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Feasibility of a co-designed, evidence-informed and community-based intervention to promote healthy weight and wellbeing in disadvantaged communities

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TITLE: Feasibility of a co-designed, evidence-informed and community-based incentive intervention to promote healthy weight and wellbeing in disadvantaged communities

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ABSTRACT

Objectives: To feasibility test a novel community-based financial incentive scheme to promote healthy weight and wellbeing.

Design: Single arm, prospective feasibility study using mixed methods.

Setting: Two communities in Scotland experiencing high levels of disadvantage according to Scottish Index for Multiple Deprivation (SIMD).

Participants: Eligible community members (n=75) recruited through community outreach.

Intervention: Unconditional soup twice weekly (café/delivery/pickup); loyalty card stamped for engagement in community assets (activities/clubs) to encourage preparatory behaviours towards healthy weight and wellbeing, exchanged for £25 shopping card for attending 9 assets in person over 12 weeks; goal-setting; information resources; self-monitoring of weight and wellbeing.

Outcome measures: Acceptability and feasibility of recruitment, retention, engagement, intervention components, assessed by self-report questionnaire and interviews. Outcomes for a future trial prioritised by communities: health-related quality-of-life (EQ-5D-5L), mental wellbeing (WEMWBS), connectedness (Social Connectedness Scale) and healthy weight (Body Mass Index (BMI)).

Results: Over 3 months, 75 community citizens were recruited (84% female, baseline BMI mean(SD)=31.9(7.3), 65/75 (87%) living in disadvantaged areas (SIMD quintiles 1-3). Retention at 12 weeks was 65 (87%). Participation in at least one asset for a minimum of 9 out of 12 weeks of the intervention was achieved by 55 (73%). All intervention components were acceptable, with the loyalty card being the most popular and the soup cafes the least popular. The mean average cost of the soup ingredients, per participant, was £12.02. Outcome data showed small improvements in body mass, health-related quality of life, mental wellbeing and social connectedness.

Conclusions: The Enjoy Life LocallY (ELLY) intervention is acceptable, feasible and shows promise for improving healthy weight and wellbeing in disadvantaged communities. A full trial is warranted to determine effectiveness and cost-effectiveness, with consideration of scalability.

Keywords

Community, incentive, intervention, healthy weight, wellbeing

Article Summary

Strengths and limitations of this study

- The ELLY study successfully recruited 75 participants across two disadvantaged communities and achieved overall 87% (65/75) retention rate at 12-weeks follow-up.
- Findings show that a holistic approach is acceptable and feasible to disadvantaged communities and shows positive indicative effects on measurable weight and wellbeing outcomes.

- The feasibility study was not designed to detect effects on weight loss or improved wellbeing and improvement in outcome measures should be interpreted with caution.
- Accurate data relating to attendance at weekly soup cafes was difficult to obtain and relied on participant self-reports.

INTRODUCTION

People living in disadvantaged areas have poorer health and are dying younger through increased risk of obesity-related conditions including diabetes, heart disease, some cancers, and infections.[1] The personal, NHS resource and societal costs of obesity are considerable.[2] Multiple behaviours are obesity risk factors (e.g., over consuming high fat, high sugar food and drinks, physical inactivity) and these behaviours cluster within disadvantaged families and communities with adverse consequences throughout the life-course.[3] Solutions to support people living well can benefit from coproduction and involving people with lived experience, promoting equity and opportunity. There is a strong rationale for "putting the public back into public health" through community-based action research working 'with' rather than imposing ideas 'on' communities. [4]

Social prescribing and community assets approach

The accessibility and sustainability potential of the social prescribing approach, where citizens are connected to community resources to support their health and wellbeing needs, is an important consideration for community-based interventions. [5] Systematic review evidence on the use of social prescribing to supporting disadvantaged communities has shown the approach to be effective in providing vulnerable groups with a means of bridging the gap between psychosocial support and medical services.[5, 6] The approach allows primary care to link/signpost patients to community assets/services, and is effective in reducing non-communicable diseases (e.g. anxiety and depression [7,8] as well as reducing pressure on healthcare services.[9] In addition, evidence is emerging on how building social resilience and cohesion within disadvantaged communities has an impact on health outcomes [10]. Research that seeks to better understand the links between 'social and community networks' without a primary care gatekeeping role is important. In particular, community asset-based approaches to health improvement which are co-produced locally to be relevant to local circumstance and culture and where behaviours are studied in context show promise. [11,12] Although there is consensus that such asset-based approaches show potential in supporting community health, the evidence-base is limited. [13-15] Community engagement can facilitate positive change on healthy

behaviours and consequences, however, systematic review evidence shows that community interventions can generate health inequalities, as they engage more advantaged time rich and organised people. [16,17]

Financial incentive interventions

Financial incentive interventions, when combined with effective behaviour change and engagement techniques, have the potential to prevent non-communicable diseases [18-20], and engage people living in disadvantaged areas. [21] Financial incentives offered to individuals show evidence of effectiveness for weight loss, however there is a risk of weight regain once the incentive intervention is withdrawn. [22] Evidence is limited for financial incentives delivered at a community level. Neighbourhood interventions to promote healthy weight are recommended in a recent UK biobank study, particularly for people at higher genetic risk of obesity. [23] By targeting communities rather than individuals, there are opportunities for minimising weight stigma, which a meta-analysis of systematic reviews found has adverse psychological consequences, such as depression and anxiety. [24]

Research Aims

The aim of the study was to feasibility test a novel evidence-informed and community-based financial incentive intervention to promote healthy weight and wellbeing. Specifically, we assessed (i) the feasibility of recruiting participants from community venues and pop-up café events, (ii) retention and engagement rates, acceptability of the intervention components, feasibility of delivery, fidelity and unintended consequences, (iii) the feasibility of collecting outcome measures prioritised by communities: weight, wellbeing, health-related quality-of-life, social connectedness, weight and (iv) indicative effects on healthy weight and wellbeing and progression criteria for a future large-scale evaluation.

METHODS

The Consolidated Standards of Reporting Trials (CONSORT) extension for reporting feasibility and pilot trials was followed (see supplementary file A).[25]

Study Design

The study design was a single arm, prospective intervention feasibility study, using mixed methods to collect descriptive quantitative and qualitative from community participants.

Public and Patient Involvement

Public and patient involvement (PPI) was continuous and responsive, as described by Gamble et al [26]. Community members participated in the project across four levels: as grant holder co-applicants, members of Community Action Research Participation (CARP) groups, and as volunteers. Community co-investigators were instrumental in promoting the study, assisting with recruitment, and co-facilitating community engagement events. Each CARP group (one per community) was responsible for operationalising the intervention and linking citizens, partners, stakeholders, and researchers. A standing agenda at CARP meetings was: what is known; what are the uncertainties relating to the aims and objectives; what actions can be taken to resolve the uncertainties; and actions taken. Figure 1 presents PPI roles and responsibilities and PPI involvement described using the GRIPP2 reporting guidance . [27]

[insert figure 1 here]

Setting

Two disadvantaged communities (SIMD 1-3 (quintile)) in Scotland, predominantly comprising of public housing. Assets in both communities are groups/clubs focusing on arts and crafts, physical activity, nutrition, and socialising. Community (C1) is a small rural town, with population of approximately 8000 people. SIMD levels range from 1-3 (quintile) in the target area, with more affluent areas (SIMD 4-5) on the periphery. The community partners operated on two separate sides of the town and had no prior interactions. Local assets are based predominately at community hubs, the local library, and church. The largest supermarket is a 10-minute walk from the town centre with the alternative being local shops. Community 2 (C2) is a small and urban community, with population of approximately 9000 people. SIMD levels range from 1-2 (quintile). Local assets are mainly based at the community centre operated by our community partner. A retail park (and the closest supermarket) is a 20-minute walk away with a small grocery shop and petrol station located in the target area.

Eligibility criteria

Inclusion criteria: Any adult aged 18 or over living within 20-minute walking distance from main community assets were eligible to attend. Exclusion criteria: Inability to understand project information, the commitment required and consent; not planning to reside in community for the duration of the intervention period.

Participant recruitment

A wide range of recruitment methods were employed involving community groups, local business, pop-up cafes and school flyers. Equality of inclusion to ensure representativeness from all in the communities that might benefit from participating in the ELLY intervention was promoted through social media publicity, local adverts and door-to-door flyers. Community champions were identified to support recruitment. Recruitment took place June 2023 to August 2023. A weekly review of recruitment numbers was conducted and feedback from community citizens on methods used was acted upon with new strategies (e.g. researcher attending community groups, pop-ups at strategic locations) introduced as necessary. Community citizens were invited to express interest in study participation at events when an ELLY researcher was in attendance, at pop-up cafes or by contacting the research team via email/phone/text/ELLY website.

Baseline appointment

Having expressed interest, participants received a participant information sheet and were invited to attend a baseline appointment with a researcher at a date/time and location of their choice (e.g. home, community centre, library). At the baseline appointment participants were assessed for eligibility, provided written consent to take part, self-completed baseline questionnaires, height and weight measurements were taken (by researcher) and setting of weight, wellbeing and personal goals.

Intervention Components

The intervention is described using the Template for Intervention Description and Replication (TIDieR) Checklist. [29] The ELLY (Enjoy Life LocallY) intervention is a place-based, asset-based incentive system. Community consultation indicated that an intervention focusing solely on weight-loss was felt stigmatising and not inclusive of all community citizens. The resulting intervention adopts a holistic approach to supporting healthy weight and wellbeing, acting as a connector to existing assets and promoting autonomy. The intervention places significant emphasis on social cohesion, connectedness and relationships and the role these play on supporting individuals to live well. The ELLY intervention builds on learning from previous studies the authors have undertaken , particularly around financial incentive design, preparatory behaviours, successful community recruitment and signposting to support resources. [30, 31] The intervention includes elements to motivate preparatory behaviours towards healthy weight and wellbeing outcomes, promote commitment, and has embedded tailored evidence-based behaviour change techniques (goal setting, social support, demonstration of behaviour, adding

objects to/restructuring the environment). An ELLY theory of change model [32] was developed describing intervention components and function, behaviour change taxonomy elements addressed, and perceived outcomes (immediate, intermediate and long-term). [33] (see Supplementary file B for ELLY theory of change model).

ELLY is a 12-week intervention comprising of: (i) unconditional provision of free soup twice weekly (café/delivery to home/pickup); (ii) Loyalty card stamped for engagement in local assets to encourage preparatory behaviours towards key outcomes (healthy weight/wellbeing/social connectedness). Assets include activities and groups in the community that agreed to be part of the ELLY intervention. Assets are broad and inclusive (informed by community consultation) comprising of arts and crafts, physical activity, nutrition-related, and social groups. Assets were usually free to attend, with only 1/22 activities and 6/24 charging a small fee in communities C1 and C2 respectively. (see Supplementary file C for a full list of assets eligible for the loyalty card incentive in each community). Participants who achieved 9 stamps on their loyalty card (equating to attending at least 1 activity, per week, over 9 out of 12 weeks of the ELLY intervention) were rewarded with a £25 shopping card at 12-weeks; (iii) Goal setting options (personal, weight, wellbeing goals) discussed with participants at baseline; (iv) Website/written materials with access to local asset/activity '*What's on'* information and optional self-monitoring of weight and wellbeing via the website.

Outcomes

Table 1 summarises the outcomes, measures/approaches, data source and analyses corresponding to the study objectives.

Target	Objective	Measure/approaches	Data source	Analysis
Recruitment	Feasibility of recruiting 60 participants within 3 months	Recruitment rate Recruitment activities Recruitment timeline Participant interviews Researchers' field notes	Recruitment information Interview transcripts Field notes	Descriptive statistics Thematic qualitative analysis
Retention	Attendance for 12w outcome measures Number of participants	Questionnaires Weight measurements	ELLY questionnaires: The Warwick-Edinburgh Mental Wellbeing Scales (WEMWBS) [34], EQ-5D-5L [35], the Social Connectedness Scale – Revised	Descriptive statistics

	receiving voucher for attendance	Number of withdrawals, 12w data collection	[36], Social connectedness) and ELLY specific questionnaires Diary of communication Height/weight measurements	
Intervention	Acceptability and feasibility of intervention components	Questionnaires Interviews Access to intervention components	ELLY questionnaires Interview transcripts Field notes Loyalty card stamps	Descriptive statistics Thematic qualitative analysis
Fidelity and un-intended consequences	Delivery of the intervention components or study procedures as intended. Unintended consequences	Interviews Questionnaires Field notes	ELLY questionnaires Interview transcripts Field notes Diary of communication	Descriptive statistics Thematic qualitative analysis
Outcome measures	Feasibility of collection	Questionnaires Weight measures	Validated (EQ-5D-5L, WEMWBS, Social connectedness) Weight measures	Descriptive statistics
Indicative effects	Change in wellbeing, weight, engagement at 12wks	Questionnaires Weight measures Interviews	Validated (EQ-5D-5L, WEMWBS, Social connectedness) and ELLY specific questionnaires Interview transcripts Weight measures Goal setting data	Descriptive statistics

Table 1. Study outcomes, measures/approaches, data source and analyses corresponding to the study objectives

An independent study steering group, comprised of both academic experts and lay members advised whether the following pre-specified progression criteria were sufficiently met to proceed to a full trial:

1. Acceptability of the intervention and individual components by the majority of participants
2. Feasibility of recruiting at least 30 citizens in each community in 3 months
3. Twelve-week outcomes collected from 75% of participants based on Macaulay et al [37]
4. Evidence of indicative effects on outcomes collected

Outcome assessment

Outcomes were assessed at baseline and 12-weeks (at end of intervention). Individual appointments were conducted by a researcher at community centres, the local college (C2), and participants' homes, depending on participant preference. Travel expenses were not provided.

Height was measured at baseline using a portable stadiometer to the nearest 0.1cm. Weight was measured at baseline and 12-weeks. Prior to weight measurement participants removed shoes and bulky clothing. Weight was recorded using portable calibrated scales to the nearest 0.01kg. The Scottish

health survey [43] was used to provide Body Mass Index (BMI) categories. Information on adverse events was recorded at assessments.

The self-reported questionnaires used for collection of outcome data were informed by community consultation and the ELLY intervention theory of change model. Validated questionnaires were used to capture wellbeing (The Warwick-Edinburgh Mental Wellbeing Scales (WEMWBS)) and quality of life (EQ-5D-5L). Existing and adapted questionnaires were used to capture responses relating to social connectedness [36], socio-demographics, comorbidities, disabilities [38], lifestyle choices [39-42], and interaction with NHS services.[43] Questionnaires were completed during the appointment with a researcher (baseline) and at home online prior to/during appointments (12-weeks).

Participants' engagement with and experience of the ELLY intervention components was assessed using an ELLY 12-week questionnaire (see Supplementary file D). Engagement with ELLY activities was assessed by asking participants to '*Please indicate (with a tick) how often you attend the following types of activities in the last 12 weeks?*' for each category of '*Arts & crafts activity*', '*Physical Activity group*', '*Nutrition group*', *Social related group*' and '*Other (please specify)*'. Response options were: '*0-1 over 12 weeks'*, *'2-4 over 12 weeks'*, '*3-5 over 12 weeks'* and '*6+ over 12 weeks '*. Engagement with the ELLY soup provision was assessed by asking participants '*If you took up the offer of soup twice a week, how did you get your soup? (please tick all that apply)'* with responses captured using the options of *'Sit in at café, twice weekly, 'Collect soup twice weekly from café', 'Collect 2 portions of soup once a week from café', 'Delivered to house', 'Other (please state)'.* Acceptability of ELLY activities, loyalty card and reward, and soup provision was assessed by asking participants to *'Please tick the box that best describes your experience of ['attending local activities'/'loyalty card and reward'/'twice weekly free soup'] as part of the ELLY project*' followed by a series of statements, with responses captures using a Likert scale ranging from '*Strongly disagree*' to '*Strongly agree'* and '*Not relevant*' provided as an option if participants did not feel the question was reflective of their experience. Free text questions were also used to provide supplementary detail. General reflections on the ELLY intervention as a whole were captured using six open-ended questions at the end of the questionnaire.

Goal setting was conducted at baseline and goals reviewed at 12-week appointments. Goal setting and review was conducted using face-to-face interviews with participants. Personal goals were unrestricted and chosen by the participant. Weight goals allowed participants to 'decrease'/'stay same'/'increase' weight. Wellbeing goals were adapted from the EQ-5D descriptive system and VAS score.

At the 12-week appointment, all participants providing outcome data including weight (measured by a researcher) received a £25 shopping card as a thank you for their time. The website automatically recorded any self-reported weight entered by participants.

Qualitative interviews

Participants were approached to take part in a semi-structured interview at 12-weeks to gather qualitative data on their experiences of the ELLY study and related impacts on their health and/or wellbeing. Purposive sampling from both communities was informed by baseline participant characteristics and informal feedback from intervention volunteers relating to diversity of participants' demographics, engagement and perspectives. Before commencing an interview, participants were provided with an information sheet and written consent form. Participants were also assured of their anonymity and right to withdraw at any point of the interview. Face-to-face interviews were conducted with participants at 12-weeks. All interviews followed a pre-defined topic guide (see Supplementary file E), lasted approximately 30 minutes and were audio recorded using an encrypted dictaphone, then transferred to a password encrypted computer folder. Researcher field notes were taken at all interviews and used to inform the qualitative analysis.

Sample size

The study aimed to recruit 60 participants (30 at each community) to be sufficient in testing feasibility based on an estimated event rate of 5% for unforeseen problems (assuming a 95% confidence level). [28]

Analysis

Quantitative analysis

Data from validated outcome questionnaires was analysed according to the guidelines provided by each measure. Participant characteristics and outcomes were summarised using descriptive statistics: mean (standard deviation) for continuous variables and number (percent) for categorical variables. Likert scale variables were treated as continuous measures. The frequency, percentages and 95% confidence intervals of observed levels are reported for all categorical variables. The proportion of individuals who expressed interest in the study, those recruited, retained, and withdrawn at each stage, in each community was determined. Missing data was handled by following the appropriate guidelines for each scale, with the exception of the Social Connectedness Scale – Revised, where in the absence of guidelines, we applied an adaption of the WEMWBS guidelines as used by Phillips et al 2019 [44].

Qualitative analysis

NVivo 12 software was used to support analysis of the qualitative data from interviews, free-text questionnaire responses and researcher field notes. Descriptive coding techniques were used to undertake initial thematic categorising of the data. [45] A coding frame was developed independently by two researchers reading a diverse sample of five interviews, followed by team discussions to finalise the frame and identify key themes. Each theme was then explored in further detail and broken down into sub-themes, with duplicate codes being merged. Analysis was performed by one researcher (DH), with 10% of data being cross-checked by a second researcher (RA), and regular review of coding and analysis by the PI (JC). Researcher field notes contributed to interview data interpretation. Emergent themes were discussed at weekly team meetings and at monthly CARP meetings. DH had not been involved in any other aspect of the research and her involvement in the qualitative coding added to the rigour and impartiality of the analysis.

RESULTS

Figure 2 depicts participant flow through each stage of the ELLY intervention.

<insert figure 2 here>

Recruitment and retention

Prior to the recruitment period, the research team held pop-up cafés in the communities and supported local events/activities with a view to increasing ELLY visibility between January and June 2023 , becoming accepted faces in the community and promoting the research. Expressions of interest were made by 117 community citizens during this period. Recruitment was conducted over three months (June - August 2023), with forty-three recruitment events/visits/pop-ups being held. Target recruitment of 30 per community was exceeded (C1 – 35 participants, C2 – 40 participants). The number of people recruited each week was on average three per community, with the majority (C1:17/35 (49%), C2:28/40 (70%)) of participants recruited from existing community groups/activities they attended. Recruitment via community partners and snowball recruitment were effective strategies in community C1 (9/35 (26%) and 5/35 (14%) respectively), and pop-up cafes/attending community events (e.g. gala day) an effective strategy in C2 (8/40 (20%)). Being weighed at baseline and 12-weeks was an initial barrier to one potential recruit. The importance of this outcome measure was discussed and reassurance around anonymity and use of data given, after which the individual was successfully recruited to the study.

Baseline appointments were attended by 78 citizens and 75 met required eligibility criteria. Those not eligible lived outside the target area (n=2) or planned to move away during the intervention (n=1). Questionnaire completion took time, and many participants expressed a preference for an online version and/or being able to complete the questionnaire at home, prior to the appointment. Twenty participants agreed to be interviewed at 12-weeks.

Participation in at least one activity for a minimum of 9/12 weeks (assessed by 9 stamps on the 12 stamp loyalty card) and receipt of a £25 shopping card was achieved by 55/75 (73%) of study participants. The 12-week assessment was completed by 65/75 participants (87%) with minimal difference in retention between communities (C1 30/35 (86%) retention, C2 35/40 (88%) retention). At 12-weeks, nine participants were lost to follow up due to not being contactable and 1 participant withdrew from the study, as they did not wish to complete outcome measures. The proportion of drop-outs living in SIMD 1-3 was 8/10 (80%) which was reflective of the proportion of overall participants living in these SIMD categories. Of those contacted for interview at 12-weeks (10 per community), all agreed to be interviewed.

Baseline characteristics

	C1 n=35	C2 n=40	Total n=75
Age (years), mean (SD)	56.5 (18)	50.4 (15)	53.3 (17)
Gender, n (%)			
Female	29 (83)	34 (85)	63 (84)
Male	6 (17)	6 (15)	12 (16)
Height (cm), mean (SD)	162.1 (9)	163.9 (7)	163 (8)
Weight (kg), mean (SD)	83.9 (17)	85.6 (23)	84.8 (20)
BMI (kg/m2), mean (SD)	32.1 (7)	31.7 (8)	31.9 (7)
BMI (kg/m2), categories, n (%)			
Healthy weight (18.5 <= Body Mass Index 18.5 <=24.9)	5 (14)	7 (18)	12 (16)
Overweight (25.0 <= Body Mass Index <= 29.0)	10 (29)	6 (15)	16 (21)
Obesity (30.0 <= Body Mass Index <=39.9)	15 (43)	19 (48)	34 (45)
Morbid Obesity (Body Mass Index >40.0)	5 (14)	7 (18)	12 (16)
Underweight (Body Mass Index < 18.5)	0 (0)	1 (3)	1 (1)
SIMD deprivation category, n (%)			
SIMD 1 (most disadvantaged)	11 (31)	7 (18)	18 (24)
SIMD 2	10 (29)	20 (50)	30 (40)
SIMD 3	10 (29)	7 (18)	17 (23)
SIMD 4	4 (11)	1 (3)	5 (7)
SIMD 5 (least disadvantaged)	0 (0)	5 (13)	5 (7)
Marital status, n (%)			
Married or in a registered civil partnership	12 (34)	16 (40)	28 (37)
Separated	0 (0)	5 (13)	5 (7)

Widowed	5 (14)	2 (5)	7 (9)
Divorced	4 (11)	6 (15)	10 (13)
Single (never married and never registered in a civil partnership)	10 (29)	8 (20)	18 (24)
Cohabiting	3 (9)	1 (3)	4 (5)
Prefer not to say	1 (3)	2 (5)	3 (4)
Comorbidities, n (%)			
A stroke (including mini-stroke)	2 (6)	3 (8)	5 (7)
High blood pressure	12 (34)	10 (25)	22 (29)
A heart condition such as angina or atrial fibrillation	8 (23)	6 (15)	14 (19)
Diabetes	11 (31)	3 (8)	14 (19)
Cancer	3 (9)	4 (10)	7 (9)
Arthritis	9 (26)	12 (30)	21 (28)
A mental health condition	14 (40)	18 (45)	32 (43)
None of the above	10 (29)	14 (35)	24 (32)
Report a single comorbidity	9 (26)	12 (30)	21 (28)
Report multiple long term conditions	16 (46)	14 (35)	30 (40)
Ethnic group, n (%)			
Asian or Asian British	2 (6)	7 (18)	9 (12)
Black, African, Caribbean or Black British	0 (0)	1 (3)	1 (1)
Mixed or multiple ethnic groups	0 (0)	1 (3)	1 (1)
Other Ethnic Group	0 (0)	2 (5)	2 (3)
White	33 (94)	29 (73)	62 (83)
Education, n (%)			
At degree level or above	2 (6)	10 (25)	12 (16)
Another kind of qualification	21 (60)	23 (58)	44 (59))
Prefer not to say	2 (6)	1 (3)	3 (4)
No formal qualifications	6 (17)	3 (8)	9 (12)
Not reported	4 (11)	3 (8)	7 (10)
Household status			
Household size, mean (SD)	2.4 (1)	2.8 (2)	2.6 (2)
Living alone, n (%)	10 (29)	13 (33)	23 (31)
Working status, n (%)			
Have paid job - Full time (30+ hours per week)	2 (6)	4 (10)	6 (8)
Have paid job - Part time (8-29 hours per week)	1 (3)	6 (15)	7 (9)
Have paid job - Part time (Under 8 hours per week)	0 (0)	1 (3)	1 (1)
Unemployed and seeking work	2 (6)	4 (10)	6 (8)
Retired	16 (46)	9 (23)	25 (33)
Full time student	0 (0)	1 (3)	1 (1)
Not in paid work because of long term illness or disability	7 (20)	9 (23)	16 (21)
Not in paid work for other reason	2 (6)	2 (5)	4 (5)
Not reported	1 (3)	0 (0)	1 (1)
Other	3 (9)	3 (8)	6 (8)
Prefer not to say	1 (3)	1 (3)	2 (3)

Table 2 Participant Baseline Characteristics

Table 2 reports the baseline characteristics of participants. Mean average age of participants was 53.3 (SD=16.7), with BMI of 31.9 (SD=7.3). 63/75 (84%) of participants were female and 65 (87%) lived in disadvantaged areas (as defined by SIMD quintiles 1-3). Marital status was mixed, with married/civil partnership (28 participants (37%)) representing the largest classification group. Multiple long term conditions were reported by 30 (40%) participants , 62 (83%) were ethnic group white, 12 (16%) were educated to degree level with 44 (59%) having some other form of qualification. The proportion of participants living along was 23 (31%) and overall average household size was 2.6. Working status was mixed with retirees (25 (33%)) followed by those not in paid working due to disability/long-term sick (16 (21%)) representing the largest classification groups.

Acceptability of intervention components

For each intervention component, the survey responses are presented in Table 3 followed by qualitative perspectives from 12-week participant interviews. Quotes have been chosen to represent the diversity of responses relating to the ELLY study in terms of engagement, acceptability, and demographics of participants.

ELLY components		C1 n=35	C2 n=40	Total n=75 [95% CI]
Soup n (%)				
Engaged in twice weekly soup (sit in/take away/delivery)		34 (97)	39 (98)	73 (97) [91, 100]
(Strongly agree/agree) getting soup was very convenient		16 (46)	17 (43)	33 (44) [33, 56]
(Strongly agree/agree) I made new friends as a result of ELLY soup		19 (54)	17 (43)	36 (48) [63, 60]
(Strongly agree/agree) ELLY soup helped me feel more part of my community		17 (49)	18 (45)	35 (47) [36, 59]
(Strongly agree/agree) ELLY soup kept me motivated		16 (46)	13 (33)	29 (39) [28, 51]
(Strongly agree/agree) ELLT soup was an important part of ELLY		18 (51)	17 (43)	35 (47) [36, 59]
(Strongly agree/agree) soup component helped with…	weight goal	7 (20)	8 (20)	15 (20) [12, 31]
	wellbeing goal	13 (37)	14 (35)	27 (36) [25, 48]
	personal goal	13 (37)	15 (38)	28 (37) [26, 49]
Community assets n (%)				
Participants engaged in at least 1 activity per week in at least 9 of the 12-week intervention		25 (71)	30 (75)	55 (73) [62, 83]
Participant engaged in more activities during the 12-week intervention than they did before		24 (69)	18 (45)	52 (69) [58, 79]
Participants attended new activities during the project		23 (66)	19 (48)	42 (56) [44, 67]
(Strongly agree/agree) I made new friends as a result of the activities		21 (60)	25 (63)	46 (61) [49, 72]

(Strongly agree/agree) the activities helped me feel more part of my community		24 (69)	25 (63)	49 (65) [53, 76]
(Strongly agree/agree) the activities kept me motivated		24 (69)	27 (68)	51 (68) [56, 78]
(Strongly agree/agree) the activities were an important part of ELLY				
(Strongly agree / agree) activities component helped with …	weight goal	10 (29)	10 (25)	20 (27) [17, 38]
	wellbeing goal	17 (49)	18 (45)	35 (47) [36, 59]
	personal goal	20 (57)	19 (48)	39 (52) [40, 64]
Loyalty card n (%)				
Participants who engaged with the loyalty card scheme achieving at least 9/12 weeks of stamps		25 (71)	30 (75)	55 (73) [62, 83]
(Strongly agree/agree) the reward was an appropriate amount		24 (69)	28 (70)	52 (69) [58, 79]
(Strongly agree/agree) the timing of the reward was appropriate (end of 12-weeks)		23 (66)	30 (60)	53 (71) [59, 81]
(Strongly agree/agree) I made new friends as a result of the loyalty card		20 (57)	25 (63)	45 (60) [48, 71]
(Strongly agree/agree) the loyalty card helped me feel more part of my community		20 (57)	21 (53)	41 (55) [43, 66]
(Strongly agree/agree) the loyalty card kept me motivated		20 (57)	24 (60)	44 (59) [47, 70]
(Strongly agree/agree) the loyalty card was an important part of ELLY		22 (63)	27 (68)	49 (65) [53, 76]
(Strongly agree / agree) loyalty card component helped with …	weight goal	11 (31)	12 (30)	23 (31) [21, 42]
	wellbeing goal	19 (54)	21 (53)	40 (53) [41, 65]
	personal goal	21 (60)	22 (55)	43 (57) [45, 69]
Goal setting n (%)				
Weight goal set		28 (80)	36 (90)	64 (85) [75, 93]
Wellbeing goal set		30 (86)	36 (90)	66 (88) [78, 94]
Personal goal set		29 (83)	36 (90)	65 (87) [77, 93]
Information resources, self-monitoring of weight and wellbeing				
Engagement with self-reporting of weight via ELLY website				0 (0) [0, 5]

Table 3 Overall acceptability of ELLY components

Soup Provision

Despite high engagement in ELLY soup (73/75 (93%)), participant questionnaires provided no consensus on its popularity. A significant proportion of participants indicated that they strongly agreed/agreed that 'getting the soup was very convenient' (33 (44%)), that 'I made new friends as a result of ELLY soup' (36, 48%)) and that the soup component 'helped me feel more part of my community' (35 (46%)). These

findings were consistent across both communities. Overall, £877.44 was spent on soup ingredients for 73 participants over 12 weeks (mean average cost of soup ingredients: £12.02 per participant).

Participant interviews showed disparate views on ELLY soup however, the majority reported they found the soup element to be positive and/or beneficial to themselves and others, including being easy and convenient to access. Whilst it was felt that ELLY soup might support participants with dietary goals and an opportunity for health eating, only one participant (from C1) reported the soup helped them achieve their goal of weight loss and healthy eating. Food insecurity was an important element that ELLY soup addressed:

> *"I also got to eat something rather than just skipping meals. This is another thing, because I skip meals and things like that" [C2, P34]*

ELLY soup was also recognised as an opportunity for social interaction and connection with others:

> *"...the soup helped me because I was coming in here to pick it up and it was a direct link with people because the Covid [pandemic]...it was a long time...it made me, I won't say nervous but unsure of mixing with people again" [C2, P19]*

Interviewees from both communities reported similar barriers to accessing the soup, most notably not liking the soup or there being a lack of variety of other foods available. Interviewees from C1 stated that they did not like the soup element due to the table set up at the venue, which limited opportunities for socialising with others and meeting new people. Others reported that they could not attend the soup due to the time and dates it operated.

Community assets

Community assets signposted to by ELLY, where participants could get their ELLY loyalty card stamped were well engaged with (55, 73%)). Participants reported they strongly agreed/agreed that 'I made new friends as a result of the activities' (46, 61%)), the activities 'helped me feel more part of the community' (49, 65.3%)), and 'the activities kept me motivated' (51, 68%). Participants also strongly agreed/agreed that the activities component helped with their personal goal (39, 52%) but less so supporting weight (20, 26%) and wellbeing (35, 46%) goals. A majority of individuals in community C1 and just under half of individuals in C2 strongly agreed/agreed that they had engaged in more assets than they had before ELLY (C1: 24/35, 69%; C2: 18/40, 45%) and had tried new assets during ELLY (C1: 23/35, 66%; C2: 19/40, 48%).

Interview data showed that across both communities, the range of assets available was overall found to be good, well-advertised and easily accessible. A key facilitator was found to be the welcoming nature of staff and volunteers at assets:

> *"I think just people were very welcoming, which was amazing, I think in all of the groups that I attended they were very, very welcoming" [C1, P19]*

Barriers reported by interviewees across both communities were related to individuals' inability to attend assets due to employment or caring commitments and times not fitting well with their daily schedules. A further barrier experienced in both communities was a lack of assets for different interests, ages or genders.

> *"A lot of them were for older people, I would go to some of the clubs, I looked at them and I would go in and would be like, yes, no and I would just go" [C2,P41]*

A related point made by a small number of participants was that spaces could be more inclusive to different demographic groups and needs:

> *"...it would have been good to have spaces for people who are just in those awkward places where they don't really fit into neat boxes…I feel like possibly those are the people who don't fit anywhere that actually probably need it the most in some ways" [C1,P19]*

Loyalty card

Participants in both communities strongly agreed/agreed that the cash value of the loyalty card and ability to redeem it after 12-weeks of the ELLY intervention was appropriate (52 (69%) and 53 (71%) respectively). The majority of participants in both communities strongly agreed/agreed that '*I made new friends as a result of the loyalty card*' (45, 60%), the loyalty card '*helped me feel more part of my community*' (41, 55%) and '*the loyalty card kept me motivated*' (44, 59%). Participants also strongly agreed/agreed that the loyalty card supported wellbeing (40, 53%) and personal (43, 57%) goals and was regarded as an important component of the ELLY intervention (49, 65%).

Across both communities most interviewees found the loyalty card to be positive and beneficial to achieving their goals. Many found the loyalty card acted as an incentive to take part in more assets and was satisfying and rewarding.

> *"It's nice for you to look at it and go oh I've not been anywhere this week, I need to go and get my stamp…It was a push to go out and go somewhere because I wanted to get all the stamps" [C1, P26]*

Seven of the interviewees stated that the loyalty card made no difference to their attendance. Negative responses were mainly regarding practical aspects, such as the risk of losing the card or forgetting to bring it along to activities. Two respondents from C1 stated that they did not like the concept due to it being an *"artificial encouragement"* [C1, P43, P2], encouraging people to attend for the wrong reasons, and one respondent stated that the stamp system had the potential to "*embarrass*" people [C1, P2].

Overall, £1375 of gift card payments was made to the 55 participants (73%) who successfully acquired at least 9 stamps on their loyalty card.

Goal setting

Across both communities, goal setting was engaged in by the majority of participants (weight goal: 64, 85%; wellbeing goal: 66, 88%; personal goal 65, 87%). The most popular personal goals were around meeting new people (20, 27%), setting a target weight-loss (19, 25%), doing more activities (8, 11%), and being more community focused (8, 11%).

Interview participants from both communities reported that goal setting was a positive and helpful element of ELLY. Participants found setting goals easy, and that goal setting had been useful for keeping focus and motivation.

> *"...to know in your head that you've got a goal of trying to be a bit more active and lose a bit more weight and that you've got a timeframe for it, I think that's a really positive thing" (C1,P26)*

Eight participants specifically stated that the goal setting had helped them achieve their goals.

> *"I feel as though they've [the goals] helped dramatically. So due to this, health is a lot better mentally and psychologically I'm a lot better" [C1,P2]*

Four C1 participants stated that they could not remember setting goals due to other things going on in their lives. One participant from C2 found the goal setting system challenging to complete due to being too busy and having personal issues.

Information resources, self-monitoring of weight and wellbeing

Interview data showed that participants liked the A4 printed "What's on" card provided in the participant packs at the start of the ELLY intervention. Three interviewees from C1 reported the programme of assets and contact details to be easily accessible online, especially through social media.

"What was interesting about the ELLY project is that it was advertised in one space, whereas normally you have to rush around and try to find things in different places, so I wouldn't necessarily have known about the [activities]" [C1, P19]

The self-reporting of weight and wellbeing feature via the website was not used, and when questioned on this element, interviewees stated they had not felt the need to access the website.

Feasibility and fidelity of delivering intervention components

The ELLY intervention was feasibly delivered in both community settings. Community CARP members and community champions actively supported academic researchers with recruitment activities and advertising the ELLY project. The ELLY Soup component was made and delivered by community voluntary organisations in each community. In addition, in community C2, local college students supported the Soup Café by welcoming participants and working in the café. Assets were delivered by independent volunteers and organisations already providing activities/clubs/groups in the two communities. Data collection and analysis, provision of ELLY , the website, social media and project monitoring were undertaken by the ELLY research team. All participants who secured financial incentives received their chosen shopping card within 1 week of completing outcome measures (as stipulated). Issues that were reported were: one participant reported confusion around loyalty card stamping; two participants not being able to contact activity organisers; and seven not feeling welcome at some assets attended .

Harms and unintended consequences

No harms or unintended consequences were reported.

Indicative effects on healthy weight and wellbeing at 12-weeks

Small improvement is evident in all outcomes collected (Table 4) showing promising results.

	Mean	SD	95% CI
Body Mass Index	-0.15	1.26	-0.44, 0.14
EQ-5D-5L index score	0.02	0.20	-0.26, 0.07
WEMWBS	0.80	9.74	-1.44, 3.04
Social connectedness scale	0.80	14.6	-2.56, 4.16

Table 4: Mean (Standard deviation) change in measures collected from baseline to 12-weeks

Progression to full trial

An independent study steering committee agreed that the ELLY study had demonstrated acceptability and feasibility agreeing that the overall prespecified progression criteria were sufficiently met to support a larger-scale evaluation of the effectiveness and cost-effectiveness of ELLY.

DISCUSSION

The ELLY study was popular, engaged citizen partners and successfully recruited 75 participants across two disadvantaged communities with 87% (65/75) retention rate at 12-weeks follow-up. Community citizens living in disadvantaged areas (SIMD 1-3) formed 87% of the sample illustrating some promise for ELLY to impact on health inequalities in future. The majority of ELLY intervention components were acceptable and engaged with, with the exception of the self-monitoring of weight website component, which was not utilised. Positive indicative effects on measurable weight and wellbeing outcomes were observed. However, the feasibility study was not powered to detect effects on weight loss or improved wellbeing, therefore findings should be interpreted with caution. Figures provided relating to attendance at weekly soups are reliant on participant self-reporting. The mean average soup cost per person of £12.02 is calculated from the cost of soup ingredients and does not account for wider opportunity costs (e.g. time taken to prepare soup, electricity costs, cost of volunteering). Careful consideration of what costs should be included in cost-effectiveness calculations, aligned to the perspective taken (e.g. consideration of societal costs, public-sector costs) should be given for future evaluation of the intervention.

The ELLY study was co-designed by two disadvantaged communities for use in disadvantaged communities. The intervention is underpinned by systematic review findings and extends the evidence for use of financial incentive interventions for supporting healthy weight and wellbeing in disadvantaged communities. [46] ELLY findings are aligned to those reported in the review, where all studies showed community incentive interventions resulted in small improvements in BMI and/or weight or no effect. The systematic review and network meta-analysis conducted by Boonmanunt et al [48] examined behavioural-economic incentive programs for achieving goals, and reviewed the effectiveness of different strategies on incentivization for healthy diet, weight control and physical activity. This work is important in recognising the role of self-determination theory acknowledging the impact of different social contexts and individuals' differences on different types of motivation. The ELLY intervention promoted autonomy and intrinsic (goal setting), and incorporated extrinsic motivation

(incentivisation), social and physical opportunities and capability to support positive health and wellbeing behaviour change. The ELLY intervention supports the findings of Boonmanunt et al that recognises the importance of social support, adding objects to /restructuring the community environment and incorporating financial rewards to support sustained behaviour change. The extensive community engagement undertaken during the ELLY project mirrors that of VanWormer et al [47] where promotional strategies to recruit to the study were invested in heavily. VanWormer acknowledges that the considerable resources required may be a barrier to others wanting/being able to invest in such community engagement strategies. An emphasis on holistic health and wellbeing was preferred by citizens to a weight focus, reflected by the community assets offered. This finding reflects that of Glover et al [20] where having to be weighed proved a barrier both to recruitment and retention for some participants. In the ELLY study, 85% selected a weight goal yet few locally provided assets focused on the required food and behavioural changes required for weight loss.

Investing in upstream public health incentive initiatives that are feasible and acceptable to communities warrants further investigation to explore their potential to reduce pressure on existing health services, including gate-keeper roles. Incorporating incentives into social prescribing may be a promising approach for highlighting and encouraging engagement with supportive community assets. A holistic approach to health wellbeing, rather than a focus on individual, potentially stigmatising conditions like weight or behaviour was shown in this study to be preferred by communities and demonstrated promising results.

CONCLUSION

This study demonstrates the feasibility of co-designing and implementing a novel community-based, incentive intervention to support healthy weight and wellbeing. A larger study is warranted to determine effectiveness and cost-effectiveness, with consideration of scalability. The design of a full scale evaluation requires careful consideration to ensure its appropriateness in addressing study objectives.

Author Contributions

JC, PH, SC, PC, GM, MvdP, RA, LH contributed to the study's conception and design. JC was principal investigator and project manager on this study. Data collection was conducted by SF, RA and JC. Data analysis was conducted by SF, DH, RA, GM, MvdP, JC and PH. JC, SF, RA, DH drafted the first version of

the manuscript. JC led future iterations of the manuscript. All authors read and commented on the manuscript and approved the final version of it. The corresponding author attests that all authors meet authorship criteria and that nobody meeting the criteria has been omitted.

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Ethics approval

Ethical approval was granted from Stirling University Ethics Committee (NHS, Invasive or Clinical Research (NICR), project 7430, 251022) and Glasgow Caledonian Ethics committee (Nursing and Community Health Research Ethics Committee (REC), 050623).

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Data availability

All data produced in the present study are available upon reasonable request. Glasgow Caledonian University holds the copyright for the full interview transcripts and may grant data sharing permission on request.

Competing interests

All authors have completed the ICMJE uniform disclosure form and declare no competing interests.

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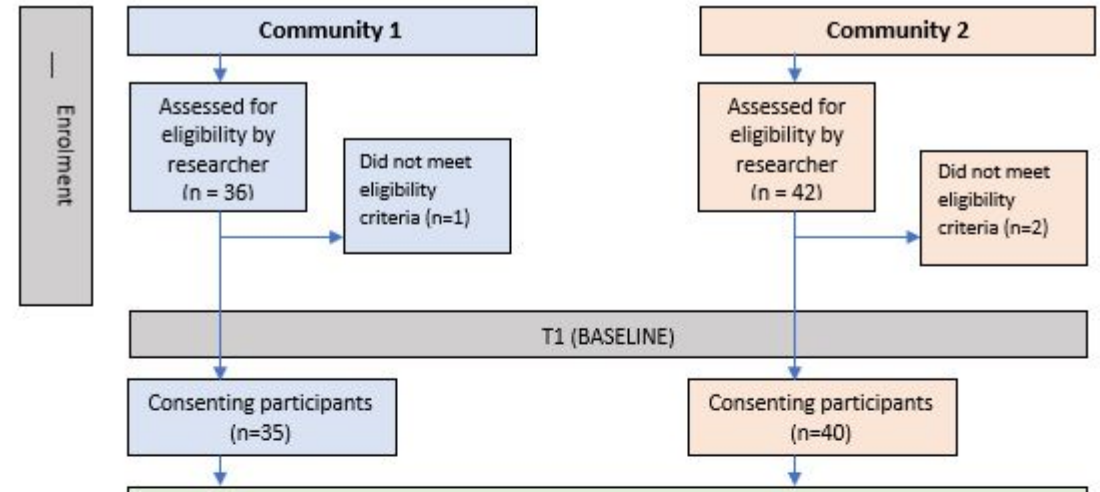
Figure 1 Community engagement in ELLY project

Community engagement reported using GRIPP2 reporting checklist

Section	Item
Aim	To co-design and feasibility test an incentive intervention to support health and wellbeing of citizens living in disadvantaged communities.
Methods	Community co-investigators were involved at all stages of the study, including conception of ideas, systematic reviewing, intervention implementation and dissemination of findings. CARP members met monthly to review project progress, support decision making and provide advice as appropriate.
Results	Public and Patient Involvement (PPI) successfully facilitated the development of an intervention that accounted for local context and needs. It was shown to be feasible and acceptable in the communities where it was implemented. PPI played a role in recruitment and retention of participants. Recent poor relations between a community organisation and potentially eligible community participants acted as a barrier to recruitment in one of the communities.
Discussion	Delivery of the intervention was conducted by PPI members which on the whole was seen as a positive experience. A potential barrier to implementation success was a need for more hours of researcher support for community members in one community compared to the other community. In addition, some of the community assets that participants were signposted to were not as welcoming to new ELLY recruits as anticipated. On reflection, a clearer negotiation of roles and responsibilities for community groups and for providing assets is recommended for future initiatives.

Figure 2: Consort Flow Diagram (Consolidated Standards Of Reporting Trials) of ELLY intervention



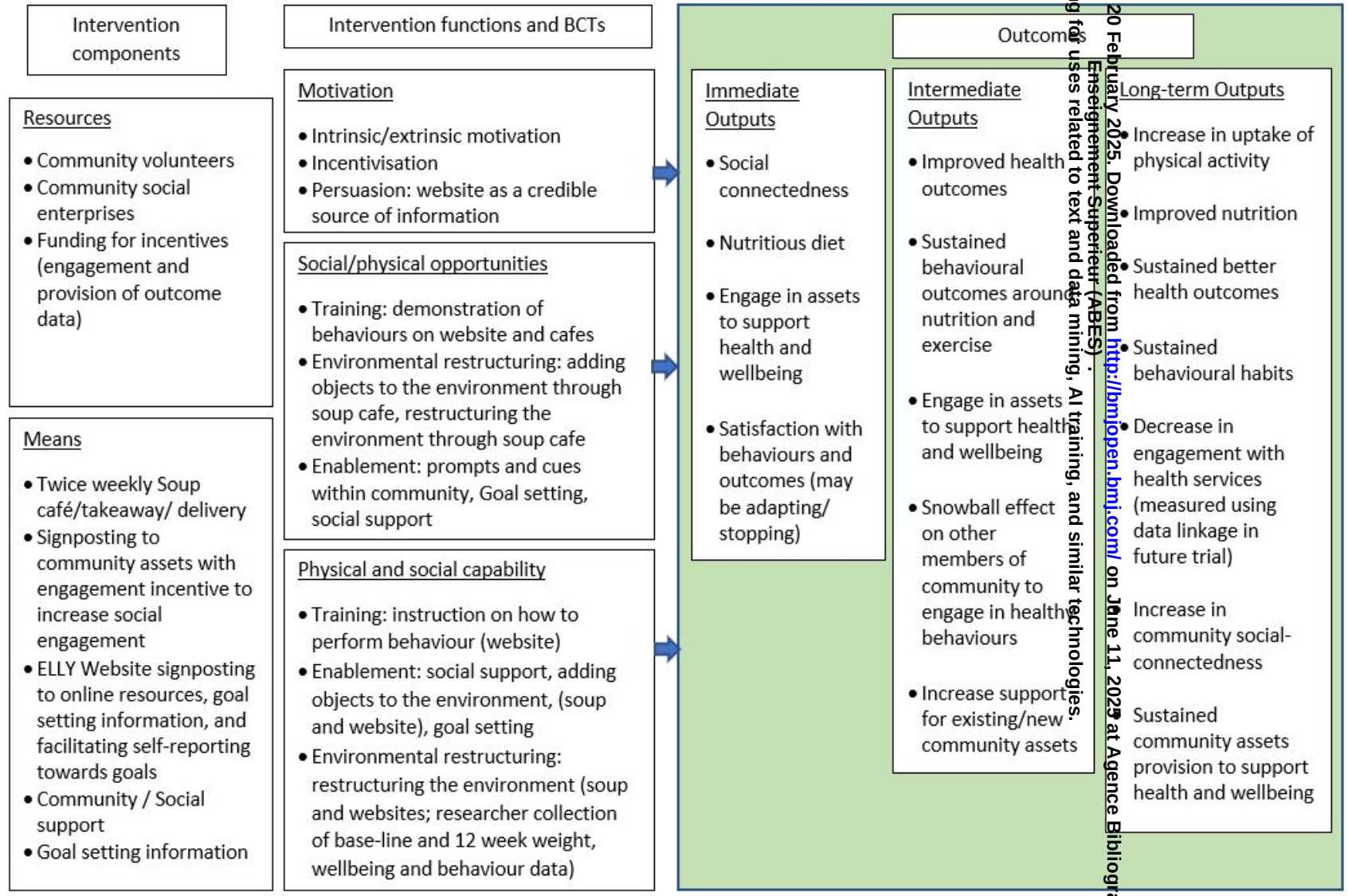
CONSORT 2010 checklist of information to include when reporting a pilot or feasibility trial*

Section/Topic	Item No	Checklist item	Reported on page No
Title and abstract			
	1a	Identification as a pilot or feasibility randomised trial in the title	1
	1b	Structured summary of pilot trial design, methods, results, and conclusions (for specific guidance see CONSORT abstract extension for pilot trials)	4
Introduction			
Background and objectives	2a	Scientific background and explanation of rationale for future definitive trial, and reasons for randomised pilot trial	3
	2b	Specific objectives or research questions for pilot trial	4
Methods			
Trial design	3a	Description of pilot trial design (such as parallel, factorial) including allocation ratio	4
	3b	Important changes to methods after pilot trial commencement (such as eligibility criteria), with reasons	N/A
Participants	4a	Eligibility criteria for participants	5
	4b	Settings and locations where the data were collected	5
	4c	How participants were identified and consented	5
Interventions	5	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered	5
Outcomes	6a	Completely defined prespecified assessments or measurements to address each pilot trial objective specified in 2b, including how and when they were assessed	7
	6b	Any changes to pilot trial assessments or measurements after the pilot trial commenced, with reasons	N/A
	6c	If applicable, prespecified criteria used to judge whether, or how, to proceed with future definitive trial	8
Sample size	7a	Rationale for numbers in the pilot trial	10
	7b	When applicable, explanation of any interim analyses and stopping guidelines	N/A
Randomisation:			
Sequence generation	8a	Method used to generate the random allocation sequence	N/A
	8b	Type of randomisation(s); details of any restriction (such as blocking and block size)	N/A
Allocation concealment mechanism	9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned	N/A

Implementation	10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions	N/A
Blinding	11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how	N/A
	11b	If relevant, description of the similarity of interventions	N/A
Statistical methods	12	Methods used to address each pilot trial objective whether qualitative or quantitative	7
Results			
Participant flow (a diagram is strongly recommended)	13a	For each group, the numbers of participants who were approached and/or assessed for eligibility, randomly assigned, received intended treatment, and were assessed for each objective	11
	13b	For each group, losses and exclusions after randomisation, together with reasons	12
Recruitment	14a	Dates defining the periods of recruitment and follow-up	5
	14b	Why the pilot trial ended or was stopped	N/A
Baseline data	15	A table showing baseline demographic and clinical characteristics for each group	12
Numbers analysed	16	For each objective, number of participants (denominator) included in each analysis. If relevant, these numbers should be by randomised group	14
Outcomes and estimation	17	For each objective, results including expressions of uncertainty (such as 95% confidence interval) for any estimates. If relevant, these results should be by randomised group	14
Ancillary analyses	18	Results of any other analyses performed that could be used to inform the future definitive trial	15
Harms	19	All important harms or unintended effects in each group (for specific guidance see CONSORT for harms)	19
	19a	If relevant, other important unintended consequences	N/A
Discussion			
Limitations	20	Pilot trial limitations, addressing sources of potential bias and remaining uncertainty about feasibility	19
Generalisability	21	Generalisability (applicability) of pilot trial methods and findings to future definitive trial and other studies	20
Interpretation	22	Interpretation consistent with pilot trial objectives and findings, balancing potential benefits and harms, and considering other relevant evidence	20
	22a	Implications for progression from pilot to future definitive trial, including any proposed amendments	20
Other information			
Registration	23	Registration number for pilot trial and name of trial registry	NA
Protocol	24	Where the pilot trial protocol can be accessed, if available	NA
Funding	25	Sources of funding and other support (such as supply of drugs), role of funders	22
	26	Ethical approval or approval by research review committee, confirmed with reference number	22

*We strongly recommend reading this statement in conjunction with the CONSORT 2010, extension to randomised pilot and feasibility trials, Explanation and Elaboration for important clarifications on all the items. If relevant, we also recommend reading CONSORT extensions for cluster randomised trials, non-inferiority and equivalence trials, non-pharmacological treatments, herbal interventions, and pragmatic trials. Additional extensions are forthcoming: for those and for up-to-date references relevant to this checklist, see www.consort-statement.org.

ELLY theory of change model



What's on in Community 1?

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Morning	The Toddler Club (9:30am-11am) Baptist Church FREE		The Hope Hub drop in (10am-12pm) The Hope Hub FREE	The Hope Hub drop in (10am-12pm) The Hope Hub FREE		The Hope Hub drop in (10am-12pm) The Hope Hub FREE	
	The Hope Hub drop in (10am-12pm) The Hope Hub FREE	Men's Shed (10am-3pm) Unit 19 F, Winchester Avenue FREE	Wellbeing Wednesdays (10:30am-11:15am) YMCA FREE	Men's Shed (10am-3pm) Unit 19 F, Winchester Avenue FREE	Bookbug (11am) Library FREE		
	Forget me not cafe (10:30am-12pm & 1pm-3pm) Library FREE	Memory Group (Monthly) (1:30-2:30pm) Library FREE	Words for Wellbeing (Every other week) (11am-12pm YMCA FREE	Snowdrop Cafe (1pm-3pm) Westpark Church Hall FREE			
Afternoon	Men's Shed (10am-3pm) Unit 19 F, Winchester Avenue FREE	Knit and Knatter (2pm-3pm) Library FREE	Men's Shed (10am-3pm) Unit 19 F, Winchester Avenue FREE	Feeding Families Thursdays (4:30pm-6pm) Baptist Church FREE	Braveheart Walk (2pm-3pm) Meet in Sports Centre car park FREE		
				The Lymph Notes Choir (5pm-7pm) Baptist Church FREE			
Evening		The Hope Hub drop in (7pm-9pm) The Hope Hub FREE		Young Adult Reading Group (Monthly) (6:30pm-7:30pm) Library FREE	Skating session (7pm-8:30pm) Sports Hall, C1 Centre £5		

ELLY
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Activity	Description
The Toddler Club	The Toddler Club is a parent and toddler group run by the church for little ones aged 0-3 to come along. Book your place at the link below. https://www.dennybaptistchurch.com/events-1/the-toddler-club-2
Feeding Families Thursdays	Launched in February, Feeding Families Thursdays supports local families with kids to provide a warm space, food and fun.
The Hope Hub drop in	The Hope Hub drop in is a great place to go along for a cuppa and a chat. Everyone is welcome.
Forget me not café	A friendly group that welcomes everyone, including people living with dementia. Come along for a chat, cake and to do something fun.
Knit and Knatter	Come along and meet other knitters, have a look through the library's knitting books, chat and swap ideas and techniques. All welcome! Bring whatever you're working on at the moment.
Wellbeing Wednesdays	Join others to take part in some light exercise in a relaxed and supportive environment. (Not running during October.)
Braveheart Walk	Do you want to become more active? Do you want to make new friendships? Do you enjoy being outdoors? Not sure of walking alone? Join us on a walk in the heart of nature with Braveheart's free health walks designed to support adults, of all abilities, to become more physically and socially active within the community.
Memory Group (Monthly)	Meet other locals at the library monthly to relive old memories through photographs and stories. Contact the library for dates – *[tel no]*
Words for wellbeing (on every other week – 21st Sep / 5th Oct / 19th Oct / 2nd Nov / 16th Nov)	The groups differ from traditional book groups in that no homework is required - just come along on the day. You'll hear short pieces of fiction, non-fiction, poetry or song lyrics and have the chance to discuss them with other participants.
Young Adult Reading Group (Monthly – 28th Sep / 26th Oct / 30th Nov)	A free book club, just for young adults. It's your chance to chat about the books you love (or love to hate!). Who knows, you might meet some interesting new books and some interesting new people!
Bookbug	Bookbug Sessions are free, fun and friendly events for babies, toddlers and their families to enjoy together. Our sessions are suitable for ages 0+ and can be booked on Eventbrite. Book at the link below. https://www.eventbrite.co.uk/cc/events-at-denny-library-108559
Skating session	Want to get fit but find that the gym's boring and jogging's no fun? Then join us for some exercise in disguise at our adult roller-skating sessions.
Lymph Notes Choir	Even if you think you can't sing, enjoy the many proven benefits of singing in the social setting of a choir. Bring a friend, join us and have some fun!
Men's Shed	The Men's Shed movement started 16 years ago, as a method of counteracting the effects of boredom and isolation when faced with retirement, illness or unemployment. Our shed workshop has a comprehensive range of tools at the disposal of members as well as social space for the essential cuppa and cake!
Snowdrop Cafe	What was originally a befriending idea to combat loneliness, The Snowdrop Café is open to all - a safe and happy community meeting place. Grab a coffee, a slice of cake and have a blether. Snowdrop Cafés are run by your local community, for your local community. All money donated is put back into the café running costs.

What's on in Community 2

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Morning	Step Forth Walks (10am-11am) Football Stadium FREE	Wee Ones (9:30am-11am) WPCC Donation of choice	Share a craft (10am-12pm) WPCC £2		Share a craft (10am-12pm) WPCC £2	Falkirk Park Run (9:30am start) Callendar house FREE	
		Board Games (10am-11:30am) 5 Manse Place FREE	Mindful Making Craft Group (10:30am-12:30pm) 5 Manse Place Free		Little Conversations (over 50s group) (11am-12pm) Pots Cafe FREE	Braveheart Walk (10:30am-11:30am) Callendar house FREE	
Afternoon	Creative Writing Group (12pm-2pm) 5 Manse Place FREE	Move it or lose it (11am-12pm) WPCC £6		Make and Mend (12:30pm-2:30pm) 5 Manse Place FREE			
	Braveheart Walk (2pm-3pm) Callendar House FREE		Rainbow Muslim Women's Group (12:30pm-3pm) WPCC FREE				Braveheart Walk (1:30pm-2:30pm) Meet in Falkirk Stadium Car Park FREE
	Writing Group (2pm-4pm) WPCC FREE						
	Taekwon-Do (6:45pm-7:45pm) WPCC First session FREE			Taekwon-Do (6:45pm-7:45pm) WPCC First session FREE			
Evening	Step Forth Walks (7pm-8pm) Falkirk Stadium FREE	Korean Kickboxing (7:30pm-8:30pm) WPCC First session FREE	Make and Mend (7pm-9pm) 5 Manse Place FREE	Braveheart Walk (7pm-8pm) Falkirk Stadium FREE			
	Walk for Wellbeing (7pm-8:30pm) WPCC FREE			Korean Kickboxing (7:45pm-9:15pm) WPCC First session FREE			

ELLY
ENJOY LIFE LOCALLY

ELLY
ENJOY LIFE LOCALLY

Activity	Description
Walk for Wellbeing	A friendly walking group for anyone who's mental wellbeing needs a boost.
Braveheart Walk	Do you want to become more active? Do you want to make new friendships? Do you enjoy being outdoors? Not sure of walking alone? Join us on a walk in the heart of nature with Braveheart's free health walks designed to support adults, of all abilities, to become more physically and socially active within the community. Our friendly and welcoming walks promote social inclusion within the community, encourage the use of green space, and raise awareness of the benefits of active travel within your local area. (Thursday walk only on April-October).
Share a Craft	Bring a crafting activity or come along to get some ideas and see what other people are working on! If you would like to join this welcoming, lovely group with your own craft it's 10am-12pm at Community Centre.
Rainbow Muslim Women's Group	Rainbow Muslim women group is a charity organisation aiming to provide social and educational opportunities to the vulnerable sector of the community, across Forth Valley Area since 1999.
Move it or lose it	Come and join in with others as we do some fun light exercise in a supportive environment (60+).
Wee Ones	Come and meet other families here at the centre. Each week will be different activities for the kids, while the parents enjoy a free cuppa! (up to 5 years old)
Step Forth Walks	Step Forth is our award-winning volunteer led free walking programme designed to improve your physical activity levels through walking.
Taekwon-Do	TaeKwon-Do is a Korean Martial Art that dates back 2000 years. TaeKwon-Do means "The art of hand and foot fighting" and is used primarily for self-defence. First session free then £30 per month (for 2 sessions a week).
Korean Kickboxing	Our Korean kickboxing originated from Taekwon-Do mixed with boxing. It is a self-defence and fitness contact sport that utilises kicks and punches. First session free then £30 per month (for 2 sessions a week).
Falkirk Park Run	A free, fun, and friendly weekly 5k community event. Walk, jog, run, volunteer or spectate – it's up to you! (You won't get a stamp at this but if you follow the instructions on the website and sign up we will be able to see when you have run).
Central Wellbeing activities	Central Wellbeing run a range of activities (e.g. Make and Mend and Little Conversations over 50's group) in the Falkirk area, many based out of their office at 5 Manse Place. Find out more about their activities (Central Wellbeing).

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

ELLY measurements and engagement questionnaire

12 weeks: ELLY measurements and engagement questionnaire

Participant ID	
Researcher name	
Today's date	**_ _ / _ _ / _ _ _ _** **e.g. 05 / 01 / 2021**

Note for interviewer: Determine participant preference for completion:

a. *(preferred) To complete questionnaire themselves (with interviewer just checking complete at end)*

b. *To have questions read to them and interviewer record responses*

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

Measurements

Measurements (please tick)		
Which weight measure do you prefer?	☐ **Kg**	☐ **Stones/lbs**

	Measure 2 (12 weeks)	**Participant Initials**	**Notes**
Weight (kg)	**___ ___ ___ . ___ ___ kg** **___ ___ st ___ . ___ ___ lbs**		
Height as recorded at baseline (cm) (transfer over)	**___ ___ ___ . ___**		
BMI*(Kg/m²)	**___ ___ . ___ ___ kg/m²**		

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

Engagement in local activities

Please indicate (with a tick) how often you attend the following types of activities in the last 12 weeks?

	0-1 over 12 weeks	2-4 over 12 weeks	3-5 over 12 weeks	6+ over 12 weeks
Arts & crafts activity				
Physical Activity group				
Nutrition related group				
Social related group				
Other (please specify)				

Please tick the box that best describes your experience of attending local activities as part of the ELLY project.	**Strongly disagree**	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**	**Not relevant**
I attended more activities during the project than I did before the project	☐	☐	☐	☐	☐	☐
I attended new activities during the project	☐	☐	☐	☐	☐	☐
In the last 12-weeks I attended new local activities in addition to the ones on the "what's on" sheet	☐	☐	☐	☐	☐	☐
I feel more interested in trying out new activities as a result of the ELLY Project.	☐	☐	☐	☐	☐	☐
The activities helped me achieve the PERSONAL goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The activities helped me achieve the WEIGHT goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

The activities helped me achieve the WELLBEING goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
I made new friends as a result of the activities	☐	☐	☐	☐	☐	☐
The activities helped me feel more part of my community	☐	☐	☐	☐	☐	☐
I feel like the activities kept me motivated	☐	☐	☐	☐	☐	☐
I feel the activities were an important part of the ELLY project	☐	☐	☐	☐	☐	☐

If you disagreed with any of the statements above, we would be interested to hear why

_____
_____
_____

If you answered not relevant to any of the questions above, we would be interested to hear why it was not relevant

_____
_____
_____

In summary, how best would you describe your experience of taking part in the activities?

_____
_____
_____

Is there anything else about the activities you would like to share with us? (e.g. if you answered strongly disagree to any of the above you might like to share alternatives or suggestions for improvements)

_____
_____
_____
_____
_____

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

ELLY Loyalty card and reward

Please tick the box that best describes your experience of the loyalty card and reward as part of the ELLY project.	**Strongly disagree**	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**	**Not relevant**
I think the reward was an appropriate amount	☐	☐	☐	☐	☐	☐
I think the timing of the reward was appropriate (at the end of the 12-weeks)	☐	☐	☐	☐	☐	☐
The loyalty card and reward helped me achieve the PERSONAL goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The loyalty card and reward helped me achieve the WEIGHT goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The loyalty card and reward helped me achieve the WELLBEING goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
I made new friends as a result of the loyalty card and reward	☐	☐	☐	☐	☐	☐
The loyalty card and reward made me feel more part of my community	☐	☐	☐	☐	☐	☐
I feel like the loyalty card and reward kept me motivated	☐	☐	☐	☐	☐	☐
I feel the loyalty card and reward were an important part of the ELLY project	☐	☐	☐	☐	☐	☐

If you disagreed with any of the statements above, we would be interested to hear why

_____

_____

_____

If you answered not relevant to any of the questions above – we would be interested to hear why it was not relevant

_____

_____

_____

In summary, how best would you describe your experience of the loyalty card and reward?

_____

_____

_____

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

Is there anything else about the loyalty card and reward you would like to share with us? (e.g. if you answered strongly disagree to any of the above you might like to share alternatives or suggestions for improvements)

_____
_____
_____
_____
_____

ELLY SOUP

If you took up the offer of soup twice a week, how did you get your soup? (please tick all that apply)

Sit in at café, twice weekly	
Collect soup twice weekly from cafe	
Collect 2 portions of soup once a week from cafe	
Delivered to house	
Other (please state)	

Please tick the box that best describes your experience of the twice weekly free soup you received as part of the ELLY project.	**Strongly disagree**	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**	**Not relevant**
Getting soup twice a week was very convenient	☐	☐	☐	☐	☐	☐
The twice weekly soup helped me achieve the PERSONAL goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The twice weekly soup helped me achieve the WEIGHT goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The twice weekly soup helped me achieve the WELLBEING goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
I made new friends as a result of ELLY soup	☐	☐	☐	☐	☐	☐
ELLY soup made me feel more part of my community	☐	☐	☐	☐	☐	☐
I feel like ELLY soup kept me motivated	☐	☐	☐	☐	☐	☐
I feel ELLY soup was an important part of the ELLY project	☐	☐	☐	☐	☐	☐

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

I made new friends as a result of the twice weekly soup	☐	☐	☐	☐	☐	☐
The twice weekly soup helped me feel more part of my community	☐	☐	☐	☐	☐	☐
I feel the twice weekly soup was an important part of the ELLY project	☐	☐	☐	☐	☐	☐

If you disagreed with any of the statements above, we would be interested to hear why

_____

_____

_____

If you answered not relevant to any of the questions above – we would be interested to hear why it was not relevant

_____

_____

_____

In summary, how best would you describe your experience of the ELLY soup twice weekly

_____

_____

_____

Is there anything else about the ELLY twice weekly soup you would like to share with us? (e.g. if you answered strongly disagree to any of the above you might like to share alternatives or suggestions for improvements)

_____

_____

_____

_____

_____

ELLY project overall

What aspects of the project do think were particularly successful?

_____

_____

_____

_____

What aspects of the project were challenging or unsuccessful?

_____

_____

_____

_____

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

What would you suggest could improve the project for future participants?

_____
_____
_____
_____

Thinking about the goals you set, what are your thoughts on where you are with these now?

_____
_____
_____
_____

In summary, how best would you describe your experience of taking part in ELLY?

_____
_____
_____
_____

Is there anything else about ELLY you would like to share with us?

_____
_____
_____
_____
_____

Thank you for your time completing this questionnaire.

Your feedback is really important to us and will help shape future projects.

ELLY (Enjoy Life LocallY) Project

12-week

Interview topic guide – Participants

1. Introduction

Introduce yourself

Thank participant for agreeing to chat about their experiences of being involved in the ELLY project.

Really value what you have to say, as it will help us design future projects and improve experiences of participants.

Information is confidential so anything you say will not be traced back to you. We are asking consent to record our discussion, to help us to accurately remember what you tell us.

Please speak about your own views throughout, rather than what other people might think.

If you are happy to go ahead, please review and sign the consent form. Are you happy to go ahead with the interview? Great, Let's get started.

Participant, engagement and goal setting: I'd like to hear your ELLY story. Thinking back over the 12 weeks you've been involved in ELLY, tell me about what it's been like (*Prompts: soup involvement, activities attended).*

Prompts if not mentioned

- How did you hear about the Elly project? Prompt: *Posters, WOM, social media etc.*
- What motivated you to participate? *Prompt: incentives, improve wellbeing, friends/ family, other?*
- What did you expect from being involved in the ELLY project?
- Tell me about how you decided on what goals you might set for the ELLY project.
- Tell me how you found the process of setting goals for yourself.
- How did you think ELLY might help you achieve the goals you set?

Soup cafes: Tell me about your experiences of the twice weekly ELLY soup.

Prompts if not mentioned

- How did going along / collecting soup / soup delivery make you feel?
- Thinking about the goals that you set at the start of the project (personal goal, weight goal and wellbeing goal) what are your thoughts on the role of ELLY soup in helping you achieve your goals? (prompt: why do you think this?)
- Are there things that made it easy for you to participate?
- Are there things that would make the soup cafes better?
- Overall, what did you think of this part of the ELLY project?

Local activities: Tell me about your experiences of attending local activities during ELLY.

Prompts if not already mentioned

- How do the activities you attended during the ELLY project compare to things that you used to do before you started the project?
- What activities did you enjoy the most?
- Thinking about the goals that you set at the start of the project (personal goal, weight goal and wellbeing goal) what are your thoughts on the role of the activities in helping you achieve your goals? (prompt: why do you think this?)
- Tell me about any unexpected things that you got out of attending the activities, for example, new friends, getting out more, learning new skills?
- Are there things that made it easy for you to participate in activities?
- Are there things that would make the activities better?
- Overall, what did you think of this part of the ELLY project?

ELLY Loyalty card: How did you feel about the ELLY Loyalty card and reward system?

Prompts if not mentioned

- How did it impact on what you did each week during the ELLY project?
- How did you feel getting the loyalty card stamped at activities?
- What did you think of being rewarded for attending at least one activity each week?
- How did the reward impact on what you did each week during the ELLY project?
- What are your thoughts on the amount of reward you could receive?
- What are your thoughts on ease of use of the Loyalty card?
- What things about the ELLY loyalty card did you like?
- Are there things that would make the ELLY loyalty card work better?
- Overall, what did you think of this part of the ELLY project?

Reflecting on ELLY project and future plans

Now you've completed the ELLY project, what are your overall thoughts on your experience?

1. If you were telling a neighbour/friend/family member about ELLY, what would you say to them?
2. Would you take part in ELLY again? (*prompt: explain why you gave the answer you did*)

Future of ELLY

1. What parts of the project do you think are workable in the long term?
2. Are there any factors that might make Elly soup and support difficult to keep going over time?
3. Have you any thoughts on ways in which ELLY might be funded in the future?
4. What are your thoughts on how much people might be willing to volunteer to support the ELLY project (*prompt: help out in soup café, put on activities*)
5. Based on your experiences, which aspects of the work would you like to see continuing/not continuing in future

Lastly, is there anything else we've not touched on that you'd like to share about your experience of the ELLY project?

(close interview, and thank participant for their time)

BMJ Open

Feasibility study of a co-designed, evidence-informed and community-based incentive intervention to promote healthy weight and wellbeing in disadvantaged communities in Scotland

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TITLE: Feasibility study of a co-designed, evidence-informed and community-based incentive intervention to promote healthy weight and wellbeing in disadvantaged communities in Scotland

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ABSTRACT

Objectives: To feasibility test a novel community-based financial incentive scheme to promote healthy weight and wellbeing.

Design: Single arm, prospective feasibility study using mixed methods.

Setting: Two communities in Scotland experiencing high levels of disadvantage according to the Scottish Index for Multiple Deprivation (SIMD). Community C1 is in a large rural area with small town centre

(population ~1.5K), community C2 is a small and urban community (population ~9K), enabling contextual comparison.

Participants: Eligible adult (18 years or over) community members recruited through community outreach.

Intervention: The Enjoy Life LocallY (ELLY) intervention comprised free soup twice weekly (café/delivery/pickup); loyalty card stamped for engagement in community assets (such as local activities, groups and clubs) exchanged for a £25 shopping card when a participant attends a minimum of 9 assets over 12 weeks; goal-setting; information resources; self-monitoring of weight and wellbeing.

Outcomes: Primary outcomes - feasibility of recruitment, retention and engagement. Acceptability of intervention components, assessed by self-reported questionnaires and interviews. Secondary outcomes – feasibility of collecting outcomes prioritised by communities for a future trial: health-related quality-of-life (EQ-5D-5L), mental wellbeing (WEMWBS), connectedness (Social Connectedness Scale) and weight-related measures (weight, Body Mass Index (BMI)).

Results: Over 3 months, 75 community citizens (35 citizens in C1, 40 citizens in C2) were recruited (125% of target recruitment of 60 participants (117% of 30 participants C1 target, 133% of 30 participants C2 target), 84% female, baseline weight mean (SD)= 84.8kg (20) and BMI mean (SD)=31.9kg/m^2 (7.3), 65/75 (87%) living in disadvantaged areas (SIMD quintiles 1-3)). Retention at 12 weeks, defined by completion of outcome measures at 12 weeks, was 65 (87%). Participation in at least one asset for a minimum of 9 out of 12 weeks of the intervention was achieved by 55 (73%). All intervention components were acceptable, with the loyalty card being the most popular and the soup cafés the least popular. The mean average cost of the soup ingredients, per participant, over the 12 weeks was £12.02. Outcome data showed a small decrease in weight and body mass index and a small increase in health-related quality of life, mental wellbeing and social connectedness.

Conclusions: The ELLY study recruited and retained participants from two disadvantaged communities in Scotland. The study was acceptable to participants and feasible to deliver. A full trial is warranted to determine effectiveness and cost-effectiveness, with consideration of scalability.

Keywords

Community, incentive, intervention, healthy weight, wellbeing

Article Summary

Strengths and limitations of this study

- The ELLY intervention was co-designed with community citizens using a community-based participatory research approach.
- The study recruited across two disadvantaged communities to an asset-based, incentive, community intervention.
- The feasibility study was not powered to detect effects on weight-related or wellbeing outcomes and change in outcome measures should be interpreted with caution.
- Effectiveness of intervention components will need to be established in a future, larger-scale trial.

INTRODUCTION

People living in disadvantaged areas have poorer health and are dying younger through increased risk of obesity-related conditions including diabetes, heart disease, some cancers, and infections. [1] The personal, NHS resource and societal costs of obesity are considerable. [2] Multiple behaviours are obesity risk factors (e.g., over consuming high fat, high sugar food and drinks, physical inactivity) and these behaviours cluster within disadvantaged families and communities with adverse consequences throughout the life-course. [3]

Solutions to support people living well can benefit from coproduction and involving people with lived experience, promoting equity and opportunity. There is a strong rationale for "putting the public back into public health" through community-based action research working 'with' rather than imposing ideas 'on' communities. [4]

Social prescribing and community assets approach

The accessibility and sustainability potential of the social prescribing approach, where citizens are connected to community resources to support their health and wellbeing needs, is an important consideration for community-based interventions. [5] Systematic review evidence on the use of social prescribing to supporting disadvantaged communities has shown the approach to be effective in providing vulnerable groups with a means of bridging the gap between psychosocial support and medical services. [5 6] The approach allows primary care to link/signpost patients to community assets/services, and is effective in reducing non-communicable diseases (e.g. anxiety and depression[7 8] as well as reducing pressure on healthcare services.[9] In addition, evidence is emerging on how building

social resilience and cohesion within disadvantaged communities has an impact on health outcomes. [10] Research that seeks to better understand the links between 'social and community networks' without a primary care gatekeeping role is important. In particular, community asset-based approaches to health improvement which are co-produced locally to be relevant to local circumstance and culture and where behaviours are studied in context show promise. [11 12] Although there is consensus that such asset-based approaches show potential in supporting community health, the evidence-base is limited. [13-15] Community engagement can facilitate positive change on healthy behaviours and consequences, however, systematic review evidence shows that community interventions can generate health inequalities, as they engage more advantaged time rich and organised people. [16 17]

Financial incentive interventions

Financial incentive interventions, when combined with effective behaviour change and engagement techniques, have the potential to prevent non-communicable diseases [18-20], and engage people living in disadvantaged areas. [21] Financial incentives offered to individuals show evidence of effectiveness for weight loss, however there is a risk of weight regain once the incentive intervention is withdrawn. [22] Evidence is limited for financial incentives delivered at a community level. Neighbourhood interventions to promote healthy weight are recommended in a recent UK biobank study, particularly for people at higher genetic risk of obesity. [23] By targeting communities rather than individuals, there are opportunities for minimising weight stigma, which a meta-analysis of systematic reviews found has adverse psychological consequences, such as depression and anxiety. [24]

Research Aims

The aim of the study was to feasibility test a novel evidence-informed and community-based financial incentive intervention to promote healthy weight and wellbeing. Specifically, we assessed (i) the feasibility of recruiting participants from community venues and pop-up café events, (ii) retention and engagement rates, acceptability of the intervention components, feasibility of delivery, fidelity and unintended consequences, (iii) the feasibility of collecting outcome measures prioritised by communities: weight, wellbeing, health-related quality-of-life, social connectedness and (iv) effects on weight-related outcomes and wellbeing and progression criteria for a future large-scale evaluation.

METHODS

The Consolidated Standards of Reporting Trials (CONSORT) extension for reporting feasibility and pilot trials was followed (see supplementary file A). [25]

Study Design

The study design was a single arm, prospective intervention feasibility study, using mixed methods to collect descriptive quantitative and qualitative data from community participants.

Public and Patient Involvement

Public and patient involvement (PPI) was continuous and responsive, as described by Gamble et al [26]. Community members participated in the project across four levels: as grant holder co-applicants, members of Community Action Research Participation (CARP) groups, and as volunteers. Community co-investigators were instrumental in promoting the study, assisting with recruitment, and co-facilitating community engagement events. Each CARP group (one per community) was responsible for operationalising the intervention and linking citizens, partners, stakeholders, and researchers. A standing agenda at CARP meetings was: what is known; what are the uncertainties relating to the aims and objectives; what actions can be taken to resolve the uncertainties; and actions taken. Figure 1 presents PPI roles and responsibilities, and PPI involvement described using the GRIPP2 reporting guidance. [27]

<insert figure 1 here>

Setting

The academic team was approached by NHS Forth Valley Public Health Nutrition Team (FVPHNT) as healthy weight was a concern raised by citizens through the Local Authority Community Planning Process across disadvantaged communities in the region. Two disadvantaged communities (SIMD 1-3 (quintile) in Forth Valley were chosen that were disparate in nature but felt representative of communities across the region and more widely, across Scotland. Researchers had no engagement with either community prior to the study commencing.

Housing in both communities predominantly comprised of public (social) housing. Assets in both communities are local activities, groups and clubs focusing on arts and crafts, physical activity, nutrition, and socialising. Community (C1) is a small rural town, with population of approximately 8000 people. SIMD levels range from 1-3 (quintile) in the target area, with more affluent areas (SIMD 4-5) on the periphery. The community partners operated on two separate sides of the town and had no prior interactions. Local assets are based predominately at community hubs, the local library, and church. The largest supermarket is a 10-minute walk from the town centre with the alternative being local shops. Community 2 (C2) is a small and urban community, with population of approximately 9000 people. SIMD

levels range from 1-2 (quintile). Local assets are mainly based at the community centre operated by our community partner. A retail park (and the closest supermarket) is a 20-minute walk away with a small grocery shop and petrol station located in the target area.

Eligibility criteria

Inclusion criteria: Any adult (aged 18 or over) living within 20-minute walking distance from main community assets were eligible to attend. Exclusion criteria: Inability to understand project information, the commitment required and consent; not planning to reside in community for the duration of the intervention period.

Participant recruitment

A wide range of recruitment methods were employed involving community groups, local business, pop-up cafes and school flyers. Equality of inclusion to ensure representativeness from all in the communities that might benefit from participating in the ELLY intervention was promoted through social media publicity, local adverts and door-to-door flyers. Community champions were identified to support recruitment. Recruitment took place June 2023 to August 2023. A weekly review of recruitment numbers was conducted and feedback from community citizens on methods used was acted upon with new strategies (e.g. researcher attending community groups, pop-ups at strategic locations) introduced as necessary. Community citizens were invited to express interest in study participation at events when an ELLY researcher was in attendance, at pop-up cafes or by contacting the research team via email/phone/text/ELLY website.

Baseline appointment

Having expressed interest, participants received a participant information sheet and were invited to attend a baseline appointment with a researcher at a date/time and location of their choice (e.g. home, community centre, library). At the baseline appointment participants were assessed for eligibility, provided written consent to take part, self-completed baseline questionnaires, height and weight measurements were taken (by researcher) and setting of weight, wellbeing and/or personal goals. The topic of goal setting (rationale and how it can be helpful) had already been introduced to participants in the ELLY Participant Information Sheet. In the baseline appointment, the researcher and participant engaged in discussion around potential goals the participant may wish to set. The mean average time taken for baseline appointments was 45 minutes, with questionnaire completion taking an average 20 minutes, and goal setting discussions, taking an average of 10 minutes.

Intervention Components

The ELLY study adopted a community-based participatory research approach [28], where community members were active and engaged at all stages of the research process. It was co-designed by two disadvantaged communities for use in disadvantaged communities. Development of the ELLY intervention was informed by guidance on development and evaluation of complex interventions (MRC/UKRI Guidance on complex interventions) [29]. The framework by Adams et al (2014) [30] was used to identify all domains of the incentive scheme for which choices needed to be made. The behavioural theory of ELLY was informed by the COM-B model [31]. The intervention is described using the Template for Intervention Description and Replication (TIDieR) Checklist[32] a summary of which is provided in Figure 2.

<insert figure 2 here>

The ELLY intervention is a place-based, asset-based incentive system. Community consultation indicated that an intervention focusing solely on weight was felt stigmatising and not inclusive of all community citizens. Citizens expressed a desire for an intervention to support them as a "whole person" (recognising mental, physical, social, spiritual aspects), rather than a focus on one component alone. The resulting intervention adopts a holistic approach to supporting healthy weight and wellbeing, acting as a connector to existing assets and promoting autonomy. The intervention is not prescriptive in which ELLY assets participants should engage in, or exclusive in incorporating only assets seen to be directly supportive of healthy weight and/or wellbeing (for example, a walking club). Assets such as a writing group or craft club (two ELLY assets in C2), which may have indirect benefits to healthy weight and wellbeing, such as providing friendship, reducing social isolation and providing an opportunity for physical activity, were included.

The intervention places significant emphasis on social cohesion, connectedness and relationships and the role these play on supporting individuals to live well. The ELLY intervention builds on learning from previous studies the authors have undertaken, particularly around financial incentive design, preparatory behaviours, successful community recruitment and signposting to support resources.[33 34] The intervention includes elements to motivate preparatory behaviours towards weight-related and wellbeing outcomes, promote commitment, and has embedded tailored evidence-based behaviour change techniques (goal setting, social support, demonstration of behaviour, adding objects to/restructuring the environment). An ELLY theory of change model [35] was developed describing

intervention components and function, behaviour change taxonomy elements addressed, and perceived outcomes (immediate, intermediate and long-term).[31] (see Supplementary file B for ELLY theory of change model).

ELLY is a 12-week intervention comprising of: (i) provision of free soup twice weekly (café/delivery to home/pickup) for all participants; (ii) a loyalty card stamped for engagement in local assets to encourage preparatory behaviours towards key outcomes (weight-related/wellbeing/social connectedness). Assets include local activities, groups and clubs in the community that agreed to be part of the ELLY intervention. Assets are broad and inclusive (informed by community consultation) comprising of arts and crafts, physical activity, nutrition-related, and social groups. Assets were usually free to attend, with only 1/22 activities and 6/24 charging a small fee in communities C1 and C2 respectively. (see Supplementary file C for a full list of assets eligible for the loyalty card incentive in each community). Participants who achieved 9 stamps on their loyalty card (equating to attending at least 1 activity, per week, over 9 out of 12 weeks of the ELLY intervention) were rewarded with a £25 shopping card at 12-weeks; (iii) the option to set goals. Goal setting options were discussed at the baseline appointment, where participants were informed about the optional aspect of goal setting for 'living well'. Participants were given the opportunity to set (outcome or behaviour) goals under the topics of personal, weight and wellbeing. Goal setting was participant driven however the researcher encouraged generation of SMART (Specific, Measurable, Achievable, Relevant, and Time-bound) goals to achieve over the 12 weeks. No specific action plans were developed however the researcher signposted the participants to the other intervention components and community assets. Goals set were reviewed at 12-week appointments; (iv) website/written materials with access to local asset/activity '*What's on'* information and optional self-monitoring of weight and wellbeing via the website.

Outcomes

Table 1 summarises the outcomes, measures/approaches, data source and analyses corresponding to the study objectives.

Target	Objective	Measure/approaches	Data source	Analysis
Recruitment	Feasibility of recruiting 60 participants (30 per community) within 3 months	Recruitment rate Recruitment activities Recruitment timeline Participant interviews	Recruitment information Interview transcripts Field notes	Descriptive statistics Thematic qualitative analysis

		Researchers' field notes		
Retention	Attendance for 12w outcome measures Number of participants receiving voucher for attendance	Questionnaires Weight measurements Number of withdrawals, 12w data collection	ELLY questionnaires: The Warwick-Edinburgh Mental Wellbeing Scales (WEMWBS) [34], EQ-5D-5L [35], the Social Connectedness Scale – Revised [36], Social connectedness) and ELLY specific questionnaires Diary of communication Height/weight measurements	Descriptive statistics
Intervention	Acceptability and feasibility of intervention components	Questionnaires Interviews Access to intervention components	ELLY questionnaires Interview transcripts Field notes Loyalty card stamps	Descriptive statistics Thematic qualitative analysis
Fidelity and un-intended consequences	Delivery of the intervention components or study procedures as intended. Unintended consequences	Interviews Questionnaires Field notes	ELLY questionnaires Interview transcripts Field notes Diary of communication	Descriptive statistics Thematic qualitative analysis
Outcome measures	Feasibility of collection	Questionnaires Weight measures	Validated (EQ-5D-5L, WEMWBS, Social connectedness) Weight measures	Descriptive statistics
Effect observed	Change in wellbeing, weight-related outcomes, engagement at 12wks	Questionnaires Weight measures Interviews	Validated (EQ-5D-5L, WEMWBS, Social connectedness) and ELLY specific questionnaires Interview transcripts Weight measures Goal setting data	Descriptive statistics

Table 1. Study outcomes, measures/approaches, data source and analyses corresponding to the study objectives

An independent study steering group, comprised of both academic experts and lay members advised whether the following pre-specified progression criteria were sufficiently met to proceed to a full trial:

1. Acceptability of the intervention and individual components by the majority of participants
2. Feasibility of recruiting at least 30 citizens in each community in 3 months
3. Twelve-week outcomes collected from 75% of participants based on Macaulay et al [36]
4. Evidence of indicative effects on outcomes collected

Outcome assessment

Outcomes were assessed at baseline and 12-weeks (at end of intervention). Individual appointments were conducted by a researcher at community centres, the local college (C2), and participants' homes, depending on participant preference. Travel expenses were not provided.

Height was measured at baseline using a portable stadiometer to the nearest 0.1cm. Weight was measured at baseline and 12-weeks. Prior to weight measurement participants removed shoes and bulky clothing. Weight was recorded using portable calibrated scales to the nearest 0.01kg. The Scottish health survey [37] was used to provide Body Mass Index (BMI) categories. Information on adverse events was recorded at assessments or at the time of reporting if during the 12-week intervention. Adverse events related to participants becoming unwell or distressed, or disclosing information relating to a health condition during the study.

The self-reported questionnaires used for collection of outcome data were informed by community consultation and the ELLY intervention theory of change model. Validated questionnaires were used to capture wellbeing (The Warwick-Edinburgh Mental Wellbeing Scales (WEMWBS)) [38] and quality of life (EQ-5D-5L) [39]. Existing and adapted questionnaires were used to capture responses relating to social connectedness [40], socio-demographics, comorbidities, disabilities [41], lifestyle choices [42-45], and interaction with NHS services. [37] Questionnaires were completed during the appointment with a researcher (baseline) and at home online prior to/during appointments (12-weeks).

Participants' engagement with and experience of the ELLY intervention components was assessed using an ELLY 12-week questionnaire (see Supplementary file D. Specifically:

- Engagement with ELLY activities was assessed by asking participants to '*Please indicate (with a tick) how often you attend the following types of activities in the last 12 weeks?*' for each category of '*Arts & crafts activity*', '*Physical Activity group*', '*Nutrition group*', *Social related group*' and '*Other (please specify)*'. Response options were: '*0-1 over 12 weeks'*, '*2-4 over 12 weeks'*, '*3-5 over 12 weeks'* and '*6+ over 12 weeks '*.
- Engagement with the ELLY soup provision was assessed by asking participants '*If you took up the offer of soup twice a week, how did you get your soup? (please tick all that apply)'* with responses captured using the options of *'Sit in at café, twice weekly', 'Collect soup twice weekly from café', 'Collect 2 portions of soup once a week from café', 'Delivered to house', 'Other (please state)'.*
- Acceptability of ELLY activities, loyalty card and reward, and soup provision was assessed by asking participants to *'Please tick the box that best describes your experience of ['attending local activities'/'loyalty card and reward'/'twice weekly free soup'] as part of the ELLY project*' followed by a series of statements, with responses captures using a Likert scale ranging from '*Strongly disagree*' to '*Strongly agree'* and '*Not relevant*' provided as an option if participants did not feel the question

was reflective of their experience. Free text questions were also used to provide supplementary detail. General reflections on the ELLY intervention as a whole were captured using six open-ended questions at the end of the questionnaire.

Goal setting was conducted at baseline and goals reviewed at 12-week appointments. Goal setting and review was conducted using face-to-face interviews with participants. Personal goals were unrestricted and chosen by the participant. Weight goals allowed participants to 'decrease'/'stay same'/'increase' weight. Wellbeing goals were adapted from the EQ-5D descriptive system and VAS score.

At the 12-week appointment, all participants providing outcome data including weight (measured by a researcher) received a £25 shopping card as a thank you for their time. The website automatically recorded any self-reported weight entered by participants.

Qualitative interviews

Participants were approached to take part in a semi-structured interview at 12-weeks to gather qualitative data on their experiences of the ELLY study and related impacts on their health and/or wellbeing. Purposive sampling from both communities was informed by baseline participant characteristics and informal feedback from intervention volunteers relating to diversity of participants' demographics, engagement and perspectives. Before commencing an interview, participants were provided with an information sheet and written consent form. Participants were also assured of their anonymity and right to withdraw at any point of the interview. Face-to-face interviews were conducted with participants at 12-weeks. All interviews followed a pre-defined topic guide (see Supplementary file E), lasted approximately 30 minutes and were audio recorded using an encrypted Dictaphone, then transferred to a password encrypted computer folder. Researcher field notes were taken at all interviews and used to inform the qualitative analysis.

Sample size

The study aimed to recruit 60 participants (30 at each community) to be sufficient in testing feasibility based on an estimated proportion of 5% for unforeseen problems (assuming a 95% confidence level).[46]

Analysis

Quantitative analysis

Data from validated outcome questionnaires was analysed according to the guidelines provided by each measure. Participant characteristics and outcomes were summarised using descriptive statistics: mean

(standard deviation) for continuous variables and number (percent) for categorical variables. Likert scale variables were treated as continuous measures. The frequency, percentages and 95% confidence intervals of observed levels are reported for all categorical variables. The proportion of individuals who expressed interest in the study, those recruited, retained, and withdrawn at each stage, in each community was determined. Confidence intervals for proportions were calculated by the study statistician and derived using the normal approximation and for means using the standard normal distribution. Missing data was handled by following the appropriate guidelines for each scale, with the exception of the Social Connectedness Scale – Revised, where in the absence of guidelines, we applied an adaption of the WEMWBS guidelines as used by Phillips et al 2019 [47]. For weight-related outcomes observed data only was included.

Qualitative analysis

NVivo 12 software was used to support analysis of the qualitative data from interviews, free-text questionnaire responses and researcher field notes. Descriptive coding techniques were used to undertake initial thematic categorising of the data. [48] A coding frame was developed independently by two researchers reading a diverse sample of five interviews, followed by team discussions to finalise the frame and identify key themes. Each theme was then explored in further detail and broken down into sub-themes, with duplicate codes being merged. Analysis was performed by one researcher (DH), with 10% of data being cross-checked by a second researcher (RA), and regular review of coding and analysis by the PI (JC). Researcher field notes contributed to interview data interpretation. Emergent themes were discussed at weekly team meetings and at monthly CARP meetings. DH had not been involved in any other aspect of the research and her involvement in the qualitative coding added to the rigour and impartiality of the analysis.

Ethical approval was granted from Stirling University Ethics Committee (NHS, Invasive or Clinical Research (NICR), project 7430, 251022) and Glasgow Caledonian University Ethics Committee (Nursing and Community Health Research Ethics Committee (REC), 050623).

RESULTS

Figure 3 depicts participant flow through each stage of the ELLY intervention.

<insert figure 3 here>

Recruitment and retention

Prior to the recruitment period, the research team held pop-up cafés in the communities and supported local events/activities with a view to increasing ELLY visibility between January and June 2023, becoming accepted faces in the community and promoting the research. Expressions of interest were made by 117 community citizens during this period. Recruitment was conducted over three months (June - August 2023), with forty-three recruitment events/visits/pop-ups being held. Target recruitment of 30 per community was exceeded (C1 – 35 participants, C2 – 40 participants). The number of people recruited each week was on average three per community, with the majority (C1:17/35 (49%), C2:28/40 (70%)) of participants recruited from existing community groups/activities they attended. Recruitment via community partners and snowball recruitment were effective strategies in community C1 (9/35 (26%) and 5/35 (14%) respectively), and pop-up cafes/attending community events (e.g. gala day) an effective strategy in C2 (8/40 (20%)). Being weighed at baseline and 12-weeks was an initial barrier to one potential recruit. The importance of this outcome measure was discussed and reassurance around anonymity and use of data given, after which the individual was successfully recruited to the study.

Baseline appointments were attended by 78 citizens and 75 met required eligibility criteria. Those not eligible lived outside the target area (n=2) or planned to move away during the intervention (n=1). Questionnaire completion took time, and many participants expressed a preference for an online version and/or being able to complete the questionnaire at home, prior to the appointment. Twenty participants agreed to be interviewed at 12-weeks.

Participation in at least one activity for a minimum of 9/12 weeks (assessed by 9 stamps on the 12 stamp loyalty card) and receipt of a £25 shopping card was achieved by 55/75 (73%) of study participants. Retention at 12 weeks, defined by completion of the 12 week outcome measures assessment, was completed by 65/75 participants (87%) with minimal difference in retention between communities (C1 30/35 (86%) retention, C2 35/40 (88%) retention). At 12-weeks, nine participants were lost to follow up due to not being contactable and 1 participant withdrew from the study, as they did not wish to complete outcome measures. The proportion of drop-outs living in SIMD 1-3 was 8/10 (80%) which was reflective of the proportion of overall participants living in these SIMD categories. Of those contacted for interview at 12-weeks (10 per community), all agreed to be interviewed.

Baseline characteristics

	C1 n=35	C2 n=40	Total n=75
Age (years), mean (SD)	56.5 (18)	50.4 (15)	53.3 (17)

Gender, n (%)			
Female	29 (83)	34 (85)	63 (84)
Male	6 (17)	6 (15)	12 (16)
Height (cm), mean (SD)	162.1 (9)	163.9 (7)	163 (8)
Weight (kg), mean (SD)	83.9 (17)	85.6 (23)	84.8 (20)
BMI (kg/m2), mean (SD)	32.1 (7)	31.7 (8)	31.9 (7)
BMI (kg/m2), categories, n (%)			
Healthy weight (18.5 <= Body Mass Index 18.5 <=24.9)	5 (14)	7 (18)	12 (16)
Overweight (25.0 <= Body Mass Index <= 29.0)	10 (29)	6 (15)	16 (21)
Obesity/Morbid Obesity (30.0 <= Body Mass Index)	20 (57)	26 (65)	46 (66)
Underweight (Body Mass Index < 18.5)	0 (0)	1 (3)	1 (1)
SIMD deprivation category, n (%)			
SIMD 1 (most disadvantaged)	11 (31)	7 (18)	18 (24)
SIMD 2	10 (29)	20 (50)	30 (40)
SIMD 3	10 (29)	7 (18)	17 (23)
SIMD 4/5 (least disadvantaged)	4 (11)	6 (15)	10 (13)
Marital status, n (%)			
Married/civil partnership/cohabiting	15 (43)	17 (43)	32 (43)
Separated/Widowed/Divorced	9 (26)	13 (33)	22(29)
Single (never married and never registered in a civil partnership)	10 (29)	8 (20)	18 (24)
Prefer not to say	1 (3)	2 (5)	3 (4)
Comorbidities, n (%)			
A stroke (including mini-stroke)	2 (6)	3 (8)	5 (7)
High blood pressure	12 (34)	10 (25)	22 (29)
A heart condition such as angina or atrial fibrillation	8 (23)	6 (15)	14 (19)
Diabetes	11 (31)	3 (8)	14 (19)
Cancer	3 (9)	4 (10)	7 (9)
Arthritis	9 (26)	12 (30)	21 (28)
A mental health condition	14 (40)	18 (45)	32 (43)
None of the above	10 (29)	14 (35)	24 (32)
Report a single comorbidity	9 (26)	12 (30)	21 (28)
Report multiple long term conditions	16 (46)	14 (35)	30 (40)
Ethnic group, n (%)			
Asian or Asian British	2 (6)	7 (18)	9 (12)
Black, African, Caribbean or Black British	0 (0)	1 (3)	1 (1)
Mixed or multiple ethnic groups	0 (0)	1 (3)	1 (1)
Other Ethnic Group	0 (0)	2 (5)	2 (3)
White	33 (94)	29 (73)	62 (83)
Education, n (%)			
At degree level or above	2 (6)	10 (25)	12 (16)
Another kind of qualification	21 (60)	23 (58)	44 (59))
Prefer not to say	2 (6)	1 (3)	3 (4)
No formal qualifications	6 (17)	3 (8)	9 (12)
Not reported	4 (11)	3 (8)	7 (10)
Household status			

Household size, mean (SD)	2.4 (1)	2.8 (2)	2.6 (2)
Living alone, n (%)	10 (29)	13 (33)	23 (31)
Working status, n (%)			
Have paid job - Full time (30+ hours per week)	2 (6)	4 (10)	6 (8)
Have paid job - Part time (29 hours or less)	1 (3)	7 (18)	8 (11)
Unemployed and seeking work	2 (6)	4 (10)	6 (8)
Retired	16 (46)	9 (23)	25 (33)
Full time student	0 (0)	1 (3)	1 (1)
Not in paid work due to long term illness/disability/other reason	9 (26)	11 (28)	20(27)
Not reported/Other/Prefer not to say	5 (14)	4 (10)	9 (12)

Table 2 Participant Baseline Characteristics

Table 2 reports the baseline characteristics of participants. Mean average age of participants was 53.3 (SD=16.7), with mean average weight of 84.8kg (SD=20) and mean average BMI of 31.9kg/m^2 (SD=7.3). 63/75 (84%) of participants were female and 65 (87%) lived in disadvantaged areas (as defined by SIMD quintiles 1-3). Marital status was mixed, with married/civil partnership/cohabiting (32 participants (43%)) representing the largest classification group. Multiple long term conditions were reported by 30 (40%) participants, 62 (83%) were ethnic group white, 12 (16%) were educated to degree level with 44 (59%) having some other form of qualification. The proportion of participants living along was 23 (31%) and overall average household size was 2.6. Working status was mixed with retirees (25 (33%)) followed by those not in paid working due to long term illness/disability/other reason (20 (27%)) representing the largest classification groups.

Acceptability of intervention components

For each intervention component, the survey responses are presented in Table 3 followed by qualitative perspectives from 12-week participant interviews. Quotes have been chosen to represent the diversity of responses relating to the ELLY study in terms of engagement, acceptability, and demographics of participants.

ELLY components	**C1 n=35**	**C2 n=40**	**Total n=75 [95% CI]**
Soup n (%)			
Engaged in twice weekly soup (sit in/take away/delivery)	23 (66)	26 (65)	49 (65) [54, 76]
(Strongly agree/agree) getting soup was very convenient	16 (46)	17 (43)	33 (44) [33, 56]
(Strongly agree/agree) I made new friends as a result of ELLY soup	19 (54)	17 (43)	36 (48) [63, 60]
(Strongly agree/agree) ELLY soup helped me feel more part of my community	17 (49)	18 (45)	35 (47) [36, 59]
(Strongly agree/agree) ELLY soup kept me motivated	16 (46)	13 (33)	29 (39) [28, 51]

(Strongly agree/agree) ELLY soup was an important part of ELLY		18 (51)	17 (43)	35 (47) [36, 59]
(Strongly agree/agree) soup component helped with…	weight goal	7 (20)	8 (20)	15 (20) [12, 31]
	wellbeing goal	13 (37)	14 (35)	27 (36) [25, 48]
	personal goal	13 (37)	15 (38)	28 (37) [26, 49]
Community assets n (%)				
Participants engaged in at least 1 activity per week in at least 9 of the 12-week intervention		25 (71)	30 (75)	55 (73) [62, 83]
Participant engaged in more activities during the 12-week intervention than they did before		24 (69)	18 (45)	52 (69) [58, 79]
Participants attended new activities during the project		23 (66)	19 (48)	42 (56) [44, 67]
(Strongly agree/agree) I made new friends as a result of the activities		21 (60)	25 (63)	46 (61) [49, 72]
(Strongly agree/agree) the activities helped me feel more part of my community		24 (69)	25 (63)	49 (65) [53, 76]
(Strongly agree/agree) the activities kept me motivated		24 (69)	27 (68)	51 (68) [56, 78]
(Strongly agree/agree) the activities were an important part of ELLY				
(Strongly agree / agree) activities component helped with …	weight goal	10 (29)	10 (25)	20 (27) [17, 38]
	wellbeing goal	17 (49)	18 (45)	35 (47) [36, 59]
	personal goal	20 (57)	19 (48)	39 (52) [40, 64]
Loyalty card n (%)				
Participants who engaged with the loyalty card scheme achieving at least 9/12 weeks of stamps		25 (71)	30 (75)	55 (73) [62, 83]
(Strongly agree/agree) the reward was an appropriate amount		24 (69)	28 (70)	52 (69) [58, 79]
(Strongly agree/agree) the timing of the reward was appropriate (end of 12-weeks)		23 (66)	30 (60)	53 (71) [59, 81]
(Strongly agree/agree) I made new friends as a result of the loyalty card		20 (57)	25 (63)	45 (60) [48, 71]
(Strongly agree/agree) the loyalty card helped me feel more part of my community		20 (57)	21 (53)	41 (55) [43, 66]
(Strongly agree/agree) the loyalty card kept me motivated		20 (57)	24 (60)	44 (59) [47, 70]
(Strongly agree/agree) the loyalty card was an important part of ELLY		22 (63)	27 (68)	49 (65) [53, 76]
(Strongly agree / agree) loyalty card component helped with …	weight goal	11 (31)	12 (30)	23 (31) [21, 42]
	wellbeing goal	19 (54)	21 (53)	40 (53) [41, 65]
	personal goal	21 (60)	22 (55)	43 (57) [45, 69]
Goal setting n (%)				
Weight goal set		28 (80)	36 (90)	64 (85) [75, 93]
Wellbeing goal set		30 (86)	36 (90)	66 (88) [78, 94]
Personal goal set		29 (83)	36 (90)	65 (87) [77, 93]
Information resources, self-monitoring of weight and wellbeing n (%)				
Engagement with self-reporting of weight via ELLY website				0 (0)

Table 3 Overall acceptability of ELLY components

Soup Provision

Despite good engagement in ELLY soup (49/75 (65%)), participant questionnaires provided no consensus on its popularity. A significant proportion of participants indicated that they strongly agreed/agreed that 'getting the soup was very convenient' (33 (44%)), that 'I made new friends as a result of ELLY soup' (36, 48%)) and that the soup component 'helped me feel more part of my community' (35 (46%)). These findings were consistent across both communities. Overall, £877.44 was spent on soup ingredients for 73 participants over 12 weeks (mean average cost of soup ingredients over the 12 weeks: £12.02 per participant).

Participant interviews showed disparate views on ELLY soup however, the majority reported they found the soup element to be positive and/or beneficial to themselves and others, including being easy and convenient to access. Whilst it was felt that ELLY soup might support participants with dietary goals and an opportunity for health eating, only one participant (from C1) reported the soup helped them achieve their goal of weight loss and healthy eating. Food insecurity was an important element that ELLY soup addressed:

> *"I also got to eat something rather than just skipping meals. This is another thing, because I skip meals and things like that" [C2, P34]*

ELLY soup was also recognised as an opportunity for social interaction and connection with others:

> *"...the soup helped me because I was coming in here to pick it up and it was a direct link with people because the Covid [pandemic]...it was a long time...it made me, I won't say nervous but unsure of mixing with people again" [C2, P19]*

Interviewees from both communities reported similar barriers to accessing the soup, most notably not liking the soup or there being a lack of variety of other foods available. Interviewees from C1 stated that they did not like the soup element due to the table set up at the venue, which limited opportunities for socialising with others and meeting new people. One interviewee from C2 felt the soup option was not inclusive of other cultures from across the community. Others reported that they could not attend the soup due to the time and dates it operated.

Community assets

Community assets signposted to by ELLY, where participants could get their ELLY loyalty card stamped were well engaged with (55, 73%)). Participants reported they strongly agreed/agreed that 'I made new

friends as a result of the activities' (46, 61%)), the activities 'helped me feel more part of the community' (49, 65.3%)), and 'the activities kept me motivated' (51, 68%). Participants also strongly agreed/agreed that the activities component helped with their personal goal (39, 52%) but less so supporting weight (20, 26%) and wellbeing (35, 46%) goals. A majority of individuals in community C1 and just under half of individuals in C2 strongly agreed/agreed that they had engaged in more assets than they had before ELLY (C1: 24/35, 69%; C2: 18/40, 45%) and had tried new assets during ELLY (C1: 23/35, 66%; C2: 19/40, 48%).

Interview data showed that across both communities, the range of assets available was overall found to be good, well-advertised and easily accessible. A key facilitator was found to be the welcoming nature of staff and volunteers at assets:

> *"I think just people were very welcoming, which was amazing, I think in all of the groups that I attended they were very, very welcoming" [C1, P19]*

Further, participants reported that having assets that were free to attend and walking distance from home, was beneficial for accessibility, especially for those with little money.

> *"[asset name] was just literally at the bottom of my street…that was the easiest because it wasn't too far to walk" [C1, P30]*

Barriers reported by interviewees across both communities were related to individuals' inability to attend assets due to employment or caring commitments and times not fitting well with their daily schedules.

> *"…having some activities on a Monday, my day off, would have helped...the evenings are consumed by kids' clubs… so I wouldn't have managed" [C1, P24]*

A further barrier experienced in both communities was a lack of assets for different interests, ages or genders.

> *"A lot of them were for older people, I would go to some of the clubs, I looked at them and I would go in and would be like, yes, no and I would just go. I think, guy-centred activities would have been good because most of the clubs that are run are usually female-orientated" [C2, P41]*

A related point made by a small number of participants was that spaces could be more inclusive to different demographic groups and needs:

> *"...it would have been good to have spaces for people who are just in those awkward places where they don't really fit into neat boxes…I feel like possibly those are the people who don't fit anywhere that actually probably need it the most in some ways" [C1,P19]*

Loyalty card

Participants in both communities strongly agreed/agreed that the cash value of the loyalty card and ability to redeem it after 12-weeks of the ELLY intervention was appropriate (52 (69%) and 53 (71%) respectively). The majority of participants in both communities strongly agreed/agreed that '*I made new friends as a result of the loyalty card*' (45, 60%), the loyalty card '*helped me feel more part of my community*' (41, 55%) and '*the loyalty card kept me motivated*' (44, 59%). Participants also strongly agreed/agreed that the loyalty card supported wellbeing (40, 53%) and personal (43, 57%) goals and was regarded as an important component of the ELLY intervention (49, 65%).

Across both communities most interviewees found the loyalty card to be positive and beneficial to achieving their goals. Many found the loyalty card acted as an incentive to take part in more assets and was satisfying and rewarding.

> *"It's nice for you to look at it and go oh I've not been anywhere this week, I need to go and get my stamp…It was a push to go out and go somewhere because I wanted to get all the stamps" [C1, P26]*

Eleven of the interviewees stated that the loyalty card was easy to use and that the incentive offered was a good amount. Two participants from C2 stated that it was particularly beneficial for those in need.

> *"It might be just a card and a voucher for me, but it might be something wow factor for somebody else because people do struggle, and not everybody tells you their problems" [C2, P105]*

Seven of the interviewees stated that the loyalty card made no difference to their attendance. Negative responses were mainly regarding practical aspects, such as the risk of losing the card or forgetting to bring it along to activities. Two respondents from C1 stated that they did not like the concept due to it being an *"artificial encouragement"* [C1, P43, P2], encouraging people to attend for the wrong reasons, and one respondent stated that the stamp system had the potential to "*embarrass*" people [C1, P2].

Overall, £1375 of gift card payments was made to the 55 participants (73%) who successfully acquired at least 9 stamps on their loyalty card.

Goal setting

Across both communities, goal setting was engaged in by the majority of participants (weight goal: 64, 85%; wellbeing goal: 66, 88%; personal goal 65, 87%). The most popular personal goals were around meeting new people (20, 27%), setting a target weight-loss (19, 25%), doing more activities (8, 11%), and being more community focused (8, 11%).

Analysis of goals set and engagement in other ELLY components was conducted to determine if setting particular goals led to a greater likelihood of engagement in different components. For example, did participants who set a weight goal engage more with the soup cafés that those who did not? Findings suggest there was no significant difference in engagement of different ELLY components between goal-setters and non-goal setters. It should be noted that numbers of participants choosing not to set particular goals was low, so this finding is based on small numbers.

Interview participants from both communities reported that goal setting was a positive and helpful element of ELLY. Participants found setting goals easy, and that goal setting had been useful for keeping focus and motivation.

> *"...to know in your head that you've got a goal of trying to be a bit more active and lose a bit more weight and that you've got a timeframe for it, I think that's a really positive thing" [C1,P26]*

> *"It's good having a focus…it kind of plants a seed and it lets me know what I need to do to get to my end goal of trying to lose some weight" [C2, P34]*

Eight participants specifically stated that the goal setting had helped them achieve their goals.

> *"I feel as though they've [the goals] helped dramatically. So due to this, health is a lot better mentally and psychologically I'm a lot better" [C1,P2]*

Four C1 participants stated that they could not remember setting goals due to other things going on in their lives. One participant from C2 found the goal setting system challenging to complete due to being too busy and having personal issues.

Information resources, self-monitoring of weight and wellbeing

Interview data showed that participants liked the A4 printed "What's on" card provided in the participant packs at the start of the ELLY intervention. Three interviewees from C1 reported the programme of assets and contact details to be easily accessible online, especially through social media.

> *"What was interesting about the ELLY project is that it was advertised in one space, whereas normally you have to rush around and try to find things in different places, so I wouldn't necessarily have known about the [activities]" [C1, P19]*

Nonetheless, three participants reported that the assets themselves did not provide up to date information and/or were difficult to contact. When asked if they had looked at either the ELLY website or ELLY social media for this information, they had not.

> *"Nobody showed up [to the activity] the times I was here. Nobody tried to contact me to find out what was wrong or anything like that" [C2, P19]*

The self-reporting of weight and wellbeing feature via the website was not used, and when questioned on this element, interviewees stated they had not felt the need to access the website.

Feasibility and fidelity of delivering intervention components

The ELLY intervention was feasibly delivered in both community settings. Community CARP members and community champions actively supported academic researchers with recruitment activities and advertising the ELLY project. The ELLY Soup component was made and delivered by community voluntary organisations in each community. In addition, in community C2, local college students supported the Soup Café by welcoming participants and working in the café. Assets were delivered by independent volunteers and organisations already providing activities/clubs/groups in the two communities. Data collection and analysis, provision of ELLY, the website, social media and project monitoring were undertaken by the ELLY research team. All participants who secured financial incentives received their chosen shopping card within 1 week of completing outcome measures (as stipulated). Issues that were reported were: one participant reported confusion around loyalty card stamping; two participants not being able to contact activity organisers; and seven not feeling welcome at some assets attended.

Harms and unintended consequences

No harms or unintended consequences were reported.

Effects on weight-related and wellbeing outcomes at 12-weeks

Small changes are evident in all outcomes collected (Table 4).

	Mean	SD	95% CI
Weight change (kg), mean (SD)	-0.43	3.33	-1.26, 0.40
Weight change (%), mean (SD)	-0.35	3.68	-1.26, 0.56
Body Mass Index (kg/m^2)	-0.15	1.26	-0.44, 0.14
EQ-5D-5L index score	0.02	0.20	-0.26, 0.07
WEMWBS	0.80	9.74	-1.44, 3.04

Social connectedness scale	0.80	14.6	-2.56, 4.16

Table 4: Mean (Standard deviation) change in measures collected from baseline to 12-weeks

Progression to full trial

An independent study steering committee agreed that the ELLY study had demonstrated acceptability and feasibility and that the overall prespecified progression criteria were sufficiently met to support a larger-scale evaluation of the effectiveness and cost-effectiveness of ELLY.

DISCUSSION

Principal findings

The ELLY study was popular, engaged citizen partners and successfully recruited 75 participants across two disadvantaged communities with 87% (65/75) retention rate at 12-weeks follow-up. Community citizens living in disadvantaged areas (SIMD 1-3) formed 87% of the sample illustrating some promise for ELLY to impact on health inequalities in future. All ELLY components were acceptable to participants. The majority of ELLY components were engaged with, with the exception of the self-monitoring of weight website component, which was not utilised. Change in measurable weight outcomes (decrease) and wellbeing outcomes (increase) were observed.

Strengths and weaknesses

The ELLY study was effective in producing a co-designed intervention with two disadvantaged communities for use in disadvantaged communities. The intervention is underpinned by systematic review findings, theory informed and extends the evidence for use of financial incentive interventions for supporting healthy weight and wellbeing in disadvantaged communities. [49] The progression criteria set by an independent study steering committee were sufficiently met to proceed to a full trial.

The feasibility study was not powered to detect effects on weight and wellbeing related outcomes, therefore findings should be interpreted with caution. Possible expectation effects, the short study time frame, and assumptions of directionality of relationships were present in this research and should be addressed in its extensions. Figures provided relating to attendance at weekly soups and questionnaire data are reliant on participant self-reporting. The mean average soup cost per person of £12.02 over the 12 weeks is calculated from the cost of soup ingredients and does not account for wider opportunity costs (e.g. time taken to prepare soup, electricity costs, cost of volunteering). Although communities were chosen for their disparate nature, further consideration should be given to the mix and diversity of communities in a future evaluation to maximise generalisability of findings and contribution to theory

and intervention development. Careful consideration of what costs should be included in cost-effectiveness calculations, aligned to the perspective taken (e.g. consideration of societal costs, public-sector costs) should be given for future evaluation of the intervention.

Relation to other studies

ELLY findings are aligned to those reported in the review, where all studies showed community incentive interventions resulted in small improvements in BMI and/or weight or no effect. The systematic review and network meta-analysis conducted by Boonmanunt et al [50] examined behavioural-economic incentive programs for achieving goals, and reviewed the effectiveness of different strategies on incentivization for healthy diet, weight control and physical activity. This work is important in recognising the role of self-determination theory acknowledging the impact of different social contexts and individuals' differences on different types of motivation.

The ELLY intervention promoted autonomy and intrinsic (goal setting), and incorporated extrinsic motivation (incentivisation), social and physical opportunities and capability to support positive health and wellbeing behaviour change. The ELLY intervention supports the findings of Boonmanunt et al [50] that recognises the importance of social support, adding objects to /restructuring the community environment and incorporating financial rewards to support sustained behaviour change. The extensive community engagement undertaken during the ELLY project mirrors that of VanWormer et al [51] where promotional strategies to recruit to the study were invested in heavily. VanWormer [51] acknowledges that the considerable resources required may be a barrier to others wanting/being able to invest in such community engagement strategies. An emphasis on holistic health and wellbeing was preferred by citizens to a weight focus, reflected by the community assets offered. This finding reflects that of Glover et al [19] where having to be weighed proved a barrier both to recruitment and retention for some participants. In the ELLY study, 85% selected a weight goal yet few locally provided assets focused on the required food and behavioural changes required for weight loss.

Investing in upstream public health incentive initiatives that are feasible and acceptable to communities warrants further investigation to explore their potential to reduce pressure on existing health services, including gate-keeper roles. Incorporating incentives into social prescribing may be a promising approach for highlighting and encouraging engagement with supportive community assets. A holistic approach to health wellbeing, rather than a focus on individual, potentially stigmatising aspects like weight or behaviour was shown in this study to be preferred by communities.

CONCLUSION

This study demonstrates the feasibility of co-designing and implementing a novel community-based, incentive intervention to support healthy weight and wellbeing. A larger study is warranted to determine effectiveness and cost-effectiveness, with consideration of scalability. The design of a full scale evaluation requires careful consideration to ensure its appropriateness in addressing study objectives. Community-based intervention studies can produce methodological challenges: how best to cluster across communities, how to ensure contextual differences are accounted for and how to ensuring a one-size-fits-all intervention is flexible enough to address local needs, whilst maintaining fidelity. In the ELLY study, outcome measured prioritised by communities were multiple and of equal importance, necessitating discussion around use of co-primary outcomes in a future study. In all decisions around study design of a full scale evaluation, ensuring equitable engagement of community citizens will be crucial in maximising study success.

Author Contributions

JC, PH, SC, PC, GM, MvdP, RA, EC contributed to the study's conception and design. JC was principal investigator and project manager on this study. Data collection was conducted by SF, RA and JC. Data analysis was conducted by SF, DH, RA, GM, MvdP, JC and PH. JC, SF, RA, DH drafted the first version of the manuscript. JC led future iterations of the manuscript. All authors read and commented on the manuscript and approved the final version of it. The corresponding author attests that all authors meet authorship criteria and that nobody meeting the criteria has been omitted. JC (Julie Cowie) is the guarantor.

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Ethics approval

Ethical approval was granted from Stirling University Ethics Committee (NHS, Invasive or Clinical Research (NICR), project 7430, 251022) and Glasgow Caledonian University Ethics Committee (Nursing and Community Health Research Ethics Committee (REC), 050623).

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Data availability

All data produced in the present study are available upon reasonable request. Glasgow Caledonian University holds the copyright for the full interview transcripts and may grant data sharing permission on request.

Competing interests

All authors have completed the ICMJE uniform disclosure form and declare no competing interests.

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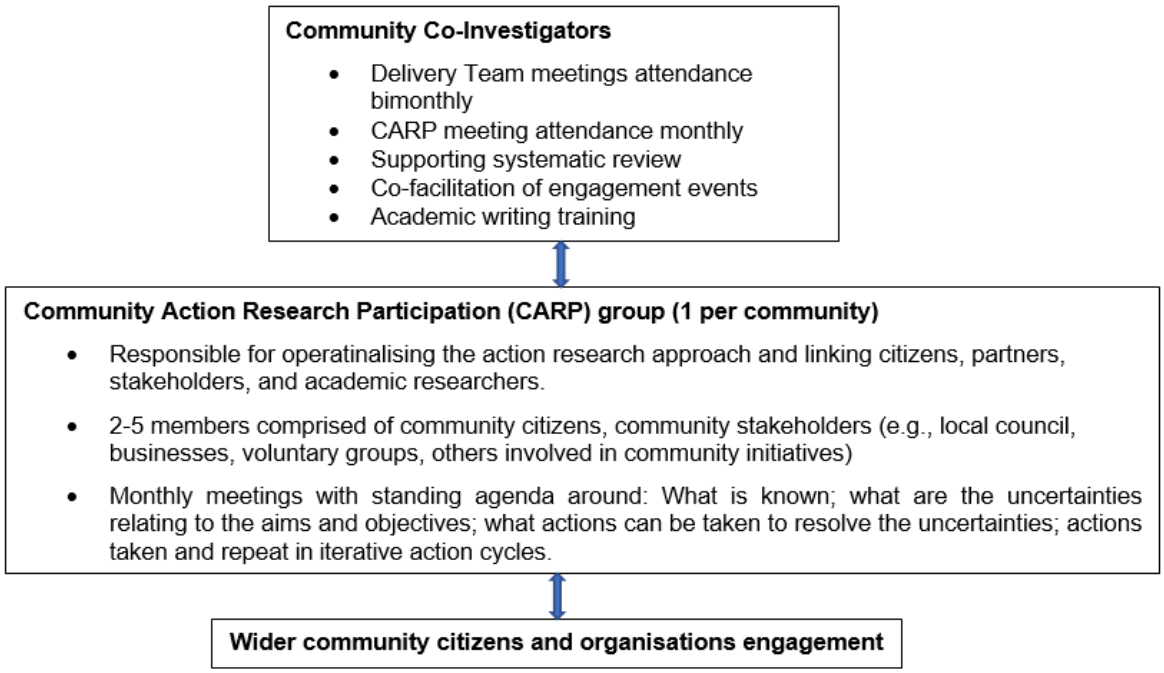
Figure 1 Community engagement in ELLY project

Figure 2 TIDieR checklist for ELLY intervention

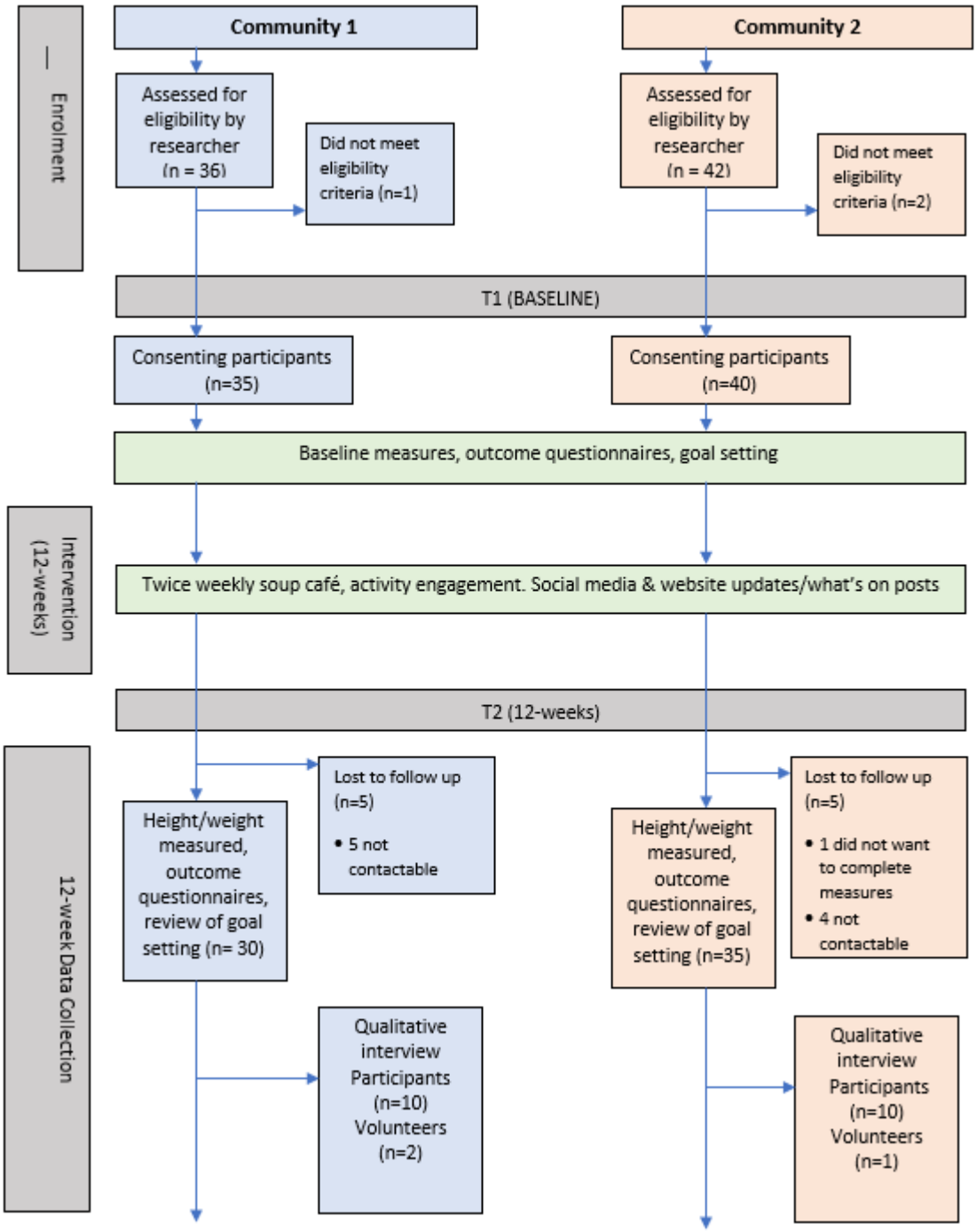
Figure 3 Consort (Consolidated Standards of Reporting Trials) Flow Diagram of ELLY intervention



Community engagement reported using GRIPP2 reporting checklist

Section	Item
Aim	To co-design and feasibility test an incentive intervention to support health and wellbeing of citizens living in disadvantaged communities.
Methods	Community co-investigators were involved at all stages of the study, including conception of ideas, systematic reviewing, intervention implementation and dissemination of findings. CARP members met monthly to review project progress, support decision making and provide advice as appropriate.
Results	Public and Patient Involvement (PPI) successfully facilitated the development of an intervention that accounted for local context and needs. It was shown to be feasible and acceptable in the communities where it was implemented. PPI played a role in recruitment and retention of participants. Recent poor relations between a community organisation and potentially eligible community participants acted as a barrier to recruitment in one of the communities.
Discussion	Delivery of the intervention was conducted by PPI members which on the whole was seen as a positive experience. A potential barrier to implementation success was a need for more hours of researcher support for community members in one community compared to the other community. In addition, some of the community assets that participants were signposted to were not as welcoming to new ELLY recruits as anticipated. On reflection, a clearer negotiation of roles and responsibilities for community groups and for providing assets is recommended for future initiatives.

NAME	ELLY
WHY-Theory	Underpinned by systematic review findings addressing community-based incentive systems to support healthy weight and wellbeing. Co-designed with disadvantaged communities for disadvantaged communities. Behavioural theory of ELLY informed by the COM-B model.[31]
WHY-Intervention Components	Soup café to encourage healthy eating and social cohesion providing social/physical opportunities and capabilities. Loyalty card stamped for engagement in community assets to encourage preparatory behaviours towards healthy weight and wellbeing. Community assets providing intrinsic motivation, social/physical opportunities. Optional goal setting for personal/weight/wellbeing goals acting as an enabler and extrinsic motivator. Social media, website and information resources providing a credible source of information and physical and social capability through environmental restructuring. Optional self-monitoring of weight and wellbeing providing extrinsic motivation by restructuring the environment.
WHAT-Materials	Free soup twice (café/delivery/pickup) Loyalty card Information resources (handouts, social media, ELLY website) Ability to record self-monitored weight/wellbeing via ELLY website £25 gift voucher in exchange for engaging in assets at least 9 out of 12 weeks.
WHAT-Procedures	Free soup cafés (café/delivery/pickup) Loyalty card stamped ELLY website providing up-to-date information on assets
WHO	Soup cafés delivered by community volunteers (and college students in C2) Assets delivered by asset owner/volunteers/community groups Loyalty cards stamped by individuals running the assets
WHERE	Soup cafés operated at: YMCA, local charity hub (C1); community centre (C2) Assets delivered in community centres, halls, library, churches, green spaces
HOW MUCH	Soup cafés operate twice weekly Multiple assets operating daily across both communities



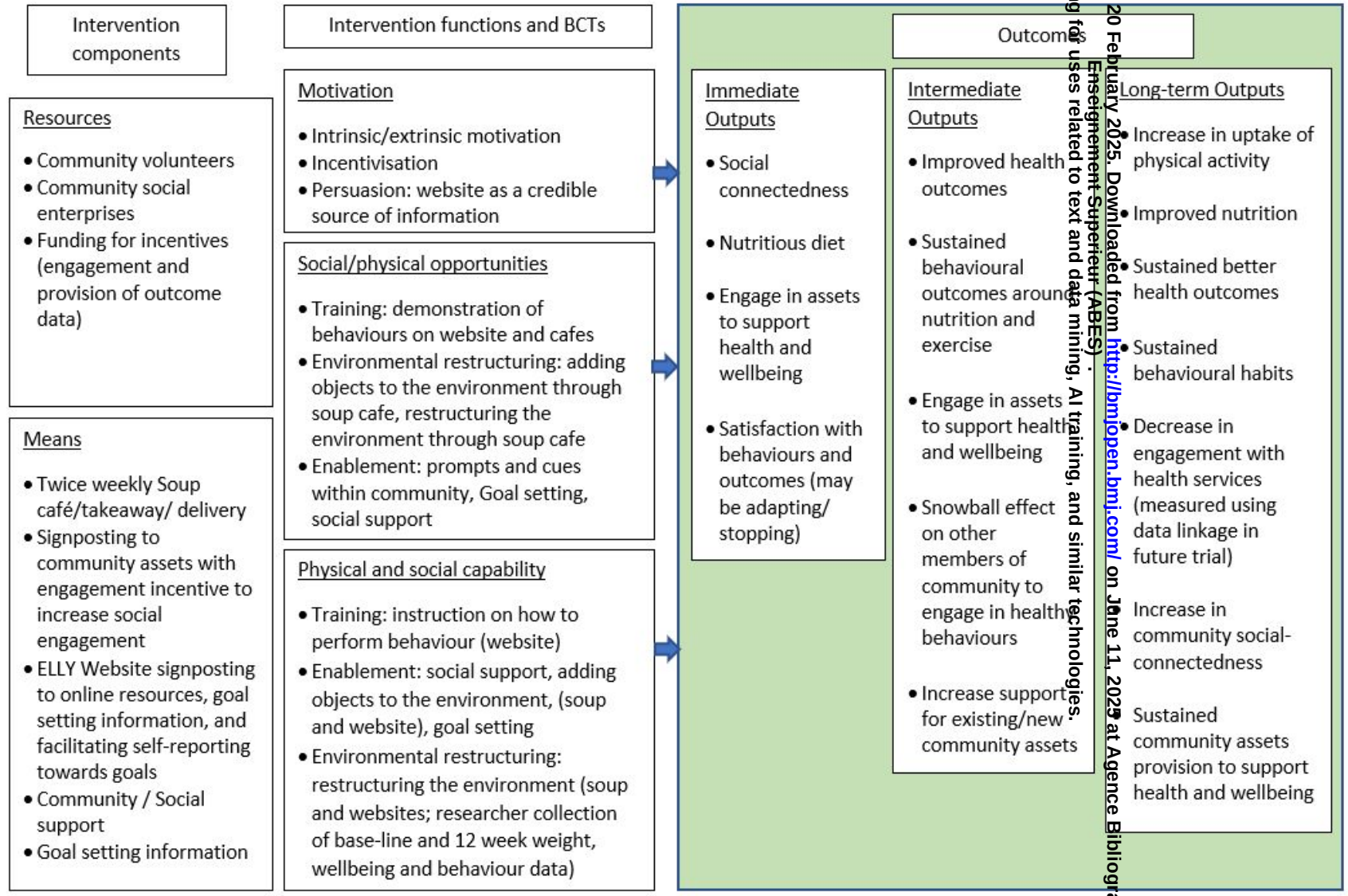
CONSORT 2010 checklist of information to include when reporting a pilot or feasibility trial*

Section/Topic	Item No	Checklist item	Reported on page No
Title and abstract			
	1a	Identification as a pilot or feasibility randomised trial in the title	1
	1b	Structured summary of pilot trial design, methods, results, and conclusions (for specific guidance see CONSORT abstract extension for pilot trials)	4
Introduction			
Background and objectives	2a	Scientific background and explanation of rationale for future definitive trial, and reasons for randomised pilot trial	3
	2b	Specific objectives or research questions for pilot trial	4
Methods			
Trial design	3a	Description of pilot trial design (such as parallel, factorial) including allocation ratio	4
	3b	Important changes to methods after pilot trial commencement (such as eligibility criteria), with reasons	N/A
Participants	4a	Eligibility criteria for participants	5
	4b	Settings and locations where the data were collected	5
	4c	How participants were identified and consented	5
Interventions	5	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered	5
Outcomes	6a	Completely defined prespecified assessments or measurements to address each pilot trial objective specified in 2b, including how and when they were assessed	7
	6b	Any changes to pilot trial assessments or measurements after the pilot trial commenced, with reasons	N/A
	6c	If applicable, prespecified criteria used to judge whether, or how, to proceed with future definitive trial	8
Sample size	7a	Rationale for numbers in the pilot trial	10
	7b	When applicable, explanation of any interim analyses and stopping guidelines	N/A
Randomisation:			
Sequence generation	8a	Method used to generate the random allocation sequence	N/A
	8b	Type of randomisation(s); details of any restriction (such as blocking and block size)	N/A
Allocation concealment mechanism	9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned	N/A

Implementation	10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions	N/A
Blinding	11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how	N/A
	11b	If relevant, description of the similarity of interventions	N/A
Statistical methods	12	Methods used to address each pilot trial objective whether qualitative or quantitative	7
Results			
Participant flow (a diagram is strongly recommended)	13a	For each group, the numbers of participants who were approached and/or assessed for eligibility, randomly assigned, received intended treatment, and were assessed for each objective	11
	13b	For each group, losses and exclusions after randomisation, together with reasons	12
Recruitment	14a	Dates defining the periods of recruitment and follow-up	5
	14b	Why the pilot trial ended or was stopped	N/A
Baseline data	15	A table showing baseline demographic and clinical characteristics for each group	12
Numbers analysed	16	For each objective, number of participants (denominator) included in each analysis. If relevant, these numbers should be by randomised group	14
Outcomes and estimation	17	For each objective, results including expressions of uncertainty (such as 95% confidence interval) for any estimates. If relevant, these results should be by randomised group	14
Ancillary analyses	18	Results of any other analyses performed that could be used to inform the future definitive trial	15
Harms	19	All important harms or unintended effects in each group (for specific guidance see CONSORT for harms)	19
	19a	If relevant, other important unintended consequences	N/A
Discussion			
Limitations	20	Pilot trial limitations, addressing sources of potential bias and remaining uncertainty about feasibility	19
Generalisability	21	Generalisability (applicability) of pilot trial methods and findings to future definitive trial and other studies	20
Interpretation	22	Interpretation consistent with pilot trial objectives and findings, balancing potential benefits and harms, and considering other relevant evidence	20
	22a	Implications for progression from pilot to future definitive trial, including any proposed amendments	20
Other information			
Registration	23	Registration number for pilot trial and name of trial registry	NA
Protocol	24	Where the pilot trial protocol can be accessed, if available	NA
Funding	25	Sources of funding and other support (such as supply of drugs), role of funders	22
	26	Ethical approval or approval by research review committee, confirmed with reference number	22

*We strongly recommend reading this statement in conjunction with the CONSORT 2010, extension to randomised pilot and feasibility trials, Explanation and Elaboration for important clarifications on all the items. If relevant, we also recommend reading CONSORT extensions for cluster randomised trials, non-inferiority and equivalence trials, non-pharmacological treatments, herbal interventions, and pragmatic trials. Additional extensions are forthcoming: for those and for up-to-date references relevant to this checklist, see www.consort-statement.org.

ELLY theory of change model



What's on in Community 1?

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Morning	The Toddler Club (9:30am-11am) Baptist Church FREE		The Hope Hub drop in (10am-12pm) The Hope Hub FREE	The Hope Hub drop in (10am-12pm) The Hope Hub FREE		The Hope Hub drop in (10am-12pm) The Hope Hub FREE	
	The Hope Hub drop in (10am-12pm) The Hope Hub FREE	Men's Shed (10am-3pm) Unit 19 F, Winchester Avenue FREE	Wellbeing Wednesdays (10:30am-11:15am) YMCA FREE	Men's Shed (10am-3pm) Unit 19 F, Winchester Avenue FREE	Bookbug (11am) Library FREE		
	Forget me not cafe (10:30am-12pm & 1pm-3pm) Library FREE	Memory Group (Monthly) (1:30-2:30pm) Library FREE	Words for Wellbeing (Every other week) (11am-12pm YMCA FREE	Snowdrop Cafe (1pm-3pm) Westpark Church Hall FREE			
Afternoon	Men's Shed (10am-3pm) Unit 19 F, Winchester Avenue FREE	Knit and Knatter (2pm-3pm) Library FREE	Men's Shed (10am-3pm) Unit 19 F, Winchester Avenue FREE	Feeding Families Thursdays (4:30pm-6pm) Baptist Church FREE	Braveheart Walk (2pm-3pm) Meet in Sports Centre car park FREE		
				The Lymph Notes Choir (5pm-7pm) Baptist Church FREE			
Evening		The Hope Hub drop in (7pm-9pm) The Hope Hub FREE		Young Adult Reading Group (Monthly) (6:30pm-7:30pm) Library FREE	Skating session (7pm-8:30pm) Sports Hall, C1 Centre £5		

ELLY
ENJOY LIFE LOCALLY

Activity	Description
The Toddler Club	The Toddler Club is a parent and toddler group run by the church for little ones aged 0-3 to come along. Book your place at the link below. https://www.dennybaptistchurch.com/events-1/the-toddler-club-2
Feeding Families Thursdays	Launched in February, Feeding Families Thursdays supports local families with kids to provide a warm space, food and fun.
The Hope Hub drop in	The Hope Hub drop in is a great place to go along for a cuppa and a chat. Everyone is welcome.
Forget me not café	A friendly group that welcomes everyone, including people living with dementia. Come along for a chat, cake and to do something fun.
Knit and Knatter	Come along and meet other knitters, have a look through the library's knitting books, chat and swap ideas and techniques. All welcome! Bring whatever you're working on at the moment.
Wellbeing Wednesdays	Join others to take part in some light exercise in a relaxed and supportive environment. (Not running during October.)
Braveheart Walk	Do you want to become more active? Do you want to make new friendships? Do you enjoy being outdoors? Not sure of walking alone? Join us on a walk in the heart of nature with Braveheart's free health walks designed to support adults, of all abilities, to become more physically and socially active within the community.
Memory Group (Monthly)	Meet other locals at the library monthly to relive old memories through photographs and stories. Contact the library for dates – *[tel no]*
Words for wellbeing (on every other week – 21st Sep / 5th Oct / 19th Oct / 2nd Nov / 16th Nov)	The groups differ from traditional book groups in that no homework is required - just come along on the day. You'll hear short pieces of fiction, non-fiction, poetry or song lyrics and have the chance to discuss them with other participants.
Young Adult Reading Group (Monthly – 28th Sep / 26th Oct / 30th Nov)	A free book club, just for young adults. It's your chance to chat about the books you love (or love to hate!). Who knows, you might meet some interesting new books and some interesting new people!
Bookbug	Bookbug Sessions are free, fun and friendly events for babies, toddlers and their families to enjoy together. Our sessions are suitable for ages 0+ and can be booked on Eventbrite. Book at the link below. https://www.eventbrite.co.uk/cc/events-at-denny-library-108559
Skating session	Want to get fit but find that the gym's boring and jogging's no fun? Then join us for some exercise in disguise at our adult roller-skating sessions.
Lymph Notes Choir	Even if you think you can't sing, enjoy the many proven benefits of singing in the social setting of a choir. Bring a friend, join us and have some fun!
Men's Shed	The Men's Shed movement started 16 years ago, as a method of counteracting the effects of boredom and isolation when faced with retirement, illness or unemployment. Our shed workshop has a comprehensive range of tools at the disposal of members as well as social space for the essential cuppa and cake!
Snowdrop Cafe	What was originally a befriending idea to combat loneliness, The Snowdrop Café is open to all - a safe and happy community meeting place. Grab a coffee, a slice of cake and have a blether. Snowdrop Cafés are run by your local community, for your local community. All money donated is put back into the café running costs.

What's on in Community 2

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Morning		Wee Ones (9:30am-11am) WPCC Donation of choice	Share a craft (10am-12pm) WPCC £2		Share a craft (10am-12pm) WPCC £2	Falkirk Park Run (9:30am start) Callendar house FREE	
	Step Forth Walks (10am-11am) Football Stadium FREE	Board Games (10am-11:30am) 5 Manse Place FREE	Mindful Making Craft Group (10:30am-12:30pm) 5 Manse Place Free		Little Conversations (over 50s group) (11am-12pm) Pots Cafe FREE	Braveheart Walk (10:30am-11:30am) Callendar house FREE	
Afternoon	Creative Writing Group (12pm-2pm) 5 Manse Place FREE	Move it or lose it (11am-12pm) WPCC £6	Rainbow Muslim Women's Group (12:30pm-3pm) WPCC FREE	Make and Mend (12:30pm-2:30pm) 5 Manse Place FREE			
	Braveheart Walk (2pm-3pm) Callendar House FREE						Braveheart Walk (1:30pm-2:30pm) Meet in Falkirk Stadium Car Park FREE
	Writing Group (2pm-4pm) WPCC FREE						
	Taekwon-Do (6:45pm-7:45pm) WPCC First session FREE			Taekwon-Do (6:45pm-7:45pm) WPCC First session FREE			
Evening	Step Forth Walks (7pm-8pm) Falkirk Stadium FREE	Korean Kickboxing (7:30pm-8:30pm) WPCC First session FREE	Make and Mend (7pm-9pm) 5 Manse Place FREE	Braveheart Walk (7pm-8pm) Falkirk Stadium FREE			
	Walk for Wellbeing (7pm-8:30pm) WPCC FREE			Korean Kickboxing (7:45pm-9:15pm) WPCC First session FREE			

ELLY
ENJOY LIFE LOCALLY

ELLY
ENJOY LIFE LOCALLY

Activity	Description
Walk for Wellbeing	A friendly walking group for anyone who's mental wellbeing needs a boost.
Braveheart Walk	Do you want to become more active? Do you want to make new friendships? Do you enjoy being outdoors? Not sure of walking alone? Join us on a walk in the heart of nature with Braveheart's free health walks designed to support adults, of all abilities, to become more physically and socially active within the community. Our friendly and welcoming walks promote social inclusion within the community, encourage the use of green space, and raise awareness of the benefits of active travel within your local area. (Thursday walk only on April-October).
Share a Craft	Bring a crafting activity or come along to get some ideas and see what other people are working on! If you would like to join this welcoming, lovely group with your own craft it's 10am-12pm at Community Centre.
Rainbow Muslim Women's Group	Rainbow Muslim women group is a charity organisation aiming to provide social and educational opportunities to the vulnerable sector of the community, across Forth Valley Area since 1999.
Move it or lose it	Come and join in with others as we do some fun light exercise in a supportive environment (60+).
Wee Ones	Come and meet other families here at the centre. Each week will be different activities for the kids, while the parents enjoy a free cuppa! (up to 5 years old)
Step Forth Walks	Step Forth is our award-winning volunteer led free walking programme designed to improve your physical activity levels through walking.
Taekwon-Do	TaeKwon-Do is a Korean Martial Art that dates back 2000 years. TaeKwon-Do means "The art of hand and foot fighting" and is used primarily for self-defence. First session free then £30 per month (for 2 sessions a week).
Korean Kickboxing	Our Korean kickboxing originated from Taekwon-Do mixed with boxing. It is a self-defence and fitness contact sport that utilises kicks and punches. First session free then £30 per month (for 2 sessions a week).
Falkirk Park Run	A free, fun, and friendly weekly 5k community event. Walk, jog, run, volunteer or spectate – it's up to you! (You won't get a stamp at this but if you follow the instructions on the website and sign up we will be able to see when you have run).
Central Wellbeing activities	Central Wellbeing run a range of activities (e.g. Make and Mend and Little Conversations over 50's group) in the Falkirk area, many based out of their office at 5 Manse Place. Find out more about their activities (Central Wellbeing).

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

ELLY measurements and engagement questionnaire

12 weeks: ELLY measurements and engagement questionnaire

Participant ID	
Researcher name	
Today's date	**_ _ / _ _ / _ _ _ _** **e.g. 05 / 01 / 2021**

Note for interviewer: Determine participant preference for completion:

a. *(preferred) To complete questionnaire themselves (with interviewer just checking complete at end)*

b. *To have questions read to them and interviewer record responses*

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

Measurements

Measurements (please tick)		
Which weight measure do you prefer?	☐ **Kg**	☐ **Stones/lbs**

	Measure 2 (12 weeks)	**Participant Initials**	**Notes**
Weight (kg)	**___ ___ ___ . ___ ___ kg** **___ ___ st ___ . ___ ___ lbs**		
Height as recorded at baseline (cm) (transfer over)	**___ ___ ___ . ___**		
BMI*(Kg/m²)	**___ ___ . ___ ___ kg/m²**		

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

Engagement in local activities

Please indicate (with a tick) how often you attend the following types of activities in the last 12 weeks?

	0-1 over 12 weeks	2-4 over 12 weeks	3-5 over 12 weeks	6+ over 12 weeks
Arts & crafts activity				
Physical Activity group				
Nutrition related group				
Social related group				
Other (please specify)				

Please tick the box that best describes your experience of attending local activities as part of the ELLY project.	**Strongly disagree**	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**	**Not relevant**
I attended more activities during the project than I did before the project	☐	☐	☐	☐	☐	☐
I attended new activities during the project	☐	☐	☐	☐	☐	☐
In the last 12-weeks I attended new local activities in addition to the ones on the “what’s on” sheet	☐	☐	☐	☐	☐	☐
I feel more interested in trying out new activities as a result of the ELLY Project.	☐	☐	☐	☐	☐	☐
The activities helped me achieve the PERSONAL goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The activities helped me achieve the WEIGHT goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐

Participant ID		Fieldworker initials		Date	__/__/____

The activities helped me achieve the WELLBEING goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
I made new friends as a result of the activities	☐	☐	☐	☐	☐	☐
The activities helped me feel more part of my community	☐	☐	☐	☐	☐	☐
I feel like the activities kept me motivated	☐	☐	☐	☐	☐	☐
I feel the activities were an important part of the ELLY project	☐	☐	☐	☐	☐	☐

If you disagreed with any of the statements above, we would be interested to hear why

_____
_____
_____

If you answered not relevant to any of the questions above, we would be interested to hear why it was not relevant

_____
_____
_____

In summary, how best would you describe your experience of taking part in the activities?

_____
_____
_____

Is there anything else about the activities you would like to share with us? (e.g. if you answered strongly disagree to any of the above you might like to share alternatives or suggestions for improvements)

_____
_____
_____
_____
_____

Participant ID		Fieldworker initials		Date	__/__/____

ELLY Loyalty card and reward

Please tick the box that best describes your experience of the loyalty card and reward as part of the ELLY project.	**Strongly disagree**	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**	**Not relevant**
I think the reward was an appropriate amount	☐	☐	☐	☐	☐	☐
I think the timing of the reward was appropriate (at the end of the 12-weeks)	☐	☐	☐	☐	☐	☐
The loyalty card and reward helped me achieve the PERSONAL goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The loyalty card and reward helped me achieve the WEIGHT goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The loyalty card and reward helped me achieve the WELLBEING goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
I made new friends as a result of the loyalty card and reward	☐	☐	☐	☐	☐	☐
The loyalty card and reward made me feel more part of my community	☐	☐	☐	☐	☐	☐
I feel like the loyalty card and reward kept me motivated	☐	☐	☐	☐	☐	☐
I feel the loyalty card and reward were an important part of the ELLY project	☐	☐	☐	☐	☐	☐

If you disagreed with any of the statements above, we would be interested to hear why

_____

_____

_____

If you answered not relevant to any of the questions above – we would be interested to hear why it was not relevant

_____

_____

_____

In summary, how best would you describe your experience of the loyalty card and reward?

_____

_____

_____

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

Is there anything else about the loyalty card and reward you would like to share with us? (e.g. if you answered strongly disagree to any of the above you might like to share alternatives or suggestions for improvements)

_____
_____
_____
_____
_____

ELLY SOUP

If you took up the offer of soup twice a week, how did you get your soup? (please tick all that apply)

Sit in at café, twice weekly	
Collect soup twice weekly from cafe	
Collect 2 portions of soup once a week from cafe	
Delivered to house	
Other (please state)	

Please tick the box that best describes your experience of the twice weekly free soup you received as part of the ELLY project.	**Strongly disagree**	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**	**Not relevant**
Getting soup twice a week was very convenient	☐	☐	☐	☐	☐	☐
The twice weekly soup helped me achieve the PERSONAL goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The twice weekly soup helped me achieve the WEIGHT goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The twice weekly soup helped me achieve the WELLBEING goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
I made new friends as a result of ELLY soup	☐	☐	☐	☐	☐	☐
ELLY soup made me feel more part of my community	☐	☐	☐	☐	☐	☐
I feel like ELLY soup kept me motivated	☐	☐	☐	☐	☐	☐
I feel ELLY soup was an important part of the ELLY project	☐	☐	☐	☐	☐	☐

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

I made new friends as a result of the twice weekly soup	☐	☐	☐	☐	☐	☐
The twice weekly soup helped me feel more part of my community	☐	☐	☐	☐	☐	☐
I feel the twice weekly soup was an important part of the ELLY project	☐	☐	☐	☐	☐	☐

If you disagreed with any of the statements above, we would be interested to hear why

_____

_____

_____

If you answered not relevant to any of the questions above – we would be interested to hear why it was not relevant

_____

_____

_____

In summary, how best would you describe your experience of the ELLY soup twice weekly

_____

_____

_____

Is there anything else about the ELLY twice weekly soup you would like to share with us? (e.g. if you answered strongly disagree to any of the above you might like to share alternatives or suggestions for improvements)

_____

_____

_____

_____

_____

ELLY project overall

What aspects of the project do think were particularly successful?

_____

_____

_____

_____

What aspects of the project were challenging or unsuccessful?

_____

_____

_____

_____

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

What would you suggest could improve the project for future participants?

_____
_____
_____
_____

Thinking about the goals you set, what are your thoughts on where you are with these now?

_____
_____
_____
_____

In summary, how best would you describe your experience of taking part in ELLY?

_____
_____
_____
_____

Is there anything else about ELLY you would like to share with us?

_____
_____
_____
_____
_____

Thank you for your time completing this questionnaire.

Your feedback is really important to us and will help shape future projects.

ELLY (Enjoy Life LocallY) Project

12-week

Interview topic guide – Participants

1. Introduction

Introduce yourself

Thank participant for agreeing to chat about their experiences of being involved in the ELLY project.

Really value what you have to say, as it will help us design future projects and improve experiences of participants.

Information is confidential so anything you say will not be traced back to you. We are asking consent to record our discussion, to help us to accurately remember what you tell us.

Please speak about your own views throughout, rather than what other people might think.

If you are happy to go ahead, please review and sign the consent form. Are you happy to go ahead with the interview? Great, Let's get started.

Participant, engagement and goal setting: I'd like to hear your ELLY story. Thinking back over the 12 weeks you've been involved in ELLY, tell me about what it's been like (*Prompts: soup involvement, activities attended).*

Prompts if not mentioned

- How did you hear about the Elly project? Prompt: *Posters, WOM, social media etc.*
- What motivated you to participate? *Prompt: incentives, improve wellbeing, friends/ family, other?*
- What did you expect from being involved in the ELLY project?
- Tell me about how you decided on what goals you might set for the ELLY project.
- Tell me how you found the process of setting goals for yourself.
- How did you think ELLY might help you achieve the goals you set?

Soup cafes: Tell me about your experiences of the twice weekly ELLY soup.

Prompts if not mentioned

- How did going along / collecting soup / soup delivery make you feel?
- Thinking about the goals that you set at the start of the project (personal goal, weight goal and wellbeing goal) what are your thoughts on the role of ELLY soup in helping you achieve your goals? (prompt: why do you think this?)
- Are there things that made it easy for you to participate?
- Are there things that would make the soup cafes better?
- Overall, what did you think of this part of the ELLY project?

Local activities: Tell me about your experiences of attending local activities during ELLY.

Prompts if not already mentioned

- How do the activities you attended during the ELLY project compare to things that you used to do before you started the project?
- What activities did you enjoy the most?
- Thinking about the goals that you set at the start of the project (personal goal, weight goal and wellbeing goal) what are your thoughts on the role of the activities in helping you achieve your goals? (prompt: why do you think this?)
- Tell me about any unexpected things that you got out of attending the activities, for example, new friends, getting out more, learning new skills?
- Are there things that made it easy for you to participate in activities?
- Are there things that would make the activities better?
- Overall, what did you think of this part of the ELLY project?

ELLY Loyalty card: How did you feel about the ELLY Loyalty card and reward system?

Prompts if not mentioned

- How did it impact on what you did each week during the ELLY project?
- How did you feel getting the loyalty card stamped at activities?
- What did you think of being rewarded for attending at least one activity each week?
- How did the reward impact on what you did each week during the ELLY project?
- What are your thoughts on the amount of reward you could receive?
- What are your thoughts on ease of use of the Loyalty card?
- What things about the ELLY loyalty card did you like?
- Are there things that would make the ELLY loyalty card work better?
- Overall, what did you think of this part of the ELLY project?

Reflecting on ELLY project and future plans

Now you've completed the ELLY project, what are your overall thoughts on your experience?

1. If you were telling a neighbour/friend/family member about ELLY, what would you say to them?
2. Would you take part in ELLY again? (*prompt: explain why you gave the answer you did*)

Future of ELLY

1. What parts of the project do you think are workable in the long term?
2. Are there any factors that might make Elly soup and support difficult to keep going over time?
3. Have you any thoughts on ways in which ELLY might be funded in the future?
4. What are your thoughts on how much people might be willing to volunteer to support the ELLY project (*prompt: help out in soup café, put on activities*)
5. Based on your experiences, which aspects of the work would you like to see continuing/not continuing in future

Lastly, is there anything else we've not touched on that you'd like to share about your experience of the ELLY project?

(close interview, and thank participant for their time)

BMJ Open

Feasibility study of a co-designed, evidence-informed and community-based incentive intervention to promote healthy weight and wellbeing in disadvantaged communities in Scotland

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TITLE: Feasibility study of a co-designed, evidence-informed and community-based incentive intervention to promote healthy weight and wellbeing in disadvantaged communities in Scotland

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ABSTRACT

Objectives: To feasibility test a novel community-based financial incentive scheme to promote healthy weight and wellbeing.

Design: Single arm, prospective feasibility study using mixed methods.

Setting: Two communities in Scotland experiencing high levels of disadvantage according to the Scottish Index for Multiple Deprivation (SIMD). Community C1 is in a large rural area with small town centre

(population ~1.5K), community C2 is a small and urban community (population ~9K), enabling contextual comparison.

Participants: Eligible adult (18 years or over) community members recruited through community outreach.

Intervention: The Enjoy Life LocallY (ELLY) intervention comprised free soup twice weekly (café/delivery/pickup); loyalty card stamped for engagement in community assets (such as local activities, groups and clubs) exchanged for a £25 shopping card when a participant attends a minimum of 9 assets over 12 weeks; goal-setting; information resources; self-monitoring of weight and wellbeing.

Outcomes: Primary outcomes - feasibility of recruitment, retention and engagement. Acceptability of intervention components, assessed by self-reported questionnaires and interviews. Secondary outcomes – feasibility of collecting outcomes prioritised by communities for a future trial: health-related quality-of-life (EQ-5D-5L), mental wellbeing (WEMWBS), connectedness (Social Connectedness Scale) and weight-related measures (weight, Body Mass Index (BMI)).

Results: Over 3 months, 75 community citizens (35 citizens in C1, 40 citizens in C2) were recruited (125% of target recruitment of 60 participants (117% of 30 participants C1 target, 133% of 30 participants C2 target), 84% female, baseline weight mean (SD)= 84.8kg (20) and BMI mean (SD)=31.9kg/m^2 (7.3), 65/75 (87%) living in disadvantaged areas (SIMD quintiles 1-3)). Retention at 12 weeks, defined by completion of outcome measures at 12 weeks, was 65 (87%). Participation in at least one asset for a minimum of 9 out of 12 weeks of the intervention was achieved by 55 (73%). All intervention components were acceptable, with the loyalty card being the most popular and the soup cafés the least popular. The mean average cost of the soup ingredients, per participant, over the 12 weeks was £12.02. Outcome data showed a small decrease in weight and body mass index and a small increase in health-related quality of life, mental wellbeing and social connectedness.

Conclusions: The ELLY study recruited and retained participants from two disadvantaged communities in Scotland. The study was acceptable to participants and feasible to deliver. A full trial is warranted to determine effectiveness and cost-effectiveness, with consideration of scalability.

Keywords

Community, incentive, intervention, healthy weight, wellbeing

Article Summary

Strengths and limitations of this study

- The ELLY intervention was co-designed with community citizens using a community-based participatory research approach.
- The study recruited across two disadvantaged communities to an asset-based, incentive, community intervention.
- The feasibility study was not powered to detect effects on weight-related or wellbeing outcomes and change in outcome measures should be interpreted with caution.
- Effectiveness of intervention components will need to be established in a future, larger-scale trial.

INTRODUCTION

People living in disadvantaged areas have poorer health and are dying younger through increased risk of obesity-related conditions including diabetes, heart disease, some cancers, and infections. [1] The personal, NHS resource and societal costs of obesity are considerable. [2] Multiple behaviours are obesity risk factors (e.g., over consuming high fat, high sugar food and drinks, physical inactivity) and these behaviours cluster within disadvantaged families and communities with adverse consequences throughout the life-course. [3]

Solutions to support people living well can benefit from coproduction and involving people with lived experience, promoting equity and opportunity. There is a strong rationale for "putting the public back into public health" through community-based action research working 'with' rather than imposing ideas 'on' communities. [4]

Social prescribing and community assets approach

The accessibility and sustainability potential of the social prescribing approach, where citizens are connected to community resources to support their health and wellbeing needs, is an important consideration for community-based interventions. [5] Systematic review evidence on the use of social prescribing to supporting disadvantaged communities has shown the approach to be effective in providing vulnerable groups with a means of bridging the gap between psychosocial support and medical services. [5 6] The approach allows primary care to link/signpost patients to community assets/services, and is effective in reducing non-communicable diseases (e.g. anxiety and depression[7 8] as well as reducing pressure on healthcare services.[9] In addition, evidence is emerging on how building

social resilience and cohesion within disadvantaged communities has an impact on health outcomes. [10] Research that seeks to better understand the links between 'social and community networks' without a primary care gatekeeping role is important. In particular, community asset-based approaches to health improvement which are co-produced locally to be relevant to local circumstance and culture and where behaviours are studied in context show promise. [11 12] Although there is consensus that such asset-based approaches show potential in supporting community health, the evidence-base is limited. [13-15] Community engagement can facilitate positive change on healthy behaviours and consequences, however, systematic review evidence shows that community interventions can generate health inequalities, as they engage more advantaged time rich and organised people. [16 17]

Financial incentive interventions

Financial incentive interventions, when combined with effective behaviour change and engagement techniques, have the potential to prevent non-communicable diseases [18-20], and engage people living in disadvantaged areas. [21] Financial incentives offered to individuals show evidence of effectiveness for weight loss, however there is a risk of weight regain once the incentive intervention is withdrawn. [22] Evidence is limited for financial incentives delivered at a community level. Neighbourhood interventions to promote healthy weight are recommended in a recent UK biobank study, particularly for people at higher genetic risk of obesity. [23] By targeting communities rather than individuals, there are opportunities for minimising weight stigma, which a meta-analysis of systematic reviews found has adverse psychological consequences, such as depression and anxiety. [24]

Research Aims

The aim of the study was to feasibility test a novel evidence-informed and community-based financial incentive intervention to promote healthy weight and wellbeing. Specifically, we assessed (i) the feasibility of recruiting participants from community venues and pop-up café events, (ii) retention and engagement rates, acceptability of the intervention components, feasibility of delivery, fidelity and unintended consequences, (iii) the feasibility of collecting outcome measures prioritised by communities: weight, wellbeing, health-related quality-of-life, social connectedness and (iv) effects on weight-related outcomes and wellbeing and progression criteria for a future large-scale evaluation.

METHODS

The Consolidated Standards of Reporting Trials (CONSORT) extension for reporting feasibility and pilot trials was followed (see supplementary file A). [25]

Study Design

The study design was a single arm, prospective intervention feasibility study, using mixed methods to collect descriptive quantitative and qualitative data from community participants.

Public and Patient Involvement

Public and patient involvement (PPI) was continuous and responsive, as described by Gamble et al [26]. Community members participated in the project across four levels: as grant holder co-applicants, members of Community Action Research Participation (CARP) groups, and as volunteers. Community co-investigators were instrumental in promoting the study, assisting with recruitment, and co-facilitating community engagement events. Each CARP group (one per community) was responsible for operationalising the intervention and linking citizens, partners, stakeholders, and researchers. A standing agenda at CARP meetings was: what is known; what are the uncertainties relating to the aims and objectives; what actions can be taken to resolve the uncertainties; and actions taken. Figure 1 presents PPI roles and responsibilities, and PPI involvement described using the GRIPP2 reporting guidance. [27]

<insert figure 1 here>

Setting

The academic team was approached by NHS Forth Valley Public Health Nutrition Team (FVPHNT) as healthy weight was a concern raised by citizens through the Local Authority Community Planning Process across disadvantaged communities in the region. Two disadvantaged communities (SIMD 1-3 (quintile) in Forth Valley were chosen that were disparate in nature but felt representative of communities across the region and more widely, across Scotland. Researchers had no engagement with either community prior to the study commencing.

Housing in both communities predominantly comprised of public (social) housing. Assets in both communities are local activities, groups and clubs focusing on arts and crafts, physical activity, nutrition, and socialising. Community (C1) is a small rural town, with population of approximately 8000 people. SIMD levels range from 1-3 (quintile) in the target area, with more affluent areas (SIMD 4-5) on the periphery. The community partners operated on two separate sides of the town and had no prior interactions. Local assets are based predominately at community hubs, the local library, and church. The largest supermarket is a 10-minute walk from the town centre with the alternative being local shops. Community 2 (C2) is a small and urban community, with population of approximately 9000 people. SIMD

levels range from 1-2 (quintile). Local assets are mainly based at the community centre operated by our community partner. A retail park (and the closest supermarket) is a 20-minute walk away with a small grocery shop and petrol station located in the target area.

Eligibility criteria

Inclusion criteria: Any adult (aged 18 or over) living within 20-minute walking distance from main community assets were eligible to attend. Exclusion criteria: Inability to understand project information, the commitment required and consent; not planning to reside in community for the duration of the intervention period.

Participant recruitment

A wide range of recruitment methods were employed involving community groups, local business, pop-up cafes and school flyers. Equality of inclusion to ensure representativeness from all in the communities that might benefit from participating in the ELLY intervention was promoted through social media publicity, local adverts and door-to-door flyers. Community champions were identified to support recruitment. Recruitment took place June 2023 to August 2023. A weekly review of recruitment numbers was conducted and feedback from community citizens on methods used was acted upon with new strategies (e.g. researcher attending community groups, pop-ups at strategic locations) introduced as necessary. Community citizens were invited to express interest in study participation at events when an ELLY researcher was in attendance, at pop-up cafes or by contacting the research team via email/phone/text/ELLY website.

Baseline appointment

Having expressed interest, participants received a participant information sheet and were invited to attend a baseline appointment with a researcher at a date/time and location of their choice (e.g. home, community centre, library). At the baseline appointment participants were assessed for eligibility, provided written consent to take part, self-completed baseline questionnaires, height and weight measurements were taken (by researcher) and setting of weight, wellbeing and/or personal goals. The topic of goal setting (rationale and how it can be helpful) had already been introduced to participants in the ELLY Participant Information Sheet. In the baseline appointment, the researcher and participant engaged in discussion around potential goals the participant may wish to set. The mean average time taken for baseline appointments was 45 minutes, with questionnaire completion taking an average 20 minutes, and goal setting discussions, taking an average of 10 minutes.

Intervention Components

The ELLY study adopted a community-based participatory research approach [28], where community members were active and engaged at all stages of the research process. It was co-designed by two disadvantaged communities for use in disadvantaged communities. Development of the ELLY intervention was informed by guidance on development and evaluation of complex interventions (MRC/UKRI Guidance on complex interventions) [29]. The framework by Adams et al (2014) [30] was used to identify all domains of the incentive scheme for which choices needed to be made. The behavioural theory of ELLY was informed by the COM-B model [31]. The intervention is described using the Template for Intervention Description and Replication (TIDieR) Checklist[32] a summary of which is provided in Figure 2.

<insert figure 2 here>

The ELLY intervention is a place-based, asset-based incentive system. Community consultation indicated that an intervention focusing solely on weight was felt stigmatising and not inclusive of all community citizens. Citizens expressed a desire for an intervention to support them as a "whole person" (recognising mental, physical, social, spiritual aspects), rather than a focus on one component alone. The resulting intervention adopts a holistic approach to supporting healthy weight and wellbeing, acting as a connector to existing assets and promoting autonomy. The intervention is not prescriptive in which ELLY assets participants should engage in, or exclusive in incorporating only assets seen to be directly supportive of healthy weight and/or wellbeing (for example, a walking club). Assets such as a writing group or craft club (two ELLY assets in C2), which may have indirect benefits to healthy weight and wellbeing, such as providing friendship, reducing social isolation and providing an opportunity for physical activity, were included.

The intervention places significant emphasis on social cohesion, connectedness and relationships and the role these play on supporting individuals to live well. The ELLY intervention builds on learning from previous studies the authors have undertaken, particularly around financial incentive design, preparatory behaviours, successful community recruitment and signposting to support resources.[33 34] The intervention includes elements to motivate preparatory behaviours towards weight-related and wellbeing outcomes, promote commitment, and has embedded tailored evidence-based behaviour change techniques (goal setting, social support, demonstration of behaviour, adding objects to/restructuring the environment). An ELLY theory of change model [35] was developed describing

intervention components and function, behaviour change taxonomy elements addressed, and perceived outcomes (immediate, intermediate and long-term).[31] (see Supplementary file B for ELLY theory of change model).

ELLY is a 12-week intervention comprising of: (i) provision of free soup twice weekly (café/delivery to home/pickup) for all participants; (ii) a loyalty card stamped for engagement in local assets to encourage preparatory behaviours towards key outcomes (weight-related/wellbeing/social connectedness). Assets include local activities, groups and clubs in the community that agreed to be part of the ELLY intervention. Assets are broad and inclusive (informed by community consultation) comprising of arts and crafts, physical activity, nutrition-related, and social groups. Assets were usually free to attend, with only 1/22 activities and 6/24 charging a small fee in communities C1 and C2 respectively. (see Supplementary file C for a full list of assets eligible for the loyalty card incentive in each community). Participants who achieved 9 stamps on their loyalty card (equating to attending at least 1 activity, per week, over 9 out of 12 weeks of the ELLY intervention) were rewarded with a £25 shopping card at 12-weeks; (iii) the option to set goals. Goal setting options were discussed at the baseline appointment, where participants were informed about the optional aspect of goal setting for 'living well'. Participants were given the opportunity to set (outcome or behaviour) goals under the topics of personal, weight and wellbeing. Goal setting was participant driven however the researcher encouraged generation of SMART (Specific, Measurable, Achievable, Relevant, and Time-bound) goals to achieve over the 12 weeks. No specific action plans were developed however the researcher signposted the participants to the other intervention components and community assets. Goals set were reviewed at 12-week appointments; (iv) website/written materials with access to local asset/activity '*What's on'* information and optional self-monitoring of weight and wellbeing via the website.

Outcomes

Table 1 summarises the outcomes, measures/approaches, data source and analyses corresponding to the study objectives.

Target	Objective	Measure/approaches	Data source	Analysis
Recruitment	Feasibility of recruiting 60 participants (30 per community) within 3 months	Recruitment rate Recruitment activities Recruitment timeline Participant interviews	Recruitment information Interview transcripts Field notes	Descriptive statistics Thematic qualitative analysis

		Researchers' field notes		
Retention	Attendance for 12w outcome measures Number of participants receiving voucher for attendance	Questionnaires Weight measurements Number of withdrawals, 12w data collection	ELLY questionnaires: The Warwick-Edinburgh Mental Wellbeing Scales (WEMWBS) [34], EQ-5D-5L [35], the Social Connectedness Scale – Revised [36], Social connectedness) and ELLY specific questionnaires Diary of communication Height/weight measurements	Descriptive statistics
Intervention	Acceptability and feasibility of intervention components	Questionnaires Interviews Access to intervention components	ELLY questionnaires Interview transcripts Field notes Loyalty card stamps	Descriptive statistics Thematic qualitative analysis
Fidelity and un-intended consequences	Delivery of the intervention components or study procedures as intended. Unintended consequences	Interviews Questionnaires Field notes	ELLY questionnaires Interview transcripts Field notes Diary of communication	Descriptive statistics Thematic qualitative analysis
Outcome measures	Feasibility of collection	Questionnaires Weight measures	Validated (EQ-5D-5L, WEMWBS, Social connectedness) Weight measures	Descriptive statistics
Effect observed	Change in wellbeing, weight-related outcomes, engagement at 12wks	Questionnaires Weight measures Interviews	Validated (EQ-5D-5L, WEMWBS, Social connectedness) and ELLY specific questionnaires Interview transcripts Weight measures Goal setting data	Descriptive statistics

Table 1. Study outcomes, measures/approaches, data source and analyses corresponding to the study objectives

An independent study steering group, comprised of both academic experts and lay members advised whether the following pre-specified progression criteria were sufficiently met to proceed to a full trial:

1. Acceptability of the intervention and individual components by the majority of participants
2. Feasibility of recruiting at least 30 citizens in each community in 3 months
3. Twelve-week outcomes collected from 75% of participants based on Macaulay et al [36]
4. Evidence of indicative effects on outcomes collected

Outcome assessment

Outcomes were assessed at baseline and 12-weeks (at end of intervention). Individual appointments were conducted by a researcher at community centres, the local college (C2), and participants' homes, depending on participant preference. Travel expenses were not provided.

Height was measured at baseline using a portable stadiometer to the nearest 0.1cm. Weight was measured at baseline and 12-weeks. Prior to weight measurement participants removed shoes and bulky clothing. Weight was recorded using portable calibrated scales to the nearest 0.01kg. The Scottish health survey [37] was used to provide Body Mass Index (BMI) categories. Information on adverse events was recorded at assessments or at the time of reporting if during the 12-week intervention. Adverse events related to participants becoming unwell or distressed, or disclosing information relating to a health condition during the study.

The self-reported questionnaires used for collection of outcome data were informed by community consultation and the ELLY intervention theory of change model. Validated questionnaires were used to capture wellbeing (The Warwick-Edinburgh Mental Wellbeing Scales (WEMWBS)) [38] and quality of life (EQ-5D-5L) [39]. Existing and adapted questionnaires were used to capture responses relating to social connectedness [40], socio-demographics, comorbidities, disabilities [41], lifestyle choices [42-45], and interaction with NHS services. [37] Questionnaires were completed during the appointment with a researcher (baseline) and at home online prior to/during appointments (12-weeks).

Participants' engagement with and experience of the ELLY intervention components was assessed using an ELLY 12-week questionnaire (see Supplementary file D. Specifically:

- Engagement with ELLY activities was assessed by asking participants to '*Please indicate (with a tick) how often you attend the following types of activities in the last 12 weeks?*' for each category of '*Arts & crafts activity*', '*Physical Activity group*', '*Nutrition group*', *Social related group*' and '*Other (please specify)*'. Response options were: '*0-1 over 12 weeks'*, '*2-4 over 12 weeks'*, '*3-5 over 12 weeks'* and '*6+ over 12 weeks '*.
- Engagement with the ELLY soup provision was assessed by asking participants '*If you took up the offer of soup twice a week, how did you get your soup? (please tick all that apply)'* with responses captured using the options of *'Sit in at café, twice weekly', 'Collect soup twice weekly from café', 'Collect 2 portions of soup once a week from café', 'Delivered to house', 'Other (please state)'.*
- Acceptability of ELLY activities, loyalty card and reward, and soup provision was assessed by asking participants to *'Please tick the box that best describes your experience of ['attending local activities'/'loyalty card and reward'/'twice weekly free soup'] as part of the ELLY project*' followed by a series of statements, with responses captures using a Likert scale ranging from '*Strongly disagree*' to '*Strongly agree'* and '*Not relevant*' provided as an option if participants did not feel the question

was reflective of their experience. Free text questions were also used to provide supplementary detail. General reflections on the ELLY intervention as a whole were captured using six open-ended questions at the end of the questionnaire.

Goal setting was conducted at baseline and goals reviewed at 12-week appointments. Goal setting and review was conducted using face-to-face interviews with participants. Personal goals were unrestricted and chosen by the participant. Weight goals allowed participants to 'decrease'/'stay same'/'increase' weight. Wellbeing goals were adapted from the EQ-5D descriptive system and VAS score.

At the 12-week appointment, all participants providing outcome data including weight (measured by a researcher) received a £25 shopping card as a thank you for their time. The website automatically recorded any self-reported weight entered by participants.

Qualitative interviews

Participants were approached to take part in a semi-structured interview at 12-weeks to gather qualitative data on their experiences of the ELLY study and related impacts on their health and/or wellbeing. Purposive sampling from both communities was informed by baseline participant characteristics and informal feedback from intervention volunteers relating to diversity of participants' demographics, engagement and perspectives. Before commencing an interview, participants were provided with an information sheet and written consent form. Participants were also assured of their anonymity and right to withdraw at any point of the interview. Face-to-face interviews were conducted with participants at 12-weeks. All interviews followed a pre-defined topic guide (see Supplementary file E), lasted approximately 30 minutes and were audio recorded using an encrypted Dictaphone, then transferred to a password encrypted computer folder. Researcher field notes were taken at all interviews and used to inform the qualitative analysis.

Sample size

The study aimed to recruit 60 participants (30 at each community) to be sufficient in testing feasibility based on an estimated proportion of 5% for unforeseen problems (assuming a 95% confidence level).[46]

Analysis

Quantitative analysis

Data from validated outcome questionnaires was analysed according to the guidelines provided by each measure. Participant characteristics and outcomes were summarised using descriptive statistics: mean

(standard deviation) for continuous variables and number (percent) for categorical variables. Likert scale variables were treated as continuous measures. The frequency, percentages and 95% confidence intervals of observed levels are reported for all categorical variables. The proportion of individuals who expressed interest in the study, those recruited, retained, and withdrawn at each stage, in each community was determined. Confidence intervals for proportions were calculated by the study statistician and derived using the normal approximation and for means using the standard normal distribution. Missing data was handled by following the appropriate guidelines for each scale, with the exception of the Social Connectedness Scale – Revised, where in the absence of guidelines, we applied an adaption of the WEMWBS guidelines as used by Phillips et al 2019 [47]. For weight-related outcomes observed data only was included.

Qualitative analysis

NVivo 12 software was used to support analysis of the qualitative data from interviews, free-text questionnaire responses and researcher field notes. Descriptive coding techniques were used to undertake initial thematic categorising of the data. [48] A coding frame was developed independently by two researchers reading a diverse sample of five interviews, followed by team discussions to finalise the frame and identify key themes. Each theme was then explored in further detail and broken down into sub-themes, with duplicate codes being merged. Analysis was performed by one researcher (DH), with 10% of data being cross-checked by a second researcher (RA), and regular review of coding and analysis by the PI (JC). Researcher field notes contributed to interview data interpretation. Emergent themes were discussed at weekly team meetings and at monthly CARP meetings. DH had not been involved in any other aspect of the research and her involvement in the qualitative coding added to the rigour and impartiality of the analysis.

Ethical approval was granted from Stirling University Ethics Committee (NHS, Invasive or Clinical Research (NICR), project 7430, 251022) and Glasgow Caledonian University Ethics Committee (Nursing and Community Health Research Ethics Committee (REC), 050623).

RESULTS

Figure 3 depicts participant flow through each stage of the ELLY intervention.

<insert figure 3 here>

Recruitment and retention

Prior to the recruitment period, the research team held pop-up cafés in the communities and supported local events/activities with a view to increasing ELLY visibility between January and June 2023, becoming accepted faces in the community and promoting the research. Expressions of interest were made by 117 community citizens during this period. Recruitment was conducted over three months (June - August 2023), with forty-three recruitment events/visits/pop-ups being held. Target recruitment of 30 per community was exceeded (C1 – 35 participants, C2 – 40 participants). The number of people recruited each week was on average three per community, with the majority (C1:17/35 (49%), C2:28/40 (70%)) of participants recruited from existing community groups/activities they attended. Recruitment via community partners and snowball recruitment were effective strategies in community C1 (9/35 (26%) and 5/35 (14%) respectively), and pop-up cafes/attending community events (e.g. gala day) an effective strategy in C2 (8/40 (20%)). Being weighed at baseline and 12-weeks was an initial barrier to one potential recruit. The importance of this outcome measure was discussed and reassurance around anonymity and use of data given, after which the individual was successfully recruited to the study.

Baseline appointments were attended by 78 citizens and 75 met required eligibility criteria. Those not eligible lived outside the target area (n=2) or planned to move away during the intervention (n=1). Questionnaire completion took time, and many participants expressed a preference for an online version and/or being able to complete the questionnaire at home, prior to the appointment. Twenty participants agreed to be interviewed at 12-weeks.

Participation in at least one activity for a minimum of 9/12 weeks (assessed by 9 stamps on the 12 stamp loyalty card) and receipt of a £25 shopping card was achieved by 55/75 (73%) of study participants. Retention at 12 weeks, defined by completion of the 12 week outcome measures assessment, was completed by 65/75 participants (87%) with minimal difference in retention between communities (C1 30/35 (86%) retention, C2 35/40 (88%) retention). At 12-weeks, nine participants were lost to follow up due to not being contactable and 1 participant withdrew from the study, as they did not wish to complete outcome measures. The proportion of drop-outs living in SIMD 1-3 was 8/10 (80%) which was reflective of the proportion of overall participants living in these SIMD categories. Of those contacted for interview at 12-weeks (10 per community), all agreed to be interviewed.

Baseline characteristics

	C1 n=35	C2 n=40	Total n=75
Age (years), mean (SD)	56.5 (18)	50.4 (15)	53.3 (17)

Gender, n (%)			
Female	29 (83)	34 (85)	63 (84)
Male	6 (17)	6 (15)	12 (16)
Height (cm), mean (SD)	162.1 (9)	163.9 (7)	163 (8)
Weight (kg), mean (SD)	83.9 (17)	85.6 (23)	84.8 (20)
BMI (kg/m2), mean (SD)	32.1 (7)	31.7 (8)	31.9 (7)
BMI (kg/m2), categories, n (%)			
Healthy weight (18.5 <= Body Mass Index 18.5 <=24.9)	5 (14)	7 (18)	12 (16)
Overweight (25.0 <= Body Mass Index <= 29.0)	10 (29)	6 (15)	16 (21)
Obesity/Morbid Obesity (30.0 <= Body Mass Index)	20 (57)	26 (65)	46 (66)
Underweight (Body Mass Index < 18.5)	0 (0)	1 (3)	1 (1)
SIMD deprivation category, n (%)			
SIMD 1 (most disadvantaged)	11 (31)	7 (18)	18 (24)
SIMD 2	10 (29)	20 (50)	30 (40)
SIMD 3	10 (29)	7 (18)	17 (23)
SIMD 4/5 (least disadvantaged)	4 (11)	6 (15)	10 (13)
Marital status, n (%)			
Married/civil partnership/cohabiting	15 (43)	17 (43)	32 (43)
Separated/Widowed/Divorced	9 (26)	13 (33)	22(29)
Single (never married and never registered in a civil partnership)	10 (29)	8 (20)	18 (24)
Prefer not to say	1 (3)	2 (5)	3 (4)
Comorbidities, n (%)			
A stroke (including mini-stroke)	2 (6)	3 (8)	5 (7)
High blood pressure	12 (34)	10 (25)	22 (29)
A heart condition such as angina or atrial fibrillation	8 (23)	6 (15)	14 (19)
Diabetes	11 (31)	3 (8)	14 (19)
Cancer	3 (9)	4 (10)	7 (9)
Arthritis	9 (26)	12 (30)	21 (28)
A mental health condition	14 (40)	18 (45)	32 (43)
None of the above	10 (29)	14 (35)	24 (32)
Report a single comorbidity	9 (26)	12 (30)	21 (28)
Report multiple long term conditions	16 (46)	14 (35)	30 (40)
Ethnic group, n (%)			
Asian or Asian British	2 (6)	7 (18)	9 (12)
Black, African, Caribbean or Black British	0 (0)	1 (3)	1 (1)
Mixed or multiple ethnic groups	0 (0)	1 (3)	1 (1)
Other Ethnic Group	0 (0)	2 (5)	2 (3)
White	33 (94)	29 (73)	62 (83)
Education, n (%)			
At degree level or above	2 (6)	10 (25)	12 (16)
Another kind of qualification	21 (60)	23 (58)	44 (59))
Prefer not to say	2 (6)	1 (3)	3 (4)
No formal qualifications	6 (17)	3 (8)	9 (12)
Not reported	4 (11)	3 (8)	7 (10)
Household status			

Household size, mean (SD)	2.4 (1)	2.8 (2)	2.6 (2)
Living alone, n (%)	10 (29)	13 (33)	23 (31)
Working status, n (%)			
Have paid job - Full time (30+ hours per week)	2 (6)	4 (10)	6 (8)
Have paid job - Part time (29 hours or less)	1 (3)	7 (18)	8 (11)
Unemployed and seeking work	2 (6)	4 (10)	6 (8)
Retired	16 (46)	9 (23)	25 (33)
Full time student	0 (0)	1 (3)	1 (1)
Not in paid work due to long term illness/disability/other reason	9 (26)	11 (28)	20(27)
Not reported/Other/Prefer not to say	5 (14)	4 (10)	9 (12)

Table 2 Participant Baseline Characteristics

Table 2 reports the baseline characteristics of participants. Mean average age of participants was 53.3 (SD=16.7), with mean average weight of 84.8kg (SD=20) and mean average BMI of 31.9kg/m^2 (SD=7.3). 63/75 (84%) of participants were female and 65 (87%) lived in disadvantaged areas (as defined by SIMD quintiles 1-3). Marital status was mixed, with married/civil partnership/cohabiting (32 participants (43%)) representing the largest classification group. Multiple long term conditions were reported by 30 (40%) participants, 62 (83%) were ethnic group white, 12 (16%) were educated to degree level with 44 (59%) having some other form of qualification. The proportion of participants living along was 23 (31%) and overall average household size was 2.6. Working status was mixed with retirees (25 (33%)) followed by those not in paid working due to long term illness/disability/other reason (20 (27%)) representing the largest classification groups.

Acceptability of intervention components

For each intervention component, the survey responses are presented in Table 3 followed by qualitative perspectives from 12-week participant interviews. Quotes have been chosen to represent the diversity of responses relating to the ELLY study in terms of engagement, acceptability, and demographics of participants.

ELLY components	**C1 n=35**	**C2 n=40**	**Total n=75 [95% CI]**
Soup n (%)			
Engaged in twice weekly soup (sit in/take away/delivery)	23 (66)	26 (65)	49 (65) [54, 76]
(Strongly agree/agree) getting soup was very convenient	16 (46)	17 (43)	33 (44) [33, 56]
(Strongly agree/agree) I made new friends as a result of ELLY soup	19 (54)	17 (43)	36 (48) [63, 60]
(Strongly agree/agree) ELLY soup helped me feel more part of my community	17 (49)	18 (45)	35 (47) [36, 59]
(Strongly agree/agree) ELLY soup kept me motivated	16 (46)	13 (33)	29 (39) [28, 51]

(Strongly agree/agree) ELLY soup was an important part of ELLY		18 (51)	17 (43)	35 (47) [36, 59]
(Strongly agree/agree) soup component helped with…	weight goal	7 (20)	8 (20)	15 (20) [12, 31]
	wellbeing goal	13 (37)	14 (35)	27 (36) [25, 48]
	personal goal	13 (37)	15 (38)	28 (37) [26, 49]
Community assets n (%)				
Participants engaged in at least 1 activity per week in at least 9 of the 12-week intervention		25 (71)	30 (75)	55 (73) [62, 83]
Participant engaged in more activities during the 12-week intervention than they did before		24 (69)	18 (45)	52 (69) [58, 79]
Participants attended new activities during the project		23 (66)	19 (48)	42 (56) [44, 67]
(Strongly agree/agree) I made new friends as a result of the activities		21 (60)	25 (63)	46 (61) [49, 72]
(Strongly agree/agree) the activities helped me feel more part of my community		24 (69)	25 (63)	49 (65) [53, 76]
(Strongly agree/agree) the activities kept me motivated		24 (69)	27 (68)	51 (68) [56, 78]
(Strongly agree/agree) the activities were an important part of ELLY				
(Strongly agree / agree) activities component helped with …	weight goal	10 (29)	10 (25)	20 (27) [17, 38]
	wellbeing goal	17 (49)	18 (45)	35 (47) [36, 59]
	personal goal	20 (57)	19 (48)	39 (52) [40, 64]
Loyalty card n (%)				
Participants who engaged with the loyalty card scheme achieving at least 9/12 weeks of stamps		25 (71)	30 (75)	55 (73) [62, 83]
(Strongly agree/agree) the reward was an appropriate amount		24 (69)	28 (70)	52 (69) [58, 79]
(Strongly agree/agree) the timing of the reward was appropriate (end of 12-weeks)		23 (66)	30 (60)	53 (71) [59, 81]
(Strongly agree/agree) I made new friends as a result of the loyalty card		20 (57)	25 (63)	45 (60) [48, 71]
(Strongly agree/agree) the loyalty card helped me feel more part of my community		20 (57)	21 (53)	41 (55) [43, 66]
(Strongly agree/agree) the loyalty card kept me motivated		20 (57)	24 (60)	44 (59) [47, 70]
(Strongly agree/agree) the loyalty card was an important part of ELLY		22 (63)	27 (68)	49 (65) [53, 76]
(Strongly agree / agree) loyalty card component helped with …	weight goal	11 (31)	12 (30)	23 (31) [21, 42]
	wellbeing goal	19 (54)	21 (53)	40 (53) [41, 65]
	personal goal	21 (60)	22 (55)	43 (57) [45, 69]
Goal setting n (%)				
Weight goal set		28 (80)	36 (90)	64 (85) [75, 93]
Wellbeing goal set		30 (86)	36 (90)	66 (88) [78, 94]
Personal goal set		29 (83)	36 (90)	65 (87) [77, 93]
Information resources, self-monitoring of weight and wellbeing n (%)				
Engagement with self-reporting of weight via ELLY website				0 (0)

Table 3 Overall acceptability of ELLY components

Soup Provision

Despite good engagement in ELLY soup (49/75 (65%)), participant questionnaires provided no consensus on its popularity. A significant proportion of participants indicated that they strongly agreed/agreed that 'getting the soup was very convenient' (33 (44%)), that 'I made new friends as a result of ELLY soup' (36, 48%)) and that the soup component 'helped me feel more part of my community' (35 (46%)). These findings were consistent across both communities. Overall, £877.44 was spent on soup ingredients for 73 participants over 12 weeks (mean average cost of soup ingredients over the 12 weeks: £12.02 per participant).

Participant interviews showed disparate views on ELLY soup however, the majority reported they found the soup element to be positive and/or beneficial to themselves and others, including being easy and convenient to access. Whilst it was felt that ELLY soup might support participants with dietary goals and an opportunity for health eating, only one participant (from C1) reported the soup helped them achieve their goal of weight loss and healthy eating. Food insecurity was an important element that ELLY soup addressed:

> *"I also got to eat something rather than just skipping meals. This is another thing, because I skip meals and things like that" [C2, P34]*

ELLY soup was also recognised as an opportunity for social interaction and connection with others:

> *"...the soup helped me because I was coming in here to pick it up and it was a direct link with people because the Covid [pandemic]...it was a long time...it made me, I won't say nervous but unsure of mixing with people again" [C2, P19]*

Interviewees from both communities reported similar barriers to accessing the soup, most notably not liking the soup or there being a lack of variety of other foods available. Interviewees from C1 stated that they did not like the soup element due to the table set up at the venue, which limited opportunities for socialising with others and meeting new people. One interviewee from C2 felt the soup option was not inclusive of other cultures from across the community. Others reported that they could not attend the soup due to the time and dates it operated.

Community assets

Community assets signposted to by ELLY, where participants could get their ELLY loyalty card stamped were well engaged with (55, 73%)). Participants reported they strongly agreed/agreed that 'I made new

friends as a result of the activities' (46, 61%)), the activities 'helped me feel more part of the community' (49, 65.3%)), and 'the activities kept me motivated' (51, 68%). Participants also strongly agreed/agreed that the activities component helped with their personal goal (39, 52%) but less so supporting weight (20, 26%) and wellbeing (35, 46%) goals. A majority of individuals in community C1 and just under half of individuals in C2 strongly agreed/agreed that they had engaged in more assets than they had before ELLY (C1: 24/35, 69%; C2: 18/40, 45%) and had tried new assets during ELLY (C1: 23/35, 66%; C2: 19/40, 48%).

Interview data showed that across both communities, the range of assets available was overall found to be good, well-advertised and easily accessible. A key facilitator was found to be the welcoming nature of staff and volunteers at assets:

> *"I think just people were very welcoming, which was amazing, I think in all of the groups that I attended they were very, very welcoming" [C1, P19]*

Further, participants reported that having assets that were free to attend and walking distance from home, was beneficial for accessibility, especially for those with little money.

> *"[asset name] was just literally at the bottom of my street…that was the easiest because it wasn't too far to walk" [C1, P30]*

Barriers reported by interviewees across both communities were related to individuals' inability to attend assets due to employment or caring commitments and times not fitting well with their daily schedules.

> *"…having some activities on a Monday, my day off, would have helped...the evenings are consumed by kids' clubs… so I wouldn't have managed" [C1, P24]*

A further barrier experienced in both communities was a lack of assets for different interests, ages or genders.

> *"A lot of them were for older people, I would go to some of the clubs, I looked at them and I would go in and would be like, yes, no and I would just go. I think, guy-centred activities would have been good because most of the clubs that are run are usually female-orientated" [C2, P41]*

A related point made by a small number of participants was that spaces could be more inclusive to different demographic groups and needs:

> *"...it would have been good to have spaces for people who are just in those awkward places where they don't really fit into neat boxes…I feel like possibly those are the people who don't fit anywhere that actually probably need it the most in some ways" [C1,P19]*

Loyalty card

Participants in both communities strongly agreed/agreed that the cash value of the loyalty card and ability to redeem it after 12-weeks of the ELLY intervention was appropriate (52 (69%) and 53 (71%) respectively). The majority of participants in both communities strongly agreed/agreed that '*I made new friends as a result of the loyalty card*' (45, 60%), the loyalty card '*helped me feel more part of my community*' (41, 55%) and '*the loyalty card kept me motivated*' (44, 59%). Participants also strongly agreed/agreed that the loyalty card supported wellbeing (40, 53%) and personal (43, 57%) goals and was regarded as an important component of the ELLY intervention (49, 65%).

Across both communities most interviewees found the loyalty card to be positive and beneficial to achieving their goals. Many found the loyalty card acted as an incentive to take part in more assets and was satisfying and rewarding.

> *"It's nice for you to look at it and go oh I've not been anywhere this week, I need to go and get my stamp…It was a push to go out and go somewhere because I wanted to get all the stamps" [C1, P26]*

Eleven of the interviewees stated that the loyalty card was easy to use and that the incentive offered was a good amount. Two participants from C2 stated that it was particularly beneficial for those in need.

> *"It might be just a card and a voucher for me, but it might be something wow factor for somebody else because people do struggle, and not everybody tells you their problems" [C2, P105]*

Seven of the interviewees stated that the loyalty card made no difference to their attendance. Negative responses were mainly regarding practical aspects, such as the risk of losing the card or forgetting to bring it along to activities. Two respondents from C1 stated that they did not like the concept due to it being an *"artificial encouragement"* [C1, P43, P2], encouraging people to attend for the wrong reasons, and one respondent stated that the stamp system had the potential to "*embarrass*" people [C1, P2].

Overall, £1375 of gift card payments was made to the 55 participants (73%) who successfully acquired at least 9 stamps on their loyalty card.

Goal setting

Across both communities, goal setting was engaged in by the majority of participants (weight goal: 64, 85%; wellbeing goal: 66, 88%; personal goal 65, 87%). The most popular personal goals were around meeting new people (20, 27%), setting a target weight-loss (19, 25%), doing more activities (8, 11%), and being more community focused (8, 11%).

Analysis of goals set and engagement in other ELLY components was conducted to determine if setting particular goals led to a greater likelihood of engagement in different components. For example, did participants who set a weight goal engage more with the soup cafés that those who did not? Findings suggest there was no significant difference in engagement of different ELLY components between goal-setters and non-goal setters. It should be noted that numbers of participants choosing not to set particular goals was low, so this finding is based on small numbers.

Interview participants from both communities reported that goal setting was a positive and helpful element of ELLY. Participants found setting goals easy, and that goal setting had been useful for keeping focus and motivation.

> *"...to know in your head that you've got a goal of trying to be a bit more active and lose a bit more weight and that you've got a timeframe for it, I think that's a really positive thing" [C1,P26]*

> *"It's good having a focus…it kind of plants a seed and it lets me know what I need to do to get to my end goal of trying to lose some weight" [C2, P34]*

Eight participants specifically stated that the goal setting had helped them achieve their goals.

> *"I feel as though they've [the goals] helped dramatically. So due to this, health is a lot better mentally and psychologically I'm a lot better" [C1,P2]*

Four C1 participants stated that they could not remember setting goals due to other things going on in their lives. One participant from C2 found the goal setting system challenging to complete due to being too busy and having personal issues.

Information resources, self-monitoring of weight and wellbeing

Interview data showed that participants liked the A4 printed "What's on" card provided in the participant packs at the start of the ELLY intervention. Three interviewees from C1 reported the programme of assets and contact details to be easily accessible online, especially through social media.

> *"What was interesting about the ELLY project is that it was advertised in one space, whereas normally you have to rush around and try to find things in different places, so I wouldn't necessarily have known about the [activities]" [C1, P19]*

Nonetheless, three participants reported that the assets themselves did not provide up to date information and/or were difficult to contact. When asked if they had looked at either the ELLY website or ELLY social media for this information, they had not.

> *"Nobody showed up [to the activity] the times I was here. Nobody tried to contact me to find out what was wrong or anything like that" [C2, P19]*

The self-reporting of weight and wellbeing feature via the website was not used, and when questioned on this element, interviewees stated they had not felt the need to access the website.

Feasibility and fidelity of delivering intervention components

The ELLY intervention was feasibly delivered in both community settings. Community CARP members and community champions actively supported academic researchers with recruitment activities and advertising the ELLY project. The ELLY Soup component was made and delivered by community voluntary organisations in each community. In addition, in community C2, local college students supported the Soup Café by welcoming participants and working in the café. Assets were delivered by independent volunteers and organisations already providing activities/clubs/groups in the two communities. Data collection and analysis, provision of ELLY, the website, social media and project monitoring were undertaken by the ELLY research team. All participants who secured financial incentives received their chosen shopping card within 1 week of completing outcome measures (as stipulated). Issues that were reported were: one participant reported confusion around loyalty card stamping; two participants not being able to contact activity organisers; and seven not feeling welcome at some assets attended.

Harms and unintended consequences

No harms or unintended consequences were reported.

Effects on weight-related and wellbeing outcomes at 12-weeks

The effects on outcomes collected are shown in Table 4.

	Mean	SD	95% CI
Weight change (kg), mean (SD)	-0.43	3.33	-1.26, 0.40
Weight change (%), mean (SD)	-0.35	3.68	-1.26, 0.56
Body Mass Index (kg/m^2)	-0.15	1.26	-0.44, 0.14
EQ-5D-5L index score	0.02	0.20	-0.26, 0.07
WEMWBS	0.80	9.74	-1.44, 3.04

Social connectedness scale	0.80	14.6	-2.56, 4.16

Table 4: Mean (Standard deviation) change in measures collected from baseline to 12-weeks

Progression to full trial

An independent study steering committee agreed that the ELLY study had demonstrated acceptability and feasibility and that the overall prespecified progression criteria were sufficiently met to support a larger-scale evaluation of the effectiveness and cost-effectiveness of ELLY.

DISCUSSION

Principal findings

The ELLY study was popular, engaged citizen partners and successfully recruited 75 participants across two disadvantaged communities with 87% (65/75) retention rate at 12-weeks follow-up. Community citizens living in disadvantaged areas (SIMD 1-3) formed 87% of the sample illustrating some promise for ELLY to impact on health inequalities in future. All ELLY components were acceptable to participants. The majority of ELLY components were engaged with, with the exception of the self-monitoring of weight website component, which was not utilised. Change in measurable weight outcomes (decrease) and wellbeing outcomes (increase) were observed.

Strengths and weaknesses

The ELLY study was effective in producing a co-designed intervention with two disadvantaged communities for use in disadvantaged communities. The intervention is underpinned by systematic review findings, theory informed and extends the evidence for use of financial incentive interventions for supporting healthy weight and wellbeing in disadvantaged communities. [49] The progression criteria set by an independent study steering committee were sufficiently met to proceed to a full trial.

The feasibility study was not powered to detect effects on weight and wellbeing related outcomes, therefore findings should be interpreted with caution. Possible expectation effects, the short study time frame, and assumptions of directionality of relationships were present in this research and should be addressed in its extensions. Figures provided relating to attendance at weekly soups and questionnaire data are reliant on participant self-reporting. The mean average soup cost per person of £12.02 over the 12 weeks is calculated from the cost of soup ingredients and does not account for wider opportunity costs (e.g. time taken to prepare soup, electricity costs, cost of volunteering). Although communities were chosen for their disparate nature, further consideration should be given to the mix and diversity of communities in a future evaluation to maximise generalisability of findings and contribution to theory

and intervention development. Careful consideration of what costs should be included in cost-effectiveness calculations, aligned to the perspective taken (e.g. consideration of societal costs, public-sector costs) should be given for future evaluation of the intervention.

Relation to other studies

ELLY findings are aligned to those reported in the review, where all studies showed community incentive interventions resulted in small improvements in BMI and/or weight or no effect. The systematic review and network meta-analysis conducted by Boonmanunt et al [50] examined behavioural-economic incentive programs for achieving goals, and reviewed the effectiveness of different strategies on incentivization for healthy diet, weight control and physical activity. This work is important in recognising the role of self-determination theory acknowledging the impact of different social contexts and individuals' differences on different types of motivation.

The ELLY intervention promoted autonomy and intrinsic (goal setting), and incorporated extrinsic motivation (incentivisation), social and physical opportunities and capability to support positive health and wellbeing behaviour change. The ELLY intervention supports the findings of Boonmanunt et al [50] that recognises the importance of social support, adding objects to /restructuring the community environment and incorporating financial rewards to support sustained behaviour change. The extensive community engagement undertaken during the ELLY project mirrors that of VanWormer et al [51] where promotional strategies to recruit to the study were invested in heavily. VanWormer [51] acknowledges that the considerable resources required may be a barrier to others wanting/being able to invest in such community engagement strategies. An emphasis on holistic health and wellbeing was preferred by citizens to a weight focus, reflected by the community assets offered. This finding reflects that of Glover et al [19] where having to be weighed proved a barrier both to recruitment and retention for some participants. In the ELLY study, 85% selected a weight goal yet few locally provided assets focused on the required food and behavioural changes required for weight loss.

Investing in upstream public health incentive initiatives that are feasible and acceptable to communities warrants further investigation to explore their potential to reduce pressure on existing health services, including gate-keeper roles. Incorporating incentives into social prescribing may be a promising approach for highlighting and encouraging engagement with supportive community assets. A holistic approach to health wellbeing, rather than a focus on individual, potentially stigmatising aspects like weight or behaviour was shown in this study to be preferred by communities.

CONCLUSION

This study demonstrates the feasibility of co-designing and implementing a novel community-based, incentive intervention to support healthy weight and wellbeing. A larger study is warranted to determine effectiveness and cost-effectiveness, with consideration of scalability. The design of a full scale evaluation requires careful consideration to ensure its appropriateness in addressing study objectives. Community-based intervention studies can produce methodological challenges: how best to cluster across communities, how to ensure contextual differences are accounted for and how to ensuring a one-size-fits-all intervention is flexible enough to address local needs, whilst maintaining fidelity. In the ELLY study, outcome measured prioritised by communities were multiple and of equal importance, necessitating discussion around use of co-primary outcomes in a future study. In all decisions around study design of a full scale evaluation, ensuring equitable engagement of community citizens will be crucial in maximising study success.

Author Contributions

JC, PH, SC, PC, GM, MvdP, RA, EC contributed to the study's conception and design. JC was principal investigator and project manager on this study. Data collection was conducted by SF, RA and JC. Data analysis was conducted by SF, DH, RA, GM, MvdP, JC and PH. JC, SF, RA, DH drafted the first version of the manuscript. JC led future iterations of the manuscript. All authors read and commented on the manuscript and approved the final version of it. The corresponding author attests that all authors meet authorship criteria and that nobody meeting the criteria has been omitted. JC is responsible for the overall content as guarantor.

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Ethics approval

Ethical approval was granted from Stirling University Ethics Committee (NHS, Invasive or Clinical Research (NICR), project 7430, 251022) and Glasgow Caledonian University Ethics Committee (Nursing and Community Health Research Ethics Committee (REC), 050623).

Trial registration

The ELLY feasibility study was not pre-registered.

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Data availability

All data produced in the present study are available upon reasonable request. Glasgow Caledonian University holds the copyright for the full interview transcripts and may grant data sharing permission on request.

Competing interests

All authors have completed the ICMJE uniform disclosure form and declare no competing interests.

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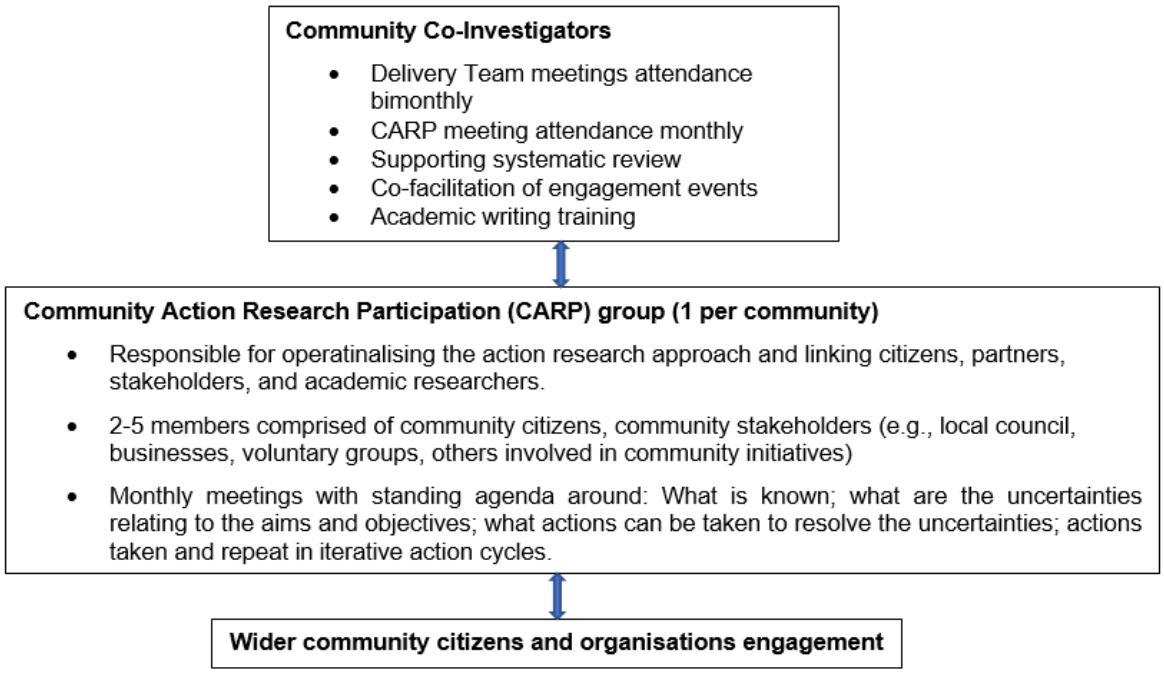
Figure 1 Community engagement in ELLY project

Figure 2 TIDieR checklist for ELLY intervention

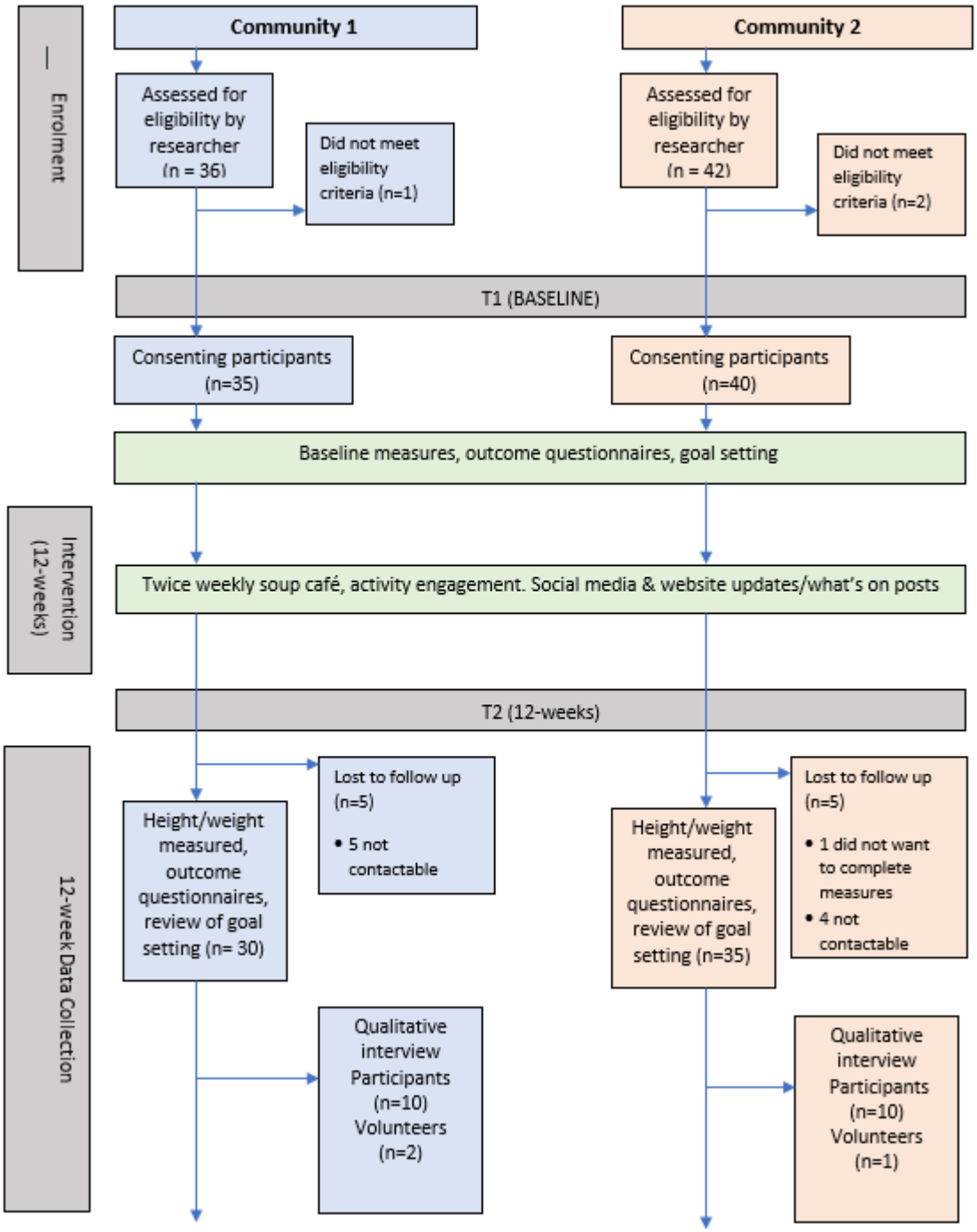
Figure 3 Consort (Consolidated Standards of Reporting Trials) Flow Diagram of ELLY intervention



Community engagement reported using GRIPP2 reporting checklist

Section	Item
Aim	To co-design and feasibility test an incentive intervention to support health and wellbeing of citizens living in disadvantaged communities.
Methods	Community co-investigators were involved at all stages of the study, including conception of ideas, systematic reviewing, intervention implementation and dissemination of findings. CARP members met monthly to review project progress, support decision making and provide advice as appropriate.
Results	Public and Patient Involvement (PPI) successfully facilitated the development of an intervention that accounted for local context and needs. It was shown to be feasible and acceptable in the communities where it was implemented. PPI played a role in recruitment and retention of participants. Recent poor relations between a community organisation and potentially eligible community participants acted as a barrier to recruitment in one of the communities.
Discussion	Delivery of the intervention was conducted by PPI members which on the whole was seen as a positive experience. A potential barrier to implementation success was a need for more hours of researcher support for community members in one community compared to the other community. In addition, some of the community assets that participants were signposted to were not as welcoming to new ELLY recruits as anticipated. On reflection, a clearer negotiation of roles and responsibilities for community groups and for providing assets is recommended for future initiatives.

NAME	ELLY
WHY-Theory	Underpinned by systematic review findings addressing community-based incentive systems to support healthy weight and wellbeing. Co-designed with disadvantaged communities for disadvantaged communities. Behavioural theory of ELLY informed by the COM-B model.[31]
WHY-Intervention Components	Soup café to encourage healthy eating and social cohesion providing social/physical opportunities and capabilities. Loyalty card stamped for engagement in community assets to encourage preparatory behaviours towards healthy weight and wellbeing. Community assets providing intrinsic motivation, social/physical opportunities. Optional goal setting for personal/weight/wellbeing goals acting as an enabler and extrinsic motivator. Social media, website and information resources providing a credible source of information and physical and social capability through environmental restructuring. Optional self-monitoring of weight and wellbeing providing extrinsic motivation by restructuring the environment.
WHAT-Materials	Free soup twice (café/delivery/pickup) Loyalty card Information resources (handouts, social media, ELLY website) Ability to record self-monitored weight/wellbeing via ELLY website £25 gift voucher in exchange for engaging in assets at least 9 out of 12 weeks.
WHAT-Procedures	Free soup cafés (café/delivery/pickup) Loyalty card stamped ELLY website providing up-to-date information on assets
WHO	Soup cafés delivered by community volunteers (and college students in C2) Assets delivered by asset owner/volunteers/community groups Loyalty cards stamped by individuals running the assets
WHERE	Soup cafés operated at: YMCA, local charity hub (C1); community centre (C2) Assets delivered in community centres, halls, library, churches, green spaces
HOW MUCH	Soup cafés operate twice weekly Multiple assets operating daily across both communities



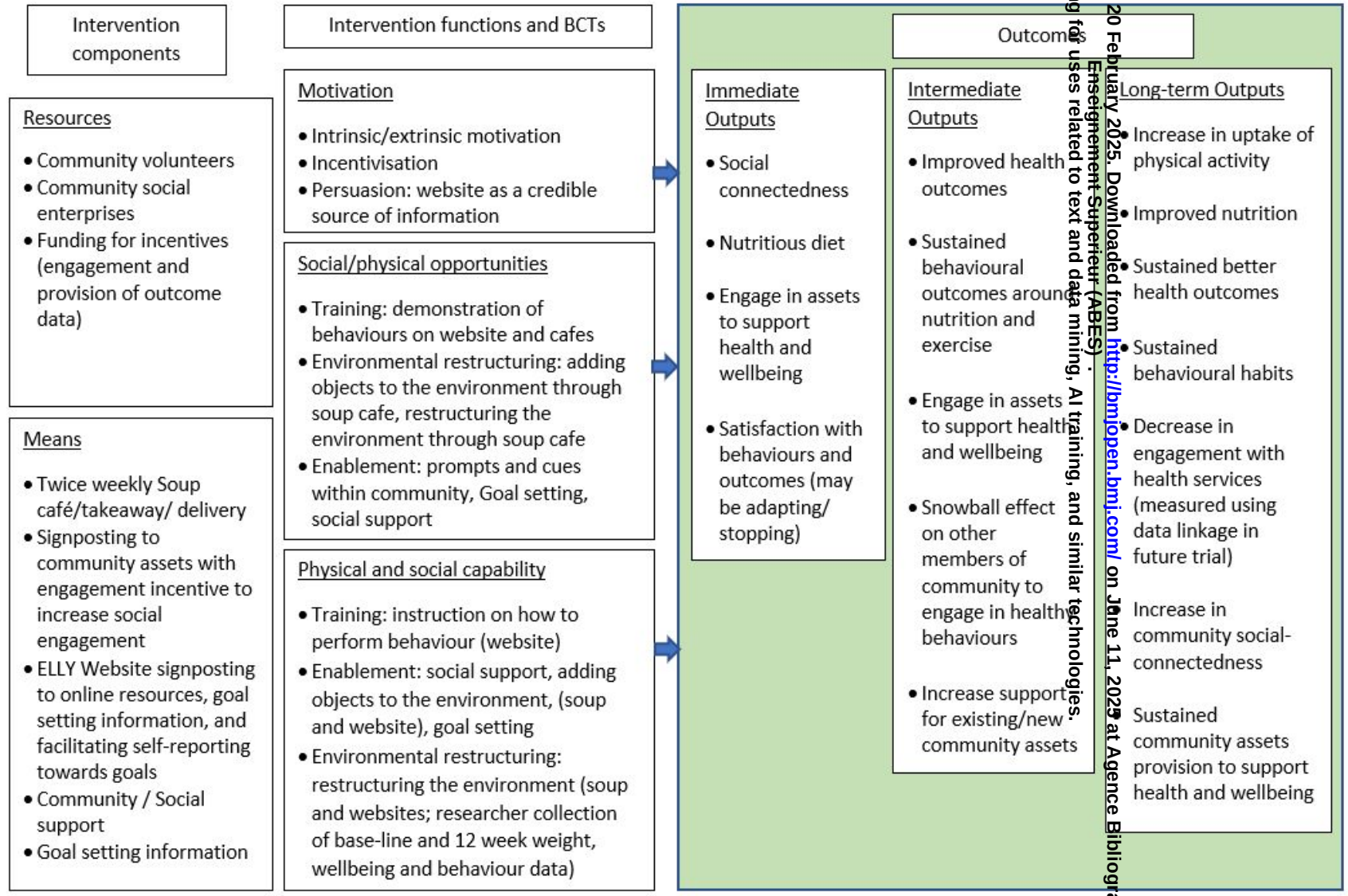
CONSORT 2010 checklist of information to include when reporting a pilot or feasibility trial*

Section/Topic	Item No	Checklist item	Reported on page No
Title and abstract			
	1a	Identification as a pilot or feasibility randomised trial in the title	1
	1b	Structured summary of pilot trial design, methods, results, and conclusions (for specific guidance see CONSORT abstract extension for pilot trials)	4
Introduction			
Background and objectives	2a	Scientific background and explanation of rationale for future definitive trial, and reasons for randomised pilot trial	3
	2b	Specific objectives or research questions for pilot trial	4
Methods			
Trial design	3a	Description of pilot trial design (such as parallel, factorial) including allocation ratio	4
	3b	Important changes to methods after pilot trial commencement (such as eligibility criteria), with reasons	N/A
Participants	4a	Eligibility criteria for participants	6
	4b	Settings and locations where the data were collected	5
	4c	How participants were identified and consented	6
Interventions	5	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered	7
Outcomes	6a	Completely defined prespecified assessments or measurements to address each pilot trial objective specified in 2b, including how and when they were assessed	8
	6b	Any changes to pilot trial assessments or measurements after the pilot trial commenced, with reasons	N/A
	6c	If applicable, prespecified criteria used to judge whether, or how, to proceed with future definitive trial	9
Sample size	7a	Rationale for numbers in the pilot trial	11
	7b	When applicable, explanation of any interim analyses and stopping guidelines	N/A
Randomisation:			
Sequence generation	8a	Method used to generate the random allocation sequence	N/A
	8b	Type of randomisation(s); details of any restriction (such as blocking and block size)	N/A
Allocation concealment mechanism	9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned	N/A

Implementation	10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions	N/A
Blinding	11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how	N/A
	11b	If relevant, description of the similarity of interventions	N/A
Statistical methods	12	Methods used to address each pilot trial objective whether qualitative or quantitative	9
Results			
Participant flow (a diagram is strongly recommended)	13a	For each group, the numbers of participants who were approached and/or assessed for eligibility, randomly assigned, received intended treatment, and were assessed for each objective	11
	13b	For each group, losses and exclusions after randomisation, together with reasons	13
Recruitment	14a	Dates defining the periods of recruitment and follow-up	13
	14b	Why the pilot trial ended or was stopped	N/A
Baseline data	15	A table showing baseline demographic and clinical characteristics for each group	13
Numbers analysed	16	For each objective, number of participants (denominator) included in each analysis. If relevant, these numbers should be by randomised group	13
Outcomes and estimation	17	For each objective, results including expressions of uncertainty (such as 95% confidence interval) for any estimates. If relevant, these results should be by randomised group	13
Ancillary analyses	18	Results of any other analyses performed that could be used to inform the future definitive trial	15
Harms	19	All important harms or unintended effects in each group (for specific guidance see CONSORT for harms)	21
	19a	If relevant, other important unintended consequences	N/A
Discussion			
Limitations	20	Pilot trial limitations, addressing sources of potential bias and remaining uncertainty about feasibility	22
Generalisability	21	Generalisability (applicability) of pilot trial methods and findings to future definitive trial and other studies	22
Interpretation	22	Interpretation consistent with pilot trial objectives and findings, balancing potential benefits and harms, and considering other relevant evidence	22
	22a	Implications for progression from pilot to future definitive trial, including any proposed amendments	22
Other information			
Registration	23	Registration number for pilot trial and name of trial registry	25
Protocol	24	Where the pilot trial protocol can be accessed, if available	NA
Funding	25	Sources of funding and other support (such as supply of drugs), role of funders	25
	26	Ethical approval or approval by research review committee, confirmed with reference number	25

*We strongly recommend reading this statement in conjunction with the CONSORT 2010, extension to randomised pilot and feasibility trials, Explanation and Elaboration for important clarifications on all the items. If relevant, we also recommend reading CONSORT extensions for cluster randomised trials, non-inferiority and equivalence trials, non-pharmacological treatments, herbal interventions, and pragmatic trials. Additional extensions are forthcoming: for those and for up-to-date references relevant to this checklist, see www.consort-statement.org.

ELLY theory of change model



What's on in Community 1?

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Morning	The Toddler Club (9:30am-11am) Baptist Church FREE		The Hope Hub drop in (10am-12pm) The Hope Hub FREE	The Hope Hub drop in (10am-12pm) The Hope Hub FREE		The Hope Hub drop in (10am-12pm) The Hope Hub FREE	
	The Hope Hub drop in (10am-12pm) The Hope Hub FREE	Men's Shed (10am-3pm) Unit 19 F, Winchester Avenue FREE	Wellbeing Wednesdays (10:30am-11:15am) YMCA FREE	Men's Shed (10am-3pm) Unit 19 F, Winchester Avenue FREE	Bookbug (11am) Library FREE		
	Forget me not cafe (10:30am-12pm & 1pm-3pm) Library FREE	Memory Group (Monthly) (1:30-2:30pm) Library FREE	Words for Wellbeing (Every other week) (11am-12pm YMCA FREE	Snowdrop Cafe (1pm-3pm) Westpark Church Hall FREE			
Afternoon	Men's Shed (10am-3pm) Unit 19 F, Winchester Avenue FREE	Knit and Knatter (2pm-3pm) Library FREE	Men's Shed (10am-3pm) Unit 19 F, Winchester Avenue FREE	Feeding Families Thursdays (4:30pm-6pm) Baptist Church FREE	Braveheart Walk (2pm-3pm) Meet in Sports Centre car park FREE		
				The Lymph Notes Choir (5pm-7pm) Baptist Church FREE			
Evening		The Hope Hub drop in (7pm-9pm) The Hope Hub FREE		Young Adult Reading Group (Monthly) (6:30pm-7:30pm) Library FREE	Skating session (7pm-8:30pm) Sports Hall, C1 Centre £5		

ELLY
ENJOY LIFE LOCALLY

Activity	Description
The Toddler Club	The Toddler Club is a parent and toddler group run by the church for little ones aged 0-3 to come along. Book your place at the link below. https://www.dennybaptistchurch.com/events-1/the-toddler-club-2
Feeding Families Thursdays	Launched in February, Feeding Families Thursdays supports local families with kids to provide a warm space, food and fun.
The Hope Hub drop in	The Hope Hub drop in is a great place to go along for a cuppa and a chat. Everyone is welcome.
Forget me not café	A friendly group that welcomes everyone, including people living with dementia. Come along for a chat, cake and to do something fun.
Knit and Knatter	Come along and meet other knitters, have a look through the library's knitting books, chat and swap ideas and techniques. All welcome! Bring whatever you're working on at the moment.
Wellbeing Wednesdays	Join others to take part in some light exercise in a relaxed and supportive environment. (Not running during October.)
Braveheart Walk	Do you want to become more active? Do you want to make new friendships? Do you enjoy being outdoors? Not sure of walking alone? Join us on a walk in the heart of nature with Braveheart's free health walks designed to support adults, of all abilities, to become more physically and socially active within the community.
Memory Group (Monthly)	Meet other locals at the library monthly to relive old memories through photographs and stories. Contact the library for dates – *[tel no]*
Words for wellbeing (on every other week – 21st Sep / 5th Oct / 19th Oct / 2nd Nov / 16th Nov)	The groups differ from traditional book groups in that no homework is required - just come along on the day. You'll hear short pieces of fiction, non-fiction, poetry or song lyrics and have the chance to discuss them with other participants.
Young Adult Reading Group (Monthly – 28th Sep / 26th Oct / 30th Nov)	A free book club, just for young adults. It's your chance to chat about the books you love (or love to hate!). Who knows, you might meet some interesting new books and some interesting new people!
Bookbug	Bookbug Sessions are free, fun and friendly events for babies, toddlers and their families to enjoy together. Our sessions are suitable for ages 0+ and can be booked on Eventbrite. Book at the link below. https://www.eventbrite.co.uk/cc/events-at-denny-library-108559
Skating session	Want to get fit but find that the gym's boring and jogging's no fun? Then join us for some exercise in disguise at our adult roller-skating sessions.
Lymph Notes Choir	Even if you think you can't sing, enjoy the many proven benefits of singing in the social setting of a choir. Bring a friend, join us and have some fun!
Men's Shed	The Men's Shed movement started 16 years ago, as a method of counteracting the effects of boredom and isolation when faced with retirement, illness or unemployment. Our shed workshop has a comprehensive range of tools at the disposal of members as well as social space for the essential cuppa and cake!
Snowdrop Cafe	What was originally a befriending idea to combat loneliness, The Snowdrop Café is open to all - a safe and happy community meeting place. Grab a coffee, a slice of cake and have a blether. Snowdrop Cafés are run by your local community, for your local community. All money donated is put back into the café running costs.

What's on in Community 2

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Morning		Wee Ones (9:30am-11am) WPCC Donation of choice	Share a craft (10am-12pm) WPCC £2		Share a craft (10am-12pm) WPCC £2	Falkirk Park Run (9:30am start) Callendar house FREE	
	Step Forth Walks (10am-11am) Football Stadium FREE	Board Games (10am-11:30am) 5 Manse Place FREE	Mindful Making Craft Group (10:30am-12:30pm) 5 Manse Place Free		Little Conversations (over 50s group) (11am-12pm) Pots Cafe FREE	Braveheart Walk (10:30am-11:30am) Callendar house FREE	
Afternoon	Creative Writing Group (12pm-2pm) 5 Manse Place FREE	Move it or lose it (11am-12pm) WPCC £6	Rainbow Muslim Women's Group (12:30pm-3pm) WPCC FREE	Make and Mend (12:30pm-2:30pm) 5 Manse Place FREE			
	Braveheart Walk (2pm-3pm) Callendar House FREE						Braveheart Walk (1:30pm-2:30pm) Meet in Falkirk Stadium Car Park FREE
	Writing Group (2pm-4pm) WPCC FREE						
	Taekwon-Do (6:45pm-7:45pm) WPCC First session FREE			Taekwon-Do (6:45pm-7:45pm) WPCC First session FREE			
Evening	Step Forth Walks (7pm-8pm) Falkirk Stadium FREE	Korean Kickboxing (7:30pm-8:30pm) WPCC First session FREE	Make and Mend (7pm-9pm) 5 Manse Place FREE	Braveheart Walk (7pm-8pm) Falkirk Stadium FREE			
	Walk for Wellbeing (7pm-8:30pm) WPCC FREE			Korean Kickboxing (7:45pm-9:15pm) WPCC First session FREE			

ELLY
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ELLY
ENJOY LIFE LOCALLY

Activity	Description
Walk for Wellbeing	A friendly walking group for anyone who's mental wellbeing needs a boost.
Braveheart Walk	Do you want to become more active? Do you want to make new friendships? Do you enjoy being outdoors? Not sure of walking alone? Join us on a walk in the heart of nature with Braveheart's free health walks designed to support adults, of all abilities, to become more physically and socially active within the community. Our friendly and welcoming walks promote social inclusion within the community, encourage the use of green space, and raise awareness of the benefits of active travel within your local area. (Thursday walk only on April-October).
Share a Craft	Bring a crafting activity or come along to get some ideas and see what other people are working on! If you would like to join this welcoming, lovely group with your own craft it's 10am-12pm at Community Centre.
Rainbow Muslim Women's Group	Rainbow Muslim women group is a charity organisation aiming to provide social and educational opportunities to the vulnerable sector of the community, across Forth Valley Area since 1999.
Move it or lose it	Come and join in with others as we do some fun light exercise in a supportive environment (60+).
Wee Ones	Come and meet other families here at the centre. Each week will be different activities for the kids, while the parents enjoy a free cuppa! (up to 5 years old)
Step Forth Walks	Step Forth is our award-winning volunteer led free walking programme designed to improve your physical activity levels through walking.
Taekwon-Do	TaeKwon-Do is a Korean Martial Art that dates back 2000 years. TaeKwon-Do means "The art of hand and foot fighting" and is used primarily for self-defence. First session free then £30 per month (for 2 sessions a week).
Korean Kickboxing	Our Korean kickboxing originated from Taekwon-Do mixed with boxing. It is a self-defence and fitness contact sport that utilises kicks and punches. First session free then £30 per month (for 2 sessions a week).
Falkirk Park Run	A free, fun, and friendly weekly 5k community event. Walk, jog, run, volunteer or spectate – it's up to you! (You won't get a stamp at this but if you follow the instructions on the website and sign up we will be able to see when you have run).
Central Wellbeing activities	Central Wellbeing run a range of activities (e.g. Make and Mend and Little Conversations over 50's group) in the Falkirk area, many based out of their office at 5 Manse Place. Find out more about their activities (Central Wellbeing).

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

ELLY measurements and engagement questionnaire

12 weeks: ELLY measurements and engagement questionnaire

Participant ID	
Researcher name	
Today's date	**_ _ / _ _ / _ _ _ _** **e.g. 05 / 01 / 2021**

Note for interviewer: Determine participant preference for completion:

a. *(preferred) To complete questionnaire themselves (with interviewer just checking complete at end)*

b. *To have questions read to them and interviewer record responses*

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

Measurements

Measurements (please tick)		
Which weight measure do you prefer?	☐ **Kg**	☐ **Stones/lbs**

	Measure 2 (12 weeks)	**Participant Initials**	**Notes**
Weight (kg)	**___ ___ ___ . ___ ___ kg** **___ ___ st ___ . ___ ___ lbs**		
Height as recorded at baseline (cm) (transfer over)	**___ ___ ___ . ___**		
BMI*(Kg/m²)	**___ ___ . ___ ___ kg/m²**		

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

Engagement in local activities

Please indicate (with a tick) how often you attend the following types of activities in the last 12 weeks?

	0-1 over 12 weeks	2-4 over 12 weeks	3-5 over 12 weeks	6+ over 12 weeks
Arts & crafts activity				
Physical Activity group				
Nutrition related group				
Social related group				
Other (please specify)				

Please tick the box that best describes your experience of attending local activities as part of the ELLY project.	**Strongly disagree**	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**	**Not relevant**
I attended more activities during the project than I did before the project	☐	☐	☐	☐	☐	☐
I attended new activities during the project	☐	☐	☐	☐	☐	☐
In the last 12-weeks I attended new local activities in addition to the ones on the “what’s on” sheet	☐	☐	☐	☐	☐	☐
I feel more interested in trying out new activities as a result of the ELLY Project.	☐	☐	☐	☐	☐	☐
The activities helped me achieve the PERSONAL goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The activities helped me achieve the WEIGHT goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐

Participant ID		Fieldworker initials		Date	__/__/____

The activities helped me achieve the WELLBEING goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
I made new friends as a result of the activities	☐	☐	☐	☐	☐	☐
The activities helped me feel more part of my community	☐	☐	☐	☐	☐	☐
I feel like the activities kept me motivated	☐	☐	☐	☐	☐	☐
I feel the activities were an important part of the ELLY project	☐	☐	☐	☐	☐	☐

If you disagreed with any of the statements above, we would be interested to hear why

_____
_____
_____

If you answered not relevant to any of the questions above, we would be interested to hear why it was not relevant

_____
_____
_____

In summary, how best would you describe your experience of taking part in the activities?

_____
_____
_____

Is there anything else about the activities you would like to share with us? (e.g. if you answered strongly disagree to any of the above you might like to share alternatives or suggestions for improvements)

_____
_____
_____
_____
_____

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

ELLY Loyalty card and reward

Please tick the box that best describes your experience of the loyalty card and reward as part of the ELLY project.	**Strongly disagree**	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**	**Not relevant**
I think the reward was an appropriate amount	☐	☐	☐	☐	☐	☐
I think the timing of the reward was appropriate (at the end of the 12-weeks)	☐	☐	☐	☐	☐	☐
The loyalty card and reward helped me achieve the PERSONAL goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The loyalty card and reward helped me achieve the WEIGHT goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The loyalty card and reward helped me achieve the WELLBEING goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
I made new friends as a result of the loyalty card and reward	☐	☐	☐	☐	☐	☐
The loyalty card and reward made me feel more part of my community	☐	☐	☐	☐	☐	☐
I feel like the loyalty card and reward kept me motivated	☐	☐	☐	☐	☐	☐
I feel the loyalty card and reward were an important part of the ELLY project	☐	☐	☐	☐	☐	☐

If you disagreed with any of the statements above, we would be interested to hear why

_____

_____

_____

If you answered not relevant to any of the questions above – we would be interested to hear why it was not relevant

_____

_____

_____

In summary, how best would you describe your experience of the loyalty card and reward?

_____

_____

_____

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

Is there anything else about the loyalty card and reward you would like to share with us? (e.g. if you answered strongly disagree to any of the above you might like to share alternatives or suggestions for improvements)

_____
_____
_____
_____
_____

ELLY SOUP

If you took up the offer of soup twice a week, how did you get your soup? (please tick all that apply)

Sit in at café, twice weekly	
Collect soup twice weekly from cafe	
Collect 2 portions of soup once a week from cafe	
Delivered to house	
Other (please state)	

Please tick the box that best describes your experience of the twice weekly free soup you received as part of the ELLY project.	**Strongly disagree**	**Disagree**	**Neither agree or disagree**	**Agree**	**Strongly agree**	**Not relevant**
Getting soup twice a week was very convenient	☐	☐	☐	☐	☐	☐
The twice weekly soup helped me achieve the PERSONAL goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The twice weekly soup helped me achieve the WEIGHT goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
The twice weekly soup helped me achieve the WELLBEING goal I set at the start of the ELLY project	☐	☐	☐	☐	☐	☐
I made new friends as a result of ELLY soup	☐	☐	☐	☐	☐	☐
ELLY soup made me feel more part of my community	☐	☐	☐	☐	☐	☐
I feel like ELLY soup kept me motivated	☐	☐	☐	☐	☐	☐
I feel ELLY soup was an important part of the ELLY project	☐	☐	☐	☐	☐	☐

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

I made new friends as a result of the twice weekly soup	☐	☐	☐	☐	☐	☐
The twice weekly soup helped me feel more part of my community	☐	☐	☐	☐	☐	☐
I feel the twice weekly soup was an important part of the ELLY project	☐	☐	☐	☐	☐	☐

If you disagreed with any of the statements above, we would be interested to hear why

_____

_____

_____

If you answered not relevant to any of the questions above – we would be interested to hear why it was not relevant

_____

_____

_____

In summary, how best would you describe your experience of the ELLY soup twice weekly

_____

_____

_____

Is there anything else about the ELLY twice weekly soup you would like to share with us? (e.g. if you answered strongly disagree to any of the above you might like to share alternatives or suggestions for improvements)

_____

_____

_____

_____

_____

ELLY project overall

What aspects of the project do think were particularly successful?

_____

_____

_____

_____

What aspects of the project were challenging or unsuccessful?

_____

_____

_____

_____

Participant ID		Fieldworker initials		Date	_ _/_ _/_ _ _ _

What would you suggest could improve the project for future participants?

_____
_____
_____
_____

Thinking about the goals you set, what are your thoughts on where you are with these now?

_____
_____
_____
_____

In summary, how best would you describe your experience of taking part in ELLY?

_____
_____
_____
_____

Is there anything else about ELLY you would like to share with us?

_____
_____
_____
_____
_____

Thank you for your time completing this questionnaire.

Your feedback is really important to us and will help shape future projects.

ELLY (Enjoy Life LocallY) Project

12-week

Interview topic guide – Participants

1. Introduction

Introduce yourself

Thank participant for agreeing to chat about their experiences of being involved in the ELLY project.

Really value what you have to say, as it will help us design future projects and improve experiences of participants.

Information is confidential so anything you say will not be traced back to you. We are asking consent to record our discussion, to help us to accurately remember what you tell us.

Please speak about your own views throughout, rather than what other people might think.

If you are happy to go ahead, please review and sign the consent form. Are you happy to go ahead with the interview? Great, Let's get started.

Participant, engagement and goal setting: I'd like to hear your ELLY story. Thinking back over the 12 weeks you've been involved in ELLY, tell me about what it's been like (*Prompts: soup involvement, activities attended).*

Prompts if not mentioned

- How did you hear about the Elly project? Prompt: *Posters, WOM, social media etc.*
- What motivated you to participate? *Prompt: incentives, improve wellbeing, friends/ family, other?*
- What did you expect from being involved in the ELLY project?
- Tell me about how you decided on what goals you might set for the ELLY project.
- Tell me how you found the process of setting goals for yourself.
- How did you think ELLY might help you achieve the goals you set?

Soup cafes: Tell me about your experiences of the twice weekly ELLY soup.

Prompts if not mentioned

- How did going along / collecting soup / soup delivery make you feel?
- Thinking about the goals that you set at the start of the project (personal goal, weight goal and wellbeing goal) what are your thoughts on the role of ELLY soup in helping you achieve your goals? (prompt: why do you think this?)
- Are there things that made it easy for you to participate?
- Are there things that would make the soup cafes better?
- Overall, what did you think of this part of the ELLY project?

Local activities: Tell me about your experiences of attending local activities during ELLY.

Prompts if not already mentioned

- How do the activities you attended during the ELLY project compare to things that you used to do before you started the project?
- What activities did you enjoy the most?
- Thinking about the goals that you set at the start of the project (personal goal, weight goal and wellbeing goal) what are your thoughts on the role of the activities in helping you achieve your goals? (prompt: why do you think this?)
- Tell me about any unexpected things that you got out of attending the activities, for example, new friends, getting out more, learning new skills?
- Are there things that made it easy for you to participate in activities?
- Are there things that would make the activities better?
- Overall, what did you think of this part of the ELLY project?

ELLY Loyalty card: How did you feel about the ELLY Loyalty card and reward system?

Prompts if not mentioned

- How did it impact on what you did each week during the ELLY project?
- How did you feel getting the loyalty card stamped at activities?
- What did you think of being rewarded for attending at least one activity each week?
- How did the reward impact on what you did each week during the ELLY project?
- What are your thoughts on the amount of reward you could receive?
- What are your thoughts on ease of use of the Loyalty card?
- What things about the ELLY loyalty card did you like?
- Are there things that would make the ELLY loyalty card work better?
- Overall, what did you think of this part of the ELLY project?

Reflecting on ELLY project and future plans

Now you've completed the ELLY project, what are your overall thoughts on your experience?

1. If you were telling a neighbour/friend/family member about ELLY, what would you say to them?
2. Would you take part in ELLY again? (*prompt: explain why you gave the answer you did*)

Future of ELLY

1. What parts of the project do you think are workable in the long term?
2. Are there any factors that might make Elly soup and support difficult to keep going over time?
3. Have you any thoughts on ways in which ELLY might be funded in the future?
4. What are your thoughts on how much people might be willing to volunteer to support the ELLY project (*prompt: help out in soup café, put on activities*)
5. Based on your experiences, which aspects of the work would you like to see continuing/not continuing in future

Lastly, is there anything else we've not touched on that you'd like to share about your experience of the ELLY project?

(close interview, and thank participant for their time)