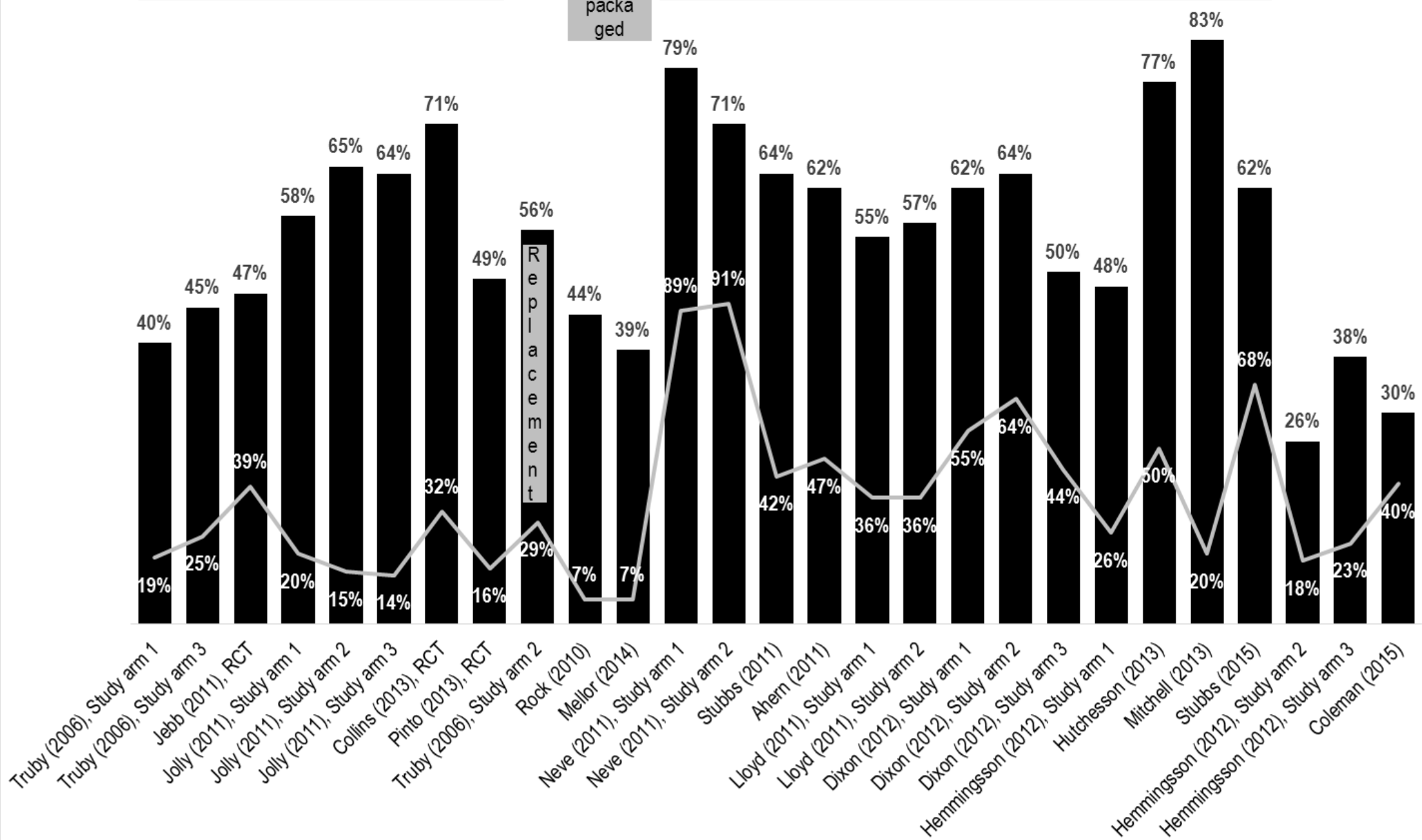


RCT
Meal plan Pre-packaged

Observational
Meal plan Replacement



■ Percentage of program commencers lost <5% (ITT) — Attrition

Supplementary Table S1: Summary of included studies

First author (Year) Country, Journal, Study Design	CWLP (Type), Program Duration	Commenced CWLP n	Population description	Completed CWLP n (% of commencers)	Attrition	% of program commencers that lost <5% of bodyweight (ITT method)	% of program completers that lost <5% of bodyweight
Heshka (2003) USA, JAMA, RCT	Weight Watchers (Meal plan), 52 wks	211	Overweight or obese adults (85% female)	172 (82%)	18%	No ITT*	62%
Gold (2007) USA, Obesity, RCT	eDiets (Meal plan), 52 wks	62	Overweight or obese adults (81% female)	48 (77%)	23%	No ITT*	63%
Luszczynska (2007) Poland, Health Psychol , RCT	Weight Watchers (Meal plan), 8 wks	28	Overweight or obese females	25 (89%)	11%	No ITT	92%
Jebb (2011) Australia, Germany, UK, Lancet, RCT	Weight Watchers (Meal plan), 52 wks	377	Overweight or obese adults (88% female)	230 (61%)	39%	47% (Unclear whether LOCF or BOCF)	40%
Jolly (2011) UK, BMJ, RCT	Weight Watchers, Slimming World, Rosemary Conley (Meal plan), 12 wks	300 i.e., 100 in each CWLP	Overweight or obese adults (69% female)	251 (84%) WW: 86; SW: 85; RC 80.	WW: 14%; SW: 15%; RC 20%.	WW: 64%; SW: 65%; RC: 58% (BOCF)	Not reported
O'Neil (2012) USA, Eat Behav, RCT	Weight Watchers (Meal plan), 12 wks	132	Overweight or obese adults, excludes BMI >35	111 (84%)	16%	No ITT	58%

			(89% female)				
Collins (2013) Australia, J Med Internet Res, RCT	Biggest Loser Club (Meal plan), 24 wks	143	Overweight or obese adults (excludes BMI >40) (53% female)	98 (69%)	31%	69% (LOCF); 71% (BOCF)	59%
Pinto (2013) USA, Obesity, RCT	Weight Watchers (Meal plan), 48 wks	49	Overweight or obese adults (90% female)	41 (84%)	16%	49% (Non-completers assumed <5%)	Not reported
Truby (2006) UK, BMJ, RCT	Weight Watchers, Slimfast, Rosemary Conley (Meal plan/meal replacement), 24 wks	58 WW; 59 SF; 58 RC.	Overweight or obese adults (excludes BMI >40) (72% female)	WW: 47 (81%) SF: 42 (76%); RC: 41 (71%)	WW: 19%; SF: 29%; RC: 29%	WW: 40%; SF 56%; RC: 45% (Non-completers assumed <5%)	WW: 26%; SF: 38%; RC: 22%.
Rock (2010) USA, JAMA, RCT	Jenny Craig (Pre-packaged meals), 104 wks	164	Overweight or obese females (excludes BMI >40) (100% female)	153 (93%)	7%	44% (BOCF)	Not reported
Mellor (2014) UK, J Hum Nutri Diet, RCT	DietChef (Pre-packaged meals), 12 wks	56	Overweight or obese adults, excludes BMI >35 (73% female)	52 (93%)	7%	39% (Non-completers assumed <5%)	Not reported

Bye (2005) UK, J Hum Nutri Diet, Observ	Slimming World (Meal plan), 12 wks	67	Overweight or obese males (0% female)	53 (79%)	21%	No ITT	9%
Lavin (2006) UK, Public Health, Observ	Slimming World (Meal plan), 12 wks	91	Obese adults (89% female)	62 (68%)	32%	No ITT	43%
Meffert (2010) Germany, J Nutri Metab, Observ	Metabolic balance nutrition program (Meal plan), 52 wks	851	Adults, including 13% normal weight (84% female)	472 (55.5%)	44.5%	No ITT*	38%
Neve (2011) Australia, J Med Internet Res, Observ	Biggest Loser Club (Meal plan), 12 wks or 52 wks	6943 12 wk; and, 2656 52 wk subscribers	Adults, including 8% normal weight (86% female)	12 wk: 792 (11%); and, 52 wk: 244 (9%)	89% for 12 wks; and, 91% for 52 wks	12 wk subscribers: 79%; 52wk subscribers: 71% (Using LOCF and GLMM)	Not reported
Stubbs (2011) UK, Obesity Facts, Observ	Slimming World (Meal plan), 12 wks	34271	Overweight or obese adults (89% female)	19907 (58%)	42% attended <10 out of 12 sessions	64% (Using data for all participants LOCF)	45% (Using data for 'Completers' LOCF)
Ahern (2011) UK, MC Public Health, Observ	Weight Watchers (Meal plan), 12 wks	All: 29326; 1 st referrals: 22519	Overweight or obese adults (90% female)	All: 15885 (54%) 1 st referrals: 11851 (53%)	All: 46%; 1 st referrals: 47%	All: 67% ; 1 st referrals: 62% (BOCF)	1 st referrals: 43%
Lloyd (2011) UK, Perspect Public Health, Observ	Weight Watchers, Slimming world (Meal plan), 12 wks	2456	Overweight or obese adults (87% female)	1571 (64%)	36%	57% WW; 55% SW (No description of ITT method)	39% Combined result for both CLWPs, no significant difference between programs

Dixon (2012) UK, J Public Health, Observ	Weight Watchers, Slimming World, Rosemary Conley (Meal plan), 12 wks	Engaged: WW: 414; SW: 500; RC: 143; Attended: WW: 339; SW: 398; RC: 143	Overweight and obese adults aged ≥16 (82% female)	% of engaged that completed WW: 232 (56%); SW: 181 (36%); RC: 64 (45%)	WW: 44%; SW: 64%; RC: 55%	% of attended that lost <5% WW: 50%; SW: 64%; RC: 62% (using LOCF)	Not reported for each study arm, but 39% overall
Hutchesson (2013) Australia, J Med Internet Res, Observ	Biggest Loser Club (Meal plan), 8 wks	953	Adults (85% female), including 10% normal weight	473 (50%)	50%	77% (Using LOCF)	Not reported
Mitchell (2013) USA, J Gen Intern Med, Observ	Weight Watchers (Meal plan), Self-selected	1486 (after exclusions)	Overweight or obese adults (96% female)	1192 (80%)	20% had <1 follow-up weight	83% (Using BOCF)	79% ('completers' using LOCF, not included in meta-analysis)
Stubbs (2015) UK, BMC Public Health, Observ	Slimming World (Meal plan), Self-selected	1,356,105 of whom 1,264,291 attended >1 week	All self-referred, fee-paying participants with BMI≥20 (95% female)	436,666 (32%) by week 14	68% by week 14	62% (Using LOCF)	Not reported
Hemmingsson (2012) Sweden, Am J Clin Nutr, Observ	Itrim (Meal replacement), 52 wks	VLCD: 3773; LCD: 4588; RNF: 676	Adults, including a small proportion normal weight (83% female)	VLCD: 3093 (82%); LCD: 3518 (77%); RNF: 498 (74%)	VCLD 18%; LCD 23%; RNF 26%	VCLD 26%; LCD 38%; RNF 48%. (Using BOCF)	VLCD: 9%; LCD: 19%; RNF: 29%.
Coleman (2015) USA, Nutr J, Observ	Medifast (Meal replacement), 12 wks	310	Overweight or obese adults (57%	185 (60%)	40%	30% (Using LOCF)	15%

			female)				
Finley (2007) USA, Int J Obes, Observ	Jenny Craig (Pre-packaged meals), Self- selected	60164	Overweight or obese adults (≈92% female)	60164 (100%) because duration self- selected; 26472 (44%) by wk 13; 4211 (7%) by wk 52	56% wk 13; 93% wk 52	No ITT*	56% (using weight at final week of attendance)

Abbreviations: RCT=Randomised controlled trial; Observ=Observational cohort studies; Wks=Weeks; ITT=Intention to treat analysis; LOCF = Last observation carried forward; BOCF=Baseline observation carried forward; GLMM=Generalised Linear Mixed Model; VLCD=Very low calorie diet; RNF=Restricted normal food; SW=Slimming World; WW=Weight Watchers; RC=Rosemary Conley; SF=Slimfast; No ITT*=ITT was not reported for key outcome.

Note: Studies sorted by study design (RCT then Observational), CWLP type (Meal plan, meal replacement, then pre-packaged meals), and then date (oldest to most recent).

Supplementary Table S2: Risk of bias assessment summary

First author (Year) Country, Design	CWLP (Type)	Risk of Selection bias	Risk of Detection bias	Risk of Attrition bias	Risk of other bias	Overall
Heshka (2003) USA, RCT	Weight Watchers (Meal plan)	Low	UC	High	Low	High
Gold (2007) USA, RCT	eDiets (Meal plan)	UC	UC	High	Low	High
Luszczynska (2007) Poland, RCT	Weight Watchers (Meal plan)	Low	Low	UC	Low	Moderate
Jebb (2011) Australia, Germany, UK, RCT	Weight Watchers (Meal plan)	Low	High	UC	Low	High
Jolly (2011) UK, RCT	Weight Watchers, Slimming World, Rosemary Conley (Meal plan)	Low	UC	Low	High	High
O'Neil (2012) USA, RCT	Weight Watchers (Meal plan)	UC	UC	UC	High	High
Collins (2013) Australia, RCT	Biggest Loser Club (Meal plan)	Low	Low	Low	Low	Low
Pinto (2013) USA, RCT	Weight Watchers (Meal plan)	UC	UC	Low	Low	Moderate
Truby (2006) UK, RCT	Weight Watchers, Rosemary Conley, Slimfast, (Meal plan/replacement)	UC	High	Low	Low	High
Rock (2010) USA, RCT	Jenny Craig (Pre-packaged meals)	UC	High	Low	Low	High
Mellor (2014) UK, RCT	DietChef (Pre-packaged meals)	UC	High	UC	UC	High
Bye (2005) UK, Observational	Slimming World (Meal plan)	NA	NA	High	Low	High
Lavin (2006) UK, Observational	Slimming World (Meal plan)	NA	NA	High	Low	High
Meffert (2010) Germany,	Metabolic balance nutrition program (Meal plan)	NA	NA	High	High	High

Observational						
Neve (2011) Australia, Observational	Biggest Loser Club (Meal plan)	NA	NA	High	High	High
Stubbs (2011) UK, Observational	Slimming World (Meal plan)	NA	NA	High	Low	High
Ahern (2011) UK, Observational	Weight Watchers (Meal plan)	NA	NA	High	Low	High
Lloyd (2011) UK, Observational	Weight Watchers, Slimming world (Meal plan)	NA	NA	High	Low	High
Dixon (2012) UK, Observational	Weight Watchers, Slimming World, Rosemary Conley (Meal plan)	NA	NA	UC	High	High
Hutchesson (2013) Australia, Observational	Biggest Loser Club (Meal plan)	NA	NA	UC	High	High
Mitchell (2013) USA, Observational	Weight Watchers (Meal plan)	NA	NA	Low	High	High
Stubbs (2015) UK, Observational	Slimming World (Meal plan)	NA	NA	UC	High	High
Hemmingsson (2012) Sweden, Observational	Itrim (Meal replacement)	NA	NA	Low	UC	High
Coleman (2015) USA, Observational	Medifast (Meal replacement)	NA	NA	UC	Low	High
Finley (2007) USA, Observational	Jenny Craig (Pre-packaged meals)	NA	NA	High	High	High

Abbreviations: UC=Unclear risk of bias. NA=Not applicable.

Note: Studies sorted on design (RCT then observational), CWLP type and then date (oldest to most recent).

All observational studies were given a default overall 'high' risk of bias.

Selection bias = Bias based on allocation to intervention e.g., adequacy of randomisation procedures; UC if study did not report method of randomisation or whether allocation concealment was maintained.

Detection bias = Assessors knowledge of allocated intervention during outcome assessment; UC if study did not report who collected weight outcome or whether that person was blind to group assignment, when relevant; High if the person collecting the outcome measure was not blind to group assignment.

Attrition bias = Amount, nature or handling of incomplete data due to loss to follow-up; UC if study did not conduct intention-to-treat (ITT) analysis, or no ITT on key outcome, or if ITT conducted not baseline

observation carried forward (BOCF) or equivalent, or if type of ITT unclear; High if difference between completers and non-completers reported and significant.

Other bias = Any other potential threats to validity e.g., self-selected program duration, self-report of weight loss; in 2 studies, a number of participants self-reported weight loss while a number of other participants were weighed by study/program personal (Jolly, Meffert). One study did not report how the weight loss measure was collected or by whom (Mellor). One study did not report how the weight loss measure was collected (Mitchell) another did not specify who collected the body weight measures (Hemmingsson). In 2 studies weight was self-reported in all cases (Neve, Hutchesson). In one study, clinicians decided locally which patients would be offered a referral to the scheme, method of collection of weight loss was not reported (Dixon).