment, attendance and weight loss
- factors associated with participation
- cost of the referral scheme in comparison with in-house options.

It was not the aim of the study to compare the efficacy of commercial weight management groups with in-house options offered by primary care for two reasons. Firstly, the provision of in-house weight management advice in those practices participating in the study was not uniform. Secondly, US research USA has already established that attendance at commercial weight management groups leads to clinically significant weight loss^{9, 10, 11}.

Methods

Overview

This is shown in Figure 1. Obese patients from two general practices were referred to a local SW group by primary care health professionals using a voucher system. The vouchers covered membership and weekly group fee costs for 12 consecutive week's attendance, after which time patients could continue attending the group at their own expense. Attendance, weight and attrition were monitored for up to 24 weeks.

FIGURE 1 HERE

Setting

Approval was given by the Southern Derbyshire Ethics Committee. The study was based in two general practices in the former Southern Derbyshire health district, one serving an inner city population and the other a suburban area. Training was provided to ensure that practice staff understood how SW groups operated and the type of advice that would be given to patients. This advice includes modest, sustained calorie restriction (in line with National Obesity Forum guidelines¹⁵) and support to change behavioural patterns which promote over-consumption of energy. Patients involved in the study were treated no differently from regular SW members.

Protocol

The recruitment target was 100. GPs and practice nurses identified patients visiting practices for reasons other than weight management. Patients were eligible if BMI $\geq 30\text{kg/m}^2$, they were between 18-75 years, were not pregnant and had not attended a commercial slimming group within the previous 3 months. Patients interested in participating were referred to a study nurse who gave a full explanation of the study and obtained informed consent. The study nurse recorded baseline data and issued a voucher pack valid for one month from the date of issue. Vouchers covered membership and group fees for 12 consecutive weeks, in order to remove cost as a barrier to attendance. Patients had the choice of attending any SW group within the Southern Derbyshire area. Following the 12-week free period, patients could self-fund at a cost of £3.75/week, and attendance was monitored for a further 12 weeks. Patients were recalled at 3 and 6 months for a review by their own practices.

Data collection

The data recorded at baseline were height, weight, medical conditions, prescribed drugs and relevant biochemical results, most from existing GP records.

Questionnaire 1 (Figure 1) was used to establish motivation to lose weight, income category, employment status, financial concerns and family responsibilities.

Questionnaires 2 to 6 were administered during the study depending upon attendance at SW groups (Figure 1). A postal questionnaire (with one reminder) was sent to patients failing to enrol after being given vouchers, which explored reasons for non-attendance. Patients completing the free 12-week period were asked to fill out a questionnaire evaluating the ease of attendance and their interest in self-funding future sessions. Patients who wished to discontinue were invited to give reasons for this. Similar questionnaires were used at the end of the self-funded 12-week period. Enrolled patients who did not complete 12 weeks or 24 weeks were sent questionnaires which explored reasons for non-completion.

Well-being was assessed using identical methods to those employed by the South Derbyshire Health Survey¹⁶ at baseline and completion of the 12-week and 24-week periods (questionnaires 1, 4 and 6). Patients were asked to rate how calm/peaceful, energetic and downhearted/low they felt. Results were compared with those from the general population in South Derbyshire¹⁶.

Attendance and weekly weights were recorded by SW group leaders and shared with the referring practices on a regular basis. Patients were classified as '12-week completers' if they had attended at least 10 of the 12 free sessions, including one of the two final sessions. Patients who continued by self-funding were classified as '24-week completers' if they were still attending at 24 weeks.

Data handling

Postcodes were given a Townsend deprivation score and classified into one of 5 deprivation levels. Weight change at 12 weeks and, where appropriate, 24 weeks was expressed as a percentage of baseline weight. This was to enable comparison with National Obesity Forum guidelines¹⁵ which suggest that a 10% weight loss is clinically significant. Data were analysed using SPSS version 11.5. Categorical variables were compared by χ^2 tests, where $p < 0.05$ was taken as significant.

Results

Subjects

Between September 2001 and January 2002, 107 patients were recruited into the study. Characteristics of this group is given in Table 1. The mean age was 49.5 years (range 22.5 to 77.5 years), while mean BMI was 36kg/m² (range 30 to 47kg/m²), with 50% exhibiting a BMI in excess of 35kg/m².

TABLE 1 HERE

Of the 107 patients initially recruited, 91 enrolled at a SW group with 62 of these completing the free 12-week period. At the end of this period, 47 went on to self-fund additional sessions and 34 of these were still attending at 24-weeks.

Weight loss

The mean weight change in the 12-week completers (n=62) was -5.4kg (standard deviation (s.d.) 3.19kg; range -17.1kg to +1.4kg). Figure 2 shows weight change expressed as a percentage of baseline weight. The mean change was -6.4% (s.d. 2.96%, range -10.6% to +1.1%). Most of the 12-week completers (57%) achieved at least a 5% weight loss.

FIGURE 2 HERE

For the 24-week completers (n=34), 29 records were available due to missing data. The mean weight change was -11.1kg (s.d. 5.5kg; range -3.2kg to -30.9kg). Figure 3 shows weight loss in this group expressed as a percentage of baseline weight at weeks 12 and 24. The mean change at 24 weeks was -11.3% (s.d. 4.6%; range -22.3% to -2.8%). Most (86%) achieved at least 5% weight loss, while over half (59%) achieved a 10% weight loss.

FIGURE 3 HERE

Factors associated with participation

Table 2 summarises the factors associated with enrolment and completion of both the free and extended periods.

TABLE 2 HERE

Enrolment

Patients who chose to enrol after recruitment (n=91) were significantly more likely to be over 50 years, live in a household with an income greater than £10,000 per year and regard weight loss as important to themselves.

Completion of free period

12-week completers (n=62) were significantly more likely to be Caucasian, aged between 50 and 60 years and reported no financial worries in the few weeks prior to recruitment. Interestingly, actual household income was not related to likelihood of completion.

Intention to self-fund

12-week completers were asked if they intended to continue on a self-funding basis. Of the 54 patients responding, 41 declared an interest in continuing. The main reasons given for discontinuation included the cost of weekly fees, a desire to continue weight management alone and the opinion that benefits had dwindled.

Completion of extended period

24-week completers (n=34) were significantly more likely to come from the suburban practice, have an annual household income above £10K and have experienced at least 5% weight loss during the 12-week period. Of those completing 24 weeks, 72% expressed a desire to continue once the study had finished.

Well-being

At baseline, patients had low ratings of well-being compared with the South Derbyshire population. However, these ratings improved significantly by week 12 (calm $p < 0.001$, energy $p < 0.001$, downhearted $p < 0.05$) and were maintained at week 24 (calm $p < 0.05$, energy $p < 0.001$, downhearted $p < 0.001$).

Comparative costs

Based on SW fees in 2004, the cost per patient to cover membership and 12 weeks attendance at a group was £44.50 with PCT discount. Practices estimated that each referral utilised 20 minutes of nurse and administrator time which added a notional £7 per patient when salaries were taken into account. Referral outwith the constraints of a research study would take less time since there would be minimal data collection. In comparison with these figures, we estimated that 12 weeks of other treatments would cost £112 for sibutramine and £124 for orlistat. However, this does not include the cost of providing a concomitant weight management programme (to include support for diet, physical activity and behavioural strategies) as recommended by NICE. One-to-one treatment from a dietitian would cost £55 to £115 per patient, depending upon the employment contract. Group treatment for 10 patients using dietetic input would cost £45 to £108 per patient. In-house options need to factor in additional costs for training, telephone support between sessions, scales, literature, travel and cover for staff absence. These figures were estimated in consultation with the practices involved in the study and are based on pro-rata salaries and costs in 2004.

Discussion

Obesity is a major risk factor for chronic conditions^{2,4}. It is worth treating in primary care since even reductions of 5% baseline weight can improve health outcomes and reduce the need for medication¹⁵. The most effective first level treatment is a combination of modest energy restriction (around 600 kilocalories below usual daily energy intake), increased physical activity, behavioural strategies and long-term follow-up¹⁷. The issue for many practices is whether this can be offered in-house. Where this is not possible, a practical alternative is to implement Slimming on Referral using a local commercial group which offers this combination of treatments. Partnership with commercial weight management groups has been recommended by various bodies as one means of expanding provision of obesity services in primary care^{4,8,18}.

Comparison with other studies and guidelines

The aim of this study was to assess the feasibility of referring obese patients to a SW group. Most patients took the opportunity to enrol, and attrition compared favourably with other treatments. In our study, 32% of patients failed to complete the first 12-weeks. However, the attrition rate in the extended 12-week period, which was self-funded, was much lower at 17%. Other short-term studies have reported drop-outs of 53% for a one-to-one combination therapy approach¹⁹, 25% for a commercial weight loss programme (both 12-weeks), 31-56% for Very Low Calorie Diets with group counselling (20-26 week programmes)²⁰. One-year studies report attrition rates of 40% for a dietary/behavioural programme²¹, 22% for a group approach in men²², 41-67% for a self-help programme²⁰.

Mean weight loss in our 12-week completers was 5.4 kg, corresponding to a rate of 0.45 kg per week; similar to that expected for modest calorie restriction²³. 24-week completers lost, on average, 11 kg. Studies of 12-month programmes report weight losses of 5.7 kg with calorie restriction, 5 kg to 6 kg with drug treatment, 11 kg with very low calorie diets (less than 1000 kilocalories per day) and 7.3 kg with diet and behavioural therapy².

The National Obesity Forum ¹⁵ suggests that a clinically significant weight loss is 10% of baseline, although it is also claimed that a weight loss between 5%-10% of baseline produces measurable health benefits. When weight loss in the present study was translated into percentages, 57% of 12-week completers lost at least 5% of baseline weight, while nearly 60% of 24-week completers achieved a clinically significant weight loss of 10%.

Reported barriers

Barriers to successful attendance varied but a pattern emerged of age, financial situation (real and perceived) and how patients viewed the importance of weight loss. It was unexpected that money worries impacted on completion of the first 12 weeks since attendance was free. Lower income people are less likely to access healthcare and yet experience a greater risk of obesity ⁵. This highlights the importance of providing accessible, free treatments for this group. Early success at losing weight determined whether patients completed their self-funded programme.

Cost comparisons

Between 2001-2003, NHS spending on sibutramine increased from £0.45m to £7.69m, and from £13.6m to £23m for orlistat ²⁴. Cost comparisons show that a Slimming on Referral option is less expensive than drug treatment (particularly since drug treatment requires a concomitant weight management programme) and may be less expensive than in-house options (depending on how such clinics are set up). The efficacy of commercial weight management groups compares favourably with other treatments where published studies exist. The efficacy of in-house primary care treatments is, as yet, relatively unknown.

Strengths and limitations of the study

Limitations could include the absence of a control group and the fact that results were based upon completion, rather than intention to treat. The reason for the lack of control group was that no comparable and consistent in-house options were available in the recruiting practices. However, the purpose of the study was not to compare the efficacy of SW group with other treatments, but to assess the feasibility of implementing Slimming on Referral in a primary care setting. To that end, the methods served the purpose of the study. A key strength was that the study fitted into the normal day of the practices and SW groups.

Conclusion

One implication of the Choosing Health White Paper is that PCOs will be asked to provide evidence-based obesity services. Our study has demonstrated that partnership working is feasible, benefits patients and can be less expensive than in-house options. Because feedback on attendance and weight is possible, practices retain overall responsibility for patients. Minimal extra resources were needed to administer the referral process.

References

- 1 Rennie KL, Jebb SA. Prevalence of obesity in Great Britain. *Obes Rev* 2004;6:11-12.
- 2 Avenell A, Broom J, Brown TJ, Poobalan A, Aucott L, Stearns SC, et al. Systematic review of the long-term effects and economic consequences of treatments for obesity and implications for health improvement. *Health Tech Assess* 2004;8.
- 3 Dr Foster. Obesity management in the UK. www.drfooster.com 2004. Accessed 12/1/05.
- 4 National Audit Office. Tackling Obesity in England. 2001. London: The Stationery Office.
- 5 Department of Health. Choosing Health: white paper. 2004. London: The Stationery Office.
- 6 National Institute of Clinical Effectiveness. Guidance on the use of Orlistat for the treatment of obesity in adults. NICE Technology Appraisal Guidance No. 22 2001. London, NICE.
- 7 National Institute of Clinical Effectiveness. Guidance on the use of Sibutramine for the treatment of obesity in adults: NICE Technology Appraisal Guidance No. 31 2001. London, NICE.
- 8 House of Commons Health Committee. Obesity: third report of session 2003-04. 2004. London: The Stationery Office.
- 9 Lowe MR, Miler-Kovach K, Frye N, Phelan S. An initial evaluation of a weight loss program: Short-term effects on weight, eating behaviour and mood. *Obes Res* 1999;7:51-59.
- 10 Heshka S, Greenway F, Anderson JW, James W, Atkinson RL, Hill JO, et al. Self-help weight loss versus a structured commercial program after 26 weeks: a randomized controlled study. *Am J Med* 2000;109:282-287.
- 11 Heshka S, Anderson JW, Atkinson RL, Greenway FL, Hill JO, Phinney SD, et al. Weight loss with self-help compared with a structured commercial programme. A randomized trial. *J Am Med Assoc* 2003;289:1792-1798.
- 12 NIH Technology Assessment Conference Panel. Methods for voluntary weight loss and control. *Ann Int Med* 1993;119:764-770.
- 13 Lowe MR, Miller-Kovach K, Phelan S. Weight-loss maintenance in overweight individuals one to five years following successful completion of a commercial weight loss program. *Int J Obes* 2001;25:325-331.
- 14 Perri MG, Nezu AM, Viegner BJ. Improving the long term management of obesity. 1992. New York, Wiley Bioscience.
- 15 National Obesity Forum. Guidelines for management of adult obesity and overweight in primary care. 2004. London: National Obesity Forum. www.nationalobesityforum.org.uk/
- 16 South Derbyshire Health Survey. Southern Derbyshire Health Authority 1999.

- 17 Avenell A, Brown TJ, McGee MA, Campbell MK, Grant AM, Broom J, et al. What are the long-term benefits of weight reducing diets in adults? A systematic review of randomised controlled trials. *J Hum Nutr Diet* 2004;17:317-335.
- 18 Association for the Study of Obesity. Formal written evidence submitted by UK Association for the Study of Obesity to the House of Commons Health Committee Inquiry into Obesity. 2003. www.aso.org.uk. Accessed 10/5/04
- 19 Inelmen EM, Toffanello ED, Enzi G, Gasparini G, Miotto F, Sergi G, et al. Predictors of drop-out in overweight and obese outpatients. *Int J Obes* 2005;29:122-128.
- 20 Tsai AG & Wadden TA. Systematic review: an evaluation of major commercial weight loss programs in the United States. *Ann Intern Med* 2005;142:56-66.
- 21 Torgerson JS, Ågren L, Sjöström L. Effects on body weight of strict or liberal adherence to an initial period of VLCD treatment. A randomised, one-year clinical trial of obese subjects. *Int J Obes* 1999;23:190-197.
- 22 Anderssen I, Rössner S. Weight development drop-out pattern and changes in obesity-related risk factors after two years treatment of obese men. *Int J Obes* 1997;21:211-216.
- 23 Scottish Intercollegiate Guidelines Network. Obesity in Scotland – Integrating Prevention with Weight Management: Report no 8, 1996. Edinburgh: SIGN.
- 24 Prescription Pricing Authority. Update on growth in prescription volume and cost year to March 2003. Prescription Pricing Authority, NHS. www.ppa.org.uk. Accessed 10/5/04.

TABLES

Table 1: Subject information (n = 107)

		% of participants*
Practice	Inner City	49
	Suburban	51
Age (years)	<40	24
	40-50	23
	50-60	30
	>60	24
Gender	Female	89
	Male	11
Ethnicity	Caucasian	92
	Other	8
Area of residence	Most affluent	18
	2	28
	3	11
	4	16
	Most deprived	27
Household income (£)	<10K	43
	10K-20K	28
	>20K	28
Money worries	Yes	45
	No	55
Responsibility for children	No	52
	Yes	48
Paid employment outside home	Yes	45
	No	55
Confidence in losing weight at recruitment stage	Yes	54
	No/Unsure	46
Perceived importance of weight loss	Yes	68
	No	32
BMI	30-34.9	50
	35-39.9	26
	>40	23
Previously attended a slimming group	No	28
	Once	26
	2 to 4	35
	5 or more	11
Diabetes	Yes	10
	No	90

*Where numbers do not add up to 100%, this denotes missing data

Table 2: Factors affecting enrolment and participation¹

Total enrolled or completing at each stage: n (% of base)	91 (85%) base =107	62 (68%) base =91	34 (55%) base =62
	Enrolment base=107	Completion of 12 weeks base=62	Completion of 24 weeks base=34
Effect of practice Inner city vs. suburban	ns	ns	P=0.025
Effect of age	P=0.025	P=0.008	ns
Effect of gender	ns	ns	ns
Effect of ethnicity Caucasian vs. other	ns	P=0.019	ns
Effect of area of residence Quintiles based on Townsend ²	ns	ns	ns
Effect of household income <10K vs. 10K-20K vs. >20K	P=0.029	ns	P=0.03
Effect of money worries Yes vs. no	ns	P=0.04	ns
Effect of responsibility for children Yes vs. no	ns	ns	ns
Effect of employment status Paid vs. no paid	ns	ns	ns
Effect of confidence in losing weight Yes vs. no /unsure	ns	ns	ns
Effect of perceived importance of losing weight Important vs. not important	P=0.006		
Effect of BMI 30-34.9 vs. 35-39.9 vs. >40	ns	ns	ns
Effect of previous attendance at a slimming group No vs. once vs. more times	ns	ns	ns
Effect of weight loss at 12 weeks <5% vs. 5% or more	N/a	N/a	P=0.025

¹ See Results for direction of change

² See Methods

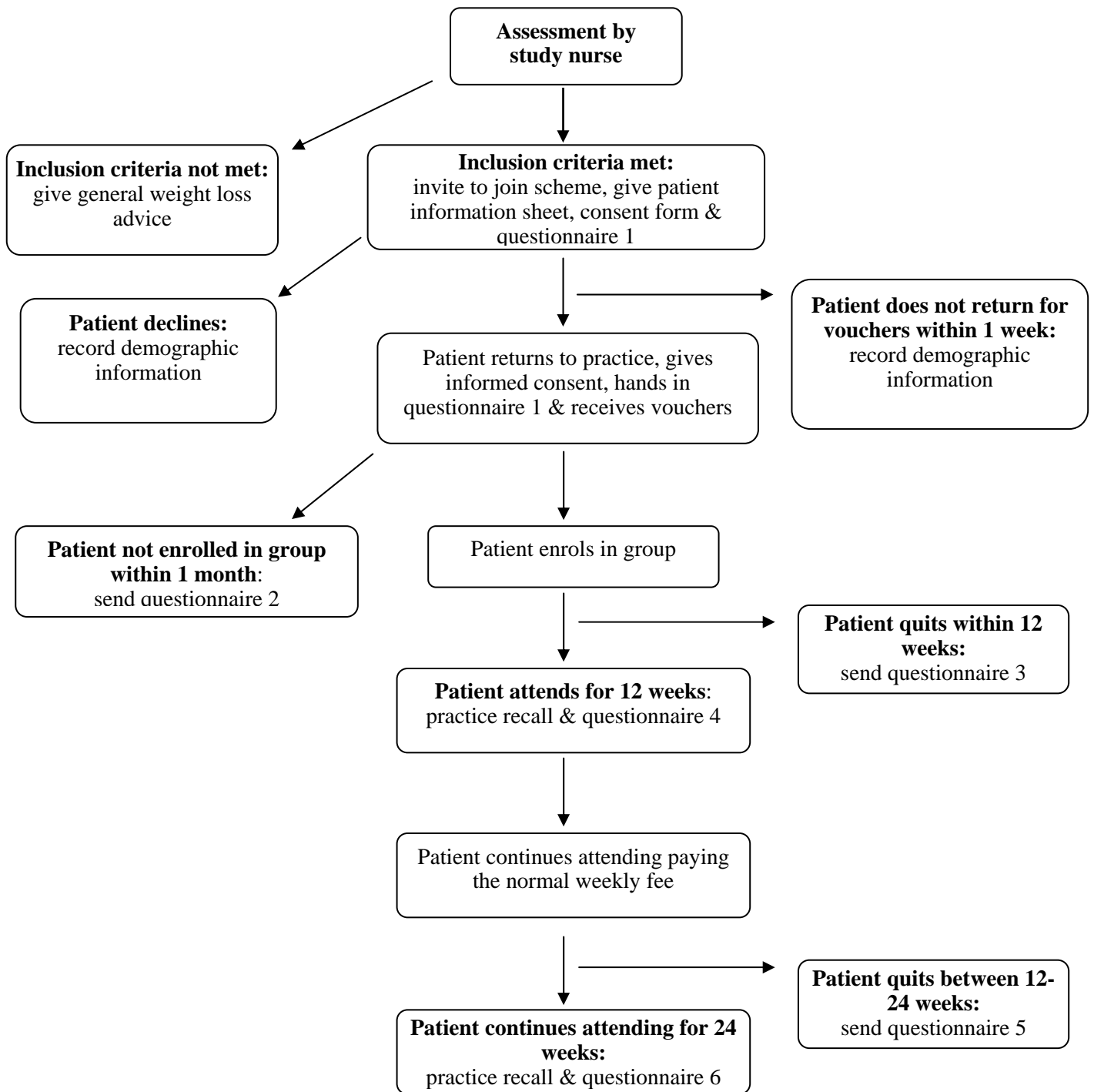


Figure 1 – Flow of participants through the study

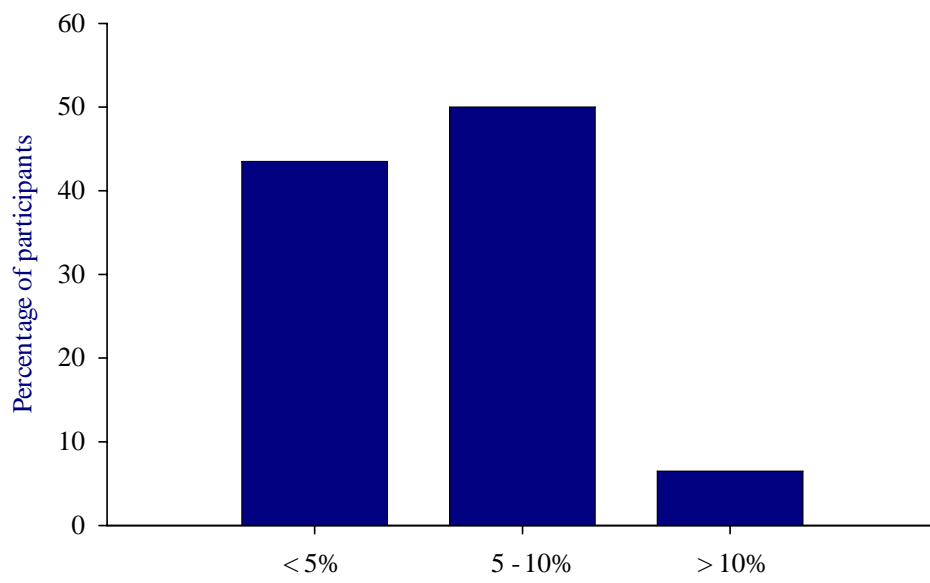


Figure 2: Mean weight change (as % baseline) in 12-week completers (n=62)

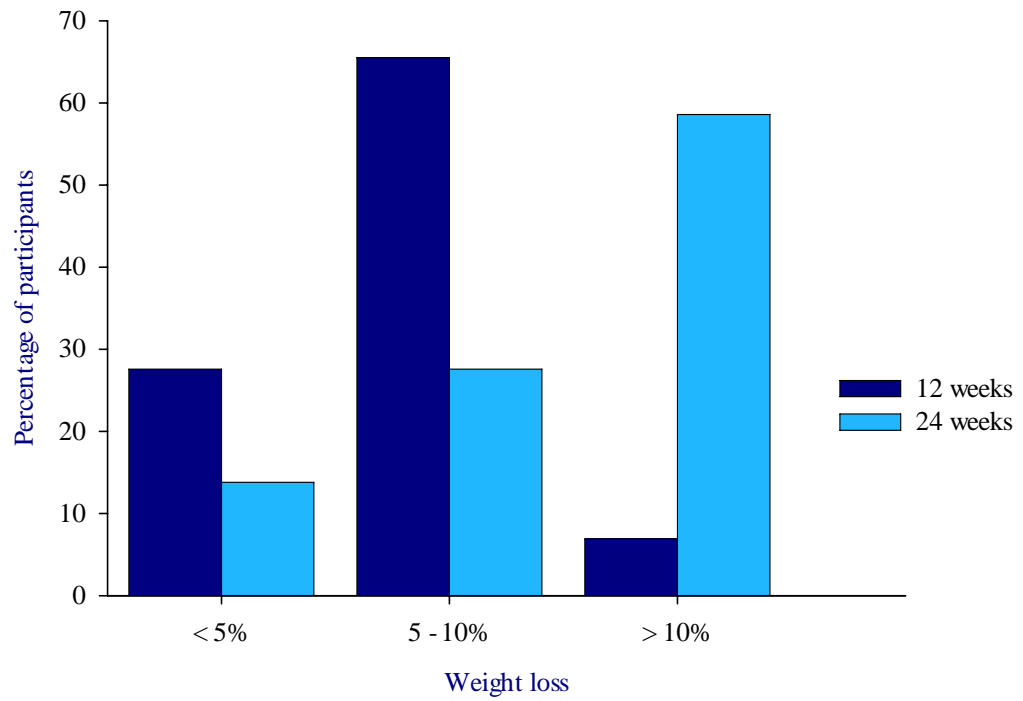


Figure 3. Mean weight change (as % baseline) at 12 weeks and 24 weeks in 24-week completers (n=29)