Interreg

France (Channel / Manche) England

ASPIRE

European Regional Development Fund

Evaluation Report

Adding to Social capital and individual Potential In disadvantaged Regions (ASPIRE)

Bournemouth University

Executive summary

Obesity and unemployment are critically intertwined social and health issues which adversely impact life expectancy, quality of life, mental health and lead to increased mortality and morbidity. Whether obesity leads to unemployment, or a consequence of unemployment is not fully understood. There is however strong research evidence showing that both conditions are reciprocal, can be the cause or consequence of each other and have common underlying causes. Research indicates a consistent link between obesity and unemployment and single transitions into unemployment and persistent unemployment have been associated with poor mental and general health and obesity. People on low incomes and unemployed have lower quality diets, higher rates of diet-related disease and higher levels of food insecurity, an issue that has been greatly exacerbated by the cost-of-living crisis and the recent coronavirus pandemic. Many of the barriers to healthy diets are greater for people living in socially deprived communities and on lower incomes and the food system exacerbates these inequalities with negative consequences on health and quality of life. There is therefore an imperative for interventions using a holistic approach to address the underlying social, health and economic determinants.

The Adding to Social capital and individual Potential In disadvantaged REgions (ASPIRE) project was an European Development funded project which sought to co-create a holistic model to address obesity/overweight and unemployment. The partnership consisted of 16 partner organisations and the project was implemented in 9 sites across France and the United Kingdom. Intervention activities focused on nutrition, health and wellbeing, self-esteem and soft skills to promote healthier lifestyles and provide participants with the skills and support they need to gain access to the labour market.

In order to determine the effectiveness of the ASPIRE model, a realist evaluation was conducted to determine which aspects of the ASPIRE model were effective, under which circumstances, for whom and how to adapt the model to different contexts. The project was evaluated using a mixed methods approach consisting of innovative quantitative and qualitative methods. Quantitative data was collected using the health kiosk and an evaluation toolkit comprising of validated instruments to assess diet quality, self-efficacy, health-related quality of life and employability. The health kiosk is an innovative, interactive health and wellbeing engagement tool based on validated measures which allows users to do a health MOT, by measuring body composition and other health and wellbeing metrics. The qualitative

aspect of the evaluation was conducted using Photovoice, a novel community-based participatory research (CBPR) and visual research method whereby participants take photographs to document, think, and talk about their experiences. The technique is empowering, a catalyst for social change, allowing individuals to tell their own stories from their own perspectives, bringing impacts ranging from an increased sense of accomplishment to a deeper understanding of the reality of participants' daily lives.

Key findings from the evaluation are highlighted below:

- Engaging communities around the ASPIRE implementation sites using the health kiosk provided an accessible and effective way to stimulate conversations around health and wellbeing. A total of 2473 participant data were obtained from the Health Kiosk via road shows (63.8%), UK hubs (5.2%) and French hubs (30.9%). Data from health kiosk provided insights on the link between body composition measurements and motivations for engagement around individual's health and highlights the health kiosk as an alternate and accessible health engagement tool.
- Data from 20 participants included in the Photovoice study showed that prior to ASPIRE, participants experienced significant challenges with unemployment, healthy weight status with underlying causes linked to mental wellbeing, anxiety, depression and hopelessness. Participation in ASPIRE resulted in positive outcomes including improved mental wellbeing, self-efficacy, value of healthy produce, cooking and eating and an overall sense of hopefulness.
- Strategies that were successful in implementation and engagement included activities co-created with participants, with higher social engagement, providing incentives and interpersonal relationships between hub coordinators and participants.
- Evaluation data captured from an average of 279 participants across the 5 questionnaires included in the toolkit showed marginal changes in overall diet quality, health-related quality of life, self-efficacy and health and wellbeing however these were not statistically significant. There were positive outcomes on some subscales of health-related quality of life, physical health, self-efficacy and future employment aspirations which warrant further investigations.

Overall, the findings from the project provide preliminary evidence showing the feasibility of implementing a holistic model to reduce unemployment and obesity. The results highlight the importance of co-creation, coordination and innovative strategies that are effective in engaging individuals from socially deprived communities around their health, wellbeing and

employability. A key barrier to the project was the impact the COVID-19 pandemic which delayed the setup of project sites, affected relationship building, implementation activities and participant recruitment thereby limiting the success of the model. Additionally, the timelines for the evaluation needed to be adapted, preventing long-term follow up of participants. Future implementations of the ASPIRE model require considerations for intensity of activities, length of follow up, resources and personnel to facilitate deeper engagement with participants, trust and ultimately the successful implementation of the model.

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1 INTRODUCTION

1.1 Background and rationale for project

Obesity is a leading risk factor for the global burden of diseases (1) and a major contributor to all-cause mortality, morbidity and decline in both quality of life and life expectancy (2–4). Of a greater concern is recent data showing that individuals with obesity are at a greater risk of morbidity and mortality from coronavirus disease 2019 (COVID-19)(5–7). Data from the Health Survey for England (HSE) indicates an overweight or obese prevalence of 66.9% in adult men and 59.7% in adult women (8). In France, the prevalence of overweight (including obesity) in adults was 54% in men and 44% in women (9). Apart from being a health risk factor, obesity is strongly associated with unemployment, social disadvantages and reduced socioeconomic productivity (10) and poor individuals is Europe are 10-20% more likely to be obese compared to individuals in high income brackets (11–13).

Consistent with global trends, obesity across the France Channel English (FCE) area (South and East Coasts of England and the North Coast of France) is a significant concern. In this region, high levels of obesity have been shown to coincide with high rates of unemployment. In the British household Panel Survey (BHPS), job loss was associated with weight gain of 1.56kg/year and with significant decline in wellbeing and increased sleep deprivation (14). Several causal pathways have been postulated to explain the link between unemployment or socioeconomic deprivation and high body mass index (BMI). Unemployment leads to more households experiencing a decrease in income, which calls for new strategies to cope with restrained household budgets and may lead to unhealthy diets. Individuals in lower income households are increasingly consuming diets which may be able to satisfy caloric needs but are poor in micro-nutrient density, dietary variety and high in sugar and fat, leading to poorer health outcomes (15). Data from the HSE survey shows that only 29% of adults consumed the recommended five portions of fruit and vegetables a day. Higher consumption of fruit and vegetables was also associated with higher income, and vice versa: 36% of all adults (32% of men and 41% of women) in the highest income quintile had consumed five or more portions of fruit and vegetables on the previous day compared with 23% of all adults (20% of men and 25% of women) in the lowest quintile (16). Fresh, local, healthy food options are often more expensive and are more difficult to cook, therefore individuals cope by buying much cheaper food (highly processed meat products, high fat and sugar foods) or resort to 'take-aways' or 'fast food' which requires no cooking (13,17,18).

Additionally, of those in the highest income quintile, 42% of men and 34% of women undertake at least five 30-min sessions of moderate or intensive physical activity (PA) per week, compared to 31% and 26%, respectively, in the lowest quintile (19). Data from the French Health Study on Environment, Biomonitoring, Physical Activity and Nutrition (Esteban) showed that 53% of women and 71% of men achieved the World Health Organisation (WHO) recommendations on physical activity for health however, 90% of adults reported more than 3 hours of sedentary activities per day and 42% of adults more than 7 hours (20). More recent data also showed that during the coronavirus pandemic, half of the population did not meet the recommendations for physical activity and one third reported a high level of sedentary lifestyle (20). Insufficient physical activity was also more prevalent people in lower professional categories, with no professional activity, women with fewer qualifications, time off work or partially unemployed (20).

In contrast obesity is considered a cause for lower income when obese people drift into lower-income jobs due to labour–market discrimination and public stigmatisation (21). Research suggests that obese individuals are more likely to be perceived as lazy, unsuccessful, weak-willed and undisciplined resulting in negative discrimination due to body weight in the labour market, including higher job insecurity and lower chances of obtaining a job (22,23). In a longitudinal study using data from over 120,0000 adults across 21 European countries, obesity decreased employment chances and chronic conditions linked with high BMI negatively affecting employment likelihood and increased the intention to retire early (24). Furthermore, psychological distress and subsequent emotional eating as a consequence of both obesity and unemployment provide a serial pathway linking unemployment to obesity. Maladaptive coping strategies, such as eating energy-dense foods to alleviate negative emotions and stress, coupled with stress-induced disturbances to metabolic signals promote weight gain and obesity over time (25). The negative social, psychological, emotional, and behavioural consequences of obesity exacerbate psychological distress and maladaptive eating behaviours, can thus create a cyclic mechanism (25).

Although it has been well established that obesity and unemployment are strongly linked, existing services to tackle obesity and unemployment rarely work together to address the issue holistically. Additionally, there is a lack of interventions examining how the underlying causes of unemployment and obesity can be addressed using common strategies. The main public health interventions used to tackle obesity focus on information campaigns, advertising and labelling rules and regulation of nutritional claims (26). While these types of interventions

inform people about food characteristics, they are not able to successfully induce people to make healthier food choices. Interventions focused on improving the income of economically disadvantaged individuals with additional effect of improving health are required. Further research is also needed on how individuals with obesity can best be supported to obtain and maintain employment.

1.2 Overall objective

The aim of the project was to provide individuals who were unemployed or living with obesity or overweight the skills they need to make healthier lifestyle choices and to improve their employability.

1.3 Overview of the ASPIRE project

The Adding to Social capital and individual Potential In disadvantaged Regions (ASPIRE) was an innovative project which sought to create a new model for service delivery combining healthy weight and employability services to address unemployment and obesity in the FCE region. The ASPIRE project targeted individuals living with overweight, obesity and unemployed population across the FCE zone, using food production as a way to increase awareness and engagement, reduce weight, increase self-esteem, improve employability via new skills and work experience. ASPIRE aimed to improve the quality and effectiveness of service delivery to socio-economically disadvantaged communities by co-ordinating healthy lifestyle opportunities with a pathway into employment. The health-based interventions co-created with ASPIRE partners will be adapted to socially and economically disadvantaged communities to reduce obesity and overweight and increase employability.

1.4 Setting

The ASPIRE project was implemented across the 9 sites located in the FCE region (**Figure 1**). The FCE area covers the South and East Coasts of England from Cornwall to Norfolk, and the North Coast of France from Finistère to Pas-de-Calais. The sites in France were located in Peronne, Lille, Abbeville, Wimereux, Boulogne sur Mer and Loos-en-Gohelle. The sites in the United Kingdom were located in Aylesham, Medway and Boscombe.

1. Boscombe

2. Medway Community Healthcare

3. East Kent Hub

4. Anges Gardins

5. Wimereux Hub

6. Centre Social Eclaté

7. Mission Locale Picardie Maritime

8. Maison pour l'Entreprise, l'Emploi et la Formation Santerre Haute Somme

9. Vivons en Forme (Association FLVS)
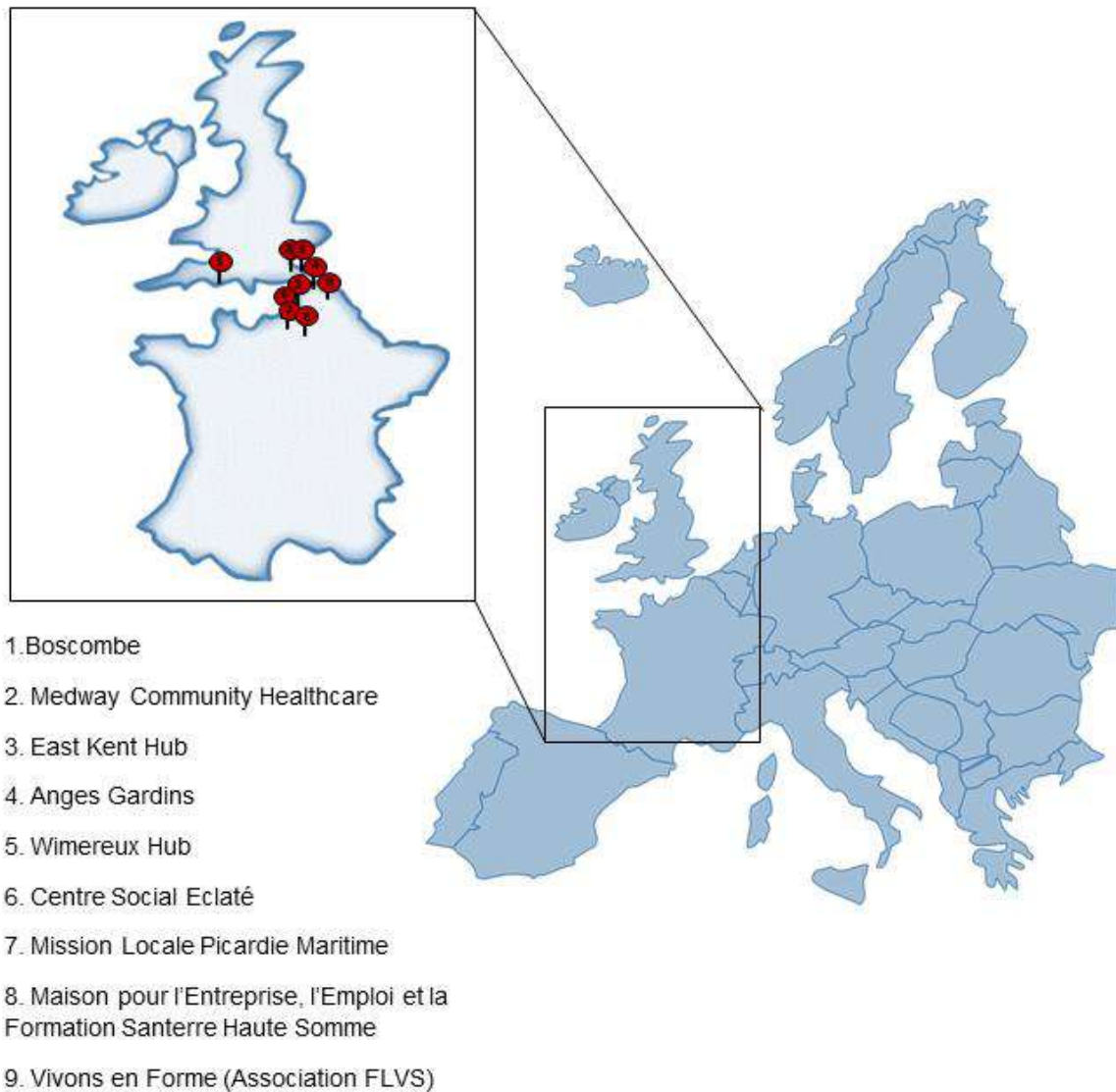
Figure 1: Location of ASPIRE project hubs

1.5 Project partners

The project was implemented together with 16 cross-border partners across UK and France involved in health, employment and social service provision. A full list of partner organisations is listed below:

- The Health and Europe Centre (Project Lead)
- Bournemouth University (Evaluation partner)
- Dover District Council
- Kent County Council
- Kent Community Health NHS Foundation Trust

- Wellbeing People

- Mission Locale Picardie Maritime

- Maison pour l'Entreprise, l'Emploi et la Formation Santerre Haute Somme

- Centre Social Audrey Bartier

- C3 Collaborating for Health

- Bournemouth, Christchurch and Poole Council

- Anges Gardins

- Vivons en Forme (Association FLVS)

- Your Leisure

- Medway Community Healthcare

- Centre Social Eclaté

1.6   The ASPIRE model

The activities in ASPIRE model focused on health-improving lifestyle interventions to achieve outcomes related to weight loss, increased employability and general improvement in health and quality of life. In order to improve acceptability and enhance participation, interventions were tailored to meet the different needs of participants who were at different stages of their weight loss or employability journey. Interventions were co-designed with participants to ensure ownership of the model and were adapted by the different implementation sites to suit their capacity, resources and potential participants. The ASPIRE model consisted of three interconnected elements and a fourth element which linked the different elements together. The three elements included the following: (1) being active (grow your own), (2) healthy food and nutrition (eat your own), (3) achieving personal goals and improving employability (sell your own). The fourth element was improving self-esteem through enhancing wellbeing, community engagement and accountability. It is important to note that the ASPIRE model uses a holistic approach and therefore all the elements were linked to each other via the core outcome of increasing self-esteem and support within the community. **Table 1** outlines the different elements and details of interventions under each element.

Table 1: Core elements, activities and learning outcomes for the components of the ASPIRE model

ASPIRE element	Activity	Learning outcomes
Sell your own	- Image consulting workshop - Money skills course - Optional 1-2-1s coaching - Employability coaching - Digital workshops - DIY - Create your own cosmetic	**Achieving goals and employability** - Have knowledge about the different activity, employment, and self-employment opportunities available to them - Feel supported to achieve their goals and return for continued support throughout their Journey - Be able to define barriers for activity/employment and how to overcome these - Be able to set their own goals for achieving the level of activity or employment that they're seeking
Eat your own	- Cooking workshops - Basic Cookery - Canning - Nutrition classes	**Healthy food** - Use locally and personally produced fruit and vegetable in recipes - Buy the right healthy products in a shop within their budget - Cook a healthy meal - Be able to define their barriers for healthy lifestyle - Be able to define how to overcome these barriers - Be able to set their own goals for achieving a healthy lifestyle (incl. physical activity and nutrition)
Grow your own	- Food growing workshops - Gardening - Fitness Course - Adapted physical activity - Cycling - Boxercise - Guided Walks - Wellbeing Walks	**Being active** - Cultivate food in a community allotment or personal setting - Be physically active every day - Be able to define their barriers for healthy lifestyle - Be able to define how to overcome these barriers - Be able to set their own goals for achieving a healthy lifestyle (incl. physical activity and nutrition)

| **Self-esteem & support in the community** | Self-esteem workshop Self-awareness workshop Individual appointments Naturopathy Nature for Wellbeing Sophrology and well-being Silent yoga Qigong Introduction to meditation Art therapy / Art Crochet Members' tea party Choir Community singing Big Fun Small Change Men in Sheds Drama | **Self-esteem & support in the community** Describe their own feelings Feel confident, supported, happy and relaxed Feel empowered achieving a healthy lifestyle (incl. physical activity and nutrition) and achieving personal goals (incl. employment, volunteering, role within their community etc…) Feel confident to return/stay in contact with other hub participants |

2 COMMUNITY ENGAGEMENT & CO-CREATION

As part of ASPIRE, C3, an ASPIRE partner engaged with 7 communities in England and France using its innovative community engagement strategy CHESS® (Community Health Engagement Survey Solutions), to deliver 7 community co-designed action plans for change. Below are summary of results from the ASPIRE hubs.

2.1 Boscombe

Activities

C3 has reached approximately 300 Boscombe community members via a range of activities. In Boscombe, C3's Zoe Keeping has managed the delivery of the community's CHESS® action plan. A resident herself having worked and lived in Boscombe for over 20 years Zoe is passionate about the community driving change and ensuring all voices are heard. Activities ranged from community clean-ups bee-bombing and rewilding a community choir "good grub' healthy cooking classes and campfire cooking hula-hooping, dancing and mocktails a pop-up public living room community picnics and parties.

CHESS® ACTION PLAN

Create opportunities for physical play · Create more growing opportunities · Improve communication about what is happening · Provide cookery classes · Organise community events

Figure 2: CHESS action plan for the Boscombe hub

Impact

- 58% of survey respondents reported they are eating more fruit and vegetables per day and doing more physical activity since participating in CHESS® Action Plan activities.
- 79% of survey respondents reported that they had learned more about healthy eating and the importance of physical activity by participating in CHESS® Action Plan activities.

- 58% of survey respondents reported that participating in CHESS® Action Plan activities has provided them with new skills to help them make changes in their community.
- 79% of survey respondents reported that participating in CHESS® Action Plan activities has improved their knowledge of health challenges in their community.

2.2 Medway

Activities

C3 reached approximately 350 community members in Gillingham South, Medway. C3's Community Engagement Facilitator Lisa Malone implemented the CHESS® action plan since January 2022. Activities were creative and included cooking healthy pizzas, creating healthy snacks for a jubilee picnic, zumba classes for plus-sized ladies, yoga classes, creating edible window boxes, bee-bombing, word-hunts and weekly community health walks. This created opportunities to come together as a community emerged as a strong theme from C3's community engagement. In the hot summer of 2022 Lisa organised a community fun day and picnic, which included 'gentle' competitive games to get people moving together. BBC Radio Kent featured Lisa's brilliant work in Medway promoting her Christmas word-hunt.

CHESS® ACTION PLAN

Create opportunities for physical activity

Create more growing opportunities

Provide cookery classes

Organise community events

Figure 3: CHESS action plan for the Medway hub

Impact

- 83% of participants surveyed reported that they had learned more about healthy eating and the importance of physical activity through participating in CHESS® action plan activities.
- 88% of participants surveyed reported that they do more physical activity since participating in CHESS® action plan activities.

- 67% of participants surveyed reported that CHESS® action plan activities enabled them to develop new skills to help them create change in their community.
- 75% of participants surveyed reported that CHESS® action plan activities increased their knowledge of the health challenges in their community.

2.3 Lens

Activities

C3 reached more than 600 people in Lens. Stéphanie implemented action plan activities in Lens for almost 2 years. She set up cookery workshops with lots of recipes based on inexpensive plant proteins, meditation workshops and nature walks to discover plants and animals. The participants are very diligent and repeated the recipes at home and found that the meditation workshops helped to reduce their stress levels. The activities were also adapted to the changing the changing seasons and Stéphanie has been in touch with local stakeholders and participates in all local events.

CHESS® ACTION PLAN

| Targeted communications to mobilise local residents. | Improving the social link to the city of the provinces. | Organize events for the inhabitants of the city of the provinces | Learning about food, the food system and gardening | Encourage the use of existing resources in the neighbourhood for physical activities |

***Figure 4**: CHESS action plan for Lens*

Impact

- 72% of participants said they were eating more fruit and vegetables since taking part in action plan activities.
- 66% of participants responded that they were more physically active than they do in activities linked to the action plan.
- 63% of participants replied that they had shared their knowledge about food and physical activity with family members or family members or neighbours.

- 78% of participants responded that their health had improved since taking part in the action plan.

2.4 Ham

Activities

C3 reached more than 150 people in Ham. As part of the ASPIRE project, Magali, coordinator of the action plan for C3, worked with the Social Centre of Ham and local stakeholders to organize family events, cooking workshops, physical activity classes, walking groups, gardening classes and provided food baskets redistributed at low cost to families. Magali also coordinated the various workshops around gardening, cooking and physical activity.

CHESS® ACTION PLAN

Create cooking workshops adapted to the local public

Focus on local production

Encourage the practice of regular physical activity while strengthening social ties

Regularly organize events in the city centre of Ham

Figure 5: CHESS action plan for Ham

Impact

- 71% of participants said they learned new things about healthy eating and physical activity.
- 57% of participants said they eat more fruits and vegetables since they have taken part in the activities related to the action plan.
- 41% of participants answered "likely or very likely" when asked how likely they were to maintain an increased level of physical activity over time.

- 54% of participants answered "Yes" when asked if their participation in activities related to the community action plan had improved their knowledge of health issues in their community.

3 EVALUATION METHODS

3.1 Theoretical framework

A realist (RE) evaluation method designed as a multidisciplinary and mixed-method process was used to examine the effectiveness of the ASPIRE model. Realistic evaluation uses key linked concepts ('mechanism', 'context; and 'outcomes') for explaining and understanding programmes. This is known as the CMO configuration. A CMO configuration is a proposition stating what it is about an intervention that works, for whom and in what circumstances. This approach enabled the development, validation and refinement of mid-range theories that account for how the *Context* in which ASPIRE intervention activities are implemented influence intervention *Mechanisms* (e.g., participants reasoning in uptake of interventions) to produce intended and unintended *Outcomes* (decrease in weight, BMI or unemployment). Realist evaluations are based on the assumption that the success or failure of interventions are dependent on certain conditions, complex interactions of causal mechanisms and are heavily influenced by the way that different stakeholders respond to them (27). Context refers to broad social or geographical features as well as factors affecting the implementation of programs (e.g., setting of intervention, adequate funding, the qualifications of staff) (27–29). The context within which a project is implemented can influence the way in which, or the extent to which, a programme is implemented, who it targets and who it reaches. The mechanism is the underlying causal process which informs how and why an intervention works and for which participants (27). Mechanisms can be intended and unintended, generating both positive and negative outcomes and are filtered through people, who have an ability to interpret and respond to them differently (27,28,30). Therefore, evaluation of an intervention's effectiveness should include how different people experience and respond to it and why. The RE method is particularly suited to evaluating new and complex interventions that seem to work but 'for whom and how' is not yet understood. While several of the interventions incorporated in the ASPIRE model have been used to independently reduce overweight or obesity and unemployment, there is limited evidence on how the combination of such interventions work holistically to reduce obesity and unemployment. The conceptual framework using CMO configuration to map the pathway from intervention to outcomes is illustrated in **Figure 6**. The

initial programme theory represents the underlying assumptions about how interventions implemented in ASPIRE are meant to work and what impacts they are expected to have.
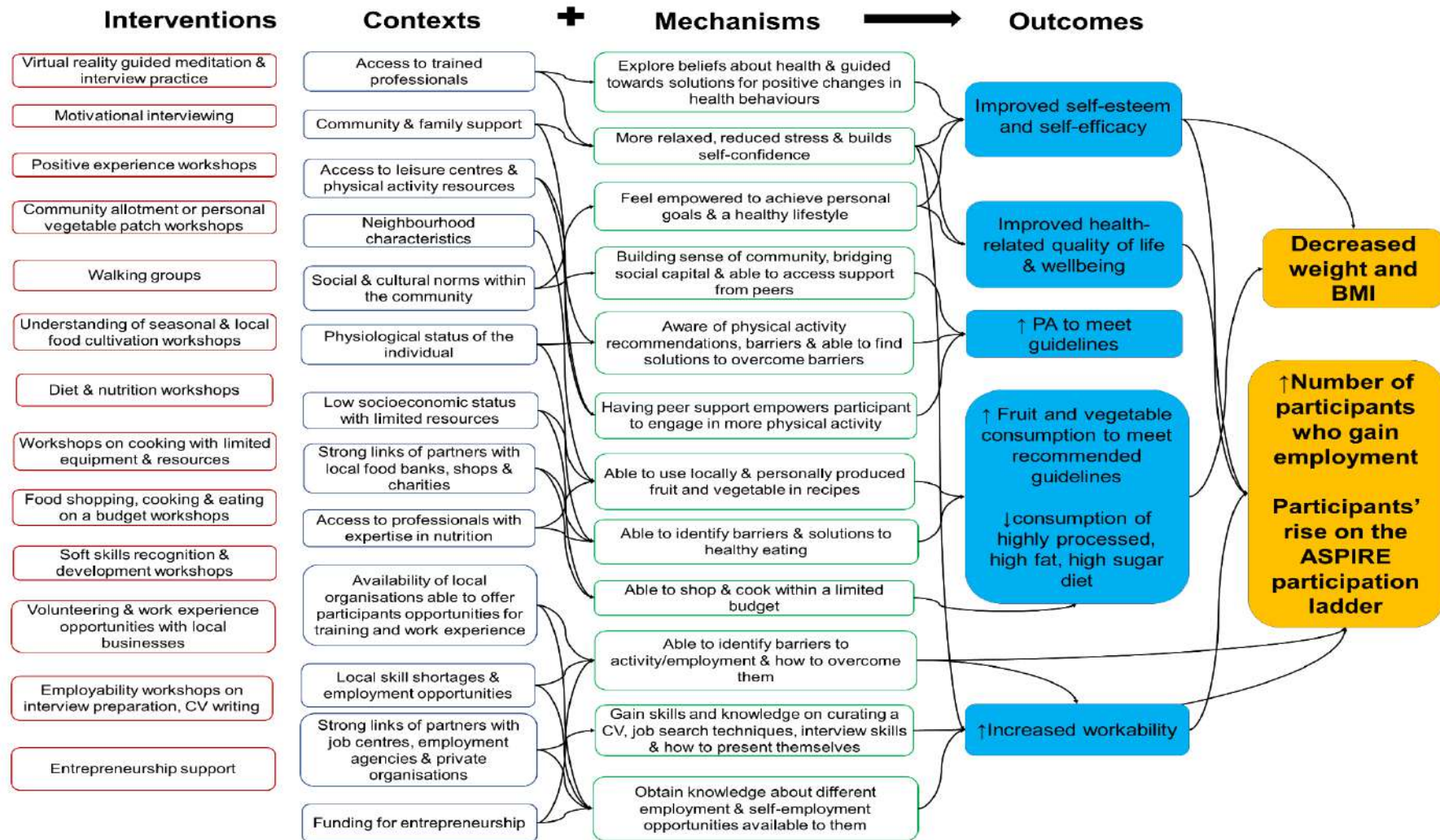
Figure 6: *Conceptual framework illustrating the contexts-mechanism-outcome configuration underlying the ASPIRE model. Abbreviations: BMI, body mass index, CV, curriculum vitae, PA, physical activity*

3.2 Strengths, weaknesses, opportunities, threats (SWOT) analyses

Gap and strengths, weaknesses, opportunities, threats (SWOT) analyses (**Table 2)** was conducted in collaboration with stakeholders to help identify existing resources within organisations which could enhance the implementation of the ASPIRE model. Furthermore, weaknesses and threats to the project were identified and strategies were implemented to mitigate the risks identified.

Table 2: Strengths, weaknesses, opportunities, threats (SWOT) analyses

Strengths	Weaknesses
- Partners already involved in services providing healthy lifestyle, wellbeing and employability activities. - Experience in working with hard-to-reach, vulnerable and isolated individuals and communities. - Experience with other EU-funded projects and expertise working on similar projects in both England and France. - Long history and experience in working with local stakeholders to deliver similar community projects. - Strong partnership with local businesses and stakeholders delivering employability and health and wellbeing services. - Wide and diverse range of skills and expertise between project partners. - Partners have strong links with job centres, local charities, primary care, probation, drugs and alcohol services. - Project uses innovative approaches including technology and use of gaming.	- Additional skills from experts may be required in the design and implementation of certain project activities. - All partners working together to both develop and implement ASPIRE model effectively. - Challenges with identifying ASPIRE participants and promoting the project. - Challenges with monitoring and follow-up of participants over a long period of time. - Implementation plan not established at the outset with defined inclusion/exclusion criteria and time frames leading to delays in evaluation and obtaining ethical approval.
Opportunities	**Threats**
- Resources can be mobilised from all partners to help in developing the model and in the implementation of activities. - Establish links between health and well-being and employability	- Changing Covid-19 situation and social distancing requirements will affect implementation of activities and participant numbers. - Effective strategies to market uptake of project activities by participants.

professionals and services within ASPIRE communities. • Adoption of good practices from both health and wellbeing and employability sectors. • Strengthen existing links between job centres, local charities, primary care practitioners to improve the health and wellbeing of hard-to-reach communities. • Develop a network of organisations providing training in employability skills, work experience as well as a network of local food growers, producers and suppliers.	• High participant drop-out rates. • Meeting participant recruitment targets that is balanced across all implementation sites. • Meeting project timelines. • Project needs to be equipped for managing challenges related to participants with addiction, severe mental health problems, adverse childhood events, etc. (e.g., referral to health service providers). • Political and economic changes in England and France for example Brexit. • Changing context of employment in both England and France as a result of the coronavirus pandemic. Employability is complicated in a situation of increasing unemployment as a result of Covid and this may reduce employment opportunities participants.

3.3   Realist synthesis

A realist synthesis was conducted to identify the common strategies used by health-related interventions to reduce obesity, overweight and unemployment and to determine for whom and under what circumstances these interventions were successful or unsuccessful and why. This review was able to identify contextual mechanisms that determined observed outcomes and how those involved in health-related interventions to reduce obesity and unemployment tended to respond to the intervention. It also uncovered a number of overlooked perspectives which should be included in future research.

A total of 8 CMOs were generated building up on the initial programme theory. These are as follows (the letter, C-context, M-mechanism and O-outcomes). The CMOs provide a higher level of abstraction that sets out the underpinning logic behind the family of interventions strategies identified to address unemployment and obesity.

1. **CMO1:** When participants with limited knowledge about healthy eating (C) are provided with the requisite knowledge and skills, and able to apply these new knowledge and skills (M), their healthy eating behaviour is improved (O).

2. **CMO2:** When participants with low educational status (C) are provided with an intervention delivered in their native language, there is higher acceptance, and they are able to utilise the new skills to successfully execute new behaviour (M) and will improve healthy eating behaviour (O).

3. **CMO3:** When participants are provided with healthy eating and physical activities tailored to their needs (C), they are able to incorporate skills and strategies into daily routine, successfully execute new skills (M) and reduce their weight and BMI (O).

4. **CMO4:** When participants with low income (C) are provided with financial incentives and resources, they are able to purchase healthier food options (M) and will improve their healthy eating behaviour (O).

5. **CMO5:** When participants receive healthy eating and physical activity interventions in group settings (C), they are able to obtain social support from peers (M) and will increase their physical activity levels and improve healthy eating behaviours (O).

6. **CMO6:** When participants with limited knowledge and job search skills (C) are provided with job search skills training, they are able to apply these skills in their job search (M) and will obtain employment (O).

7. **CMO7:** When labour market conditions are favourable (C) and participants are provided with job search and entrepreneurial skills training, participants are able to develop and apply their new employability skills (M) and will obtain employment (O).

8. **CMO8:** When participants with low motivation and self-esteem (C) are offered self-led interventions, they will be able to develop self-regulatory skills, maintain perceptions of control over situation (M) and improve their self-efficacy and self-esteem (O).

The findings showed that multicomponent interventions combining different strategies, tailored to participants, using a mix of knowledge and skill building, motivational approaches and hands-on practice resulted in positive outcomes. Participant characteristics that influenced the outcomes included age, gender, educational status, income level and these should be considered when tailoring interventions. Taken together, the review contributes to an emerging field in systematic review, in which qualitative approaches compliment and extend the findings of quantitative reviews and highlights a co-produced rather than prescriptive approach to the design and implementation of health-related interventions to reduce overweight, obesity and unemployment.

3.4 Participants

Participants for the study were recruited from communities within the 9 ASPIRE implementation sites. Recruitment was carried out at community and unemployment centres, via flyers, online posts, posters and referrals from general practitioners, weight management clinics and social prescribing. Ethical approval for the evaluation was obtained from the Bournemouth University Research Ethics committee (Ethics ID: 33136) and the NHS (IRAS project ID is 288333).

3.5 Data collection

Consistent with realist principles and methodology, a mixed-method approach was used to collect data for evaluating the project. Quantitative data was collected at baseline and at 12 weeks in order to assess the effectiveness of ASPIRE activities. Qualitative data was collected at the end of taking part in ASPIRE to document participants experiences of taking part in the project.

3.6 Quantitative data

Quantitative data was collected using a digital evaluation toolkit comprising of 5 surveys which assessed diet quality, health-related quality of life, self-efficacy, engagement with ASPIRE and health, wellbeing and activity. The online surveys included questions on socio-demographic characteristics including age, gender, level of education and duration of unemployment.

3.7 Data collection tools

1. **Wellbeing People Interactive Health Kiosk:** Anthropometric and body composition measures including weight, BMI and body fat percentage were measured using the Wellbeing People Interactive Health Kiosk (Model Number: SLF007 - Marden, Kent, England; **Figure 7**). This was through roadshows in the UK and at the ASPIRE hubs in France and the UK. In order to ensure consistency across all ASPIRE hubs, the measurements were carried out according to standard protocol and all hub coordinators received training on how to use the Health Kiosk.
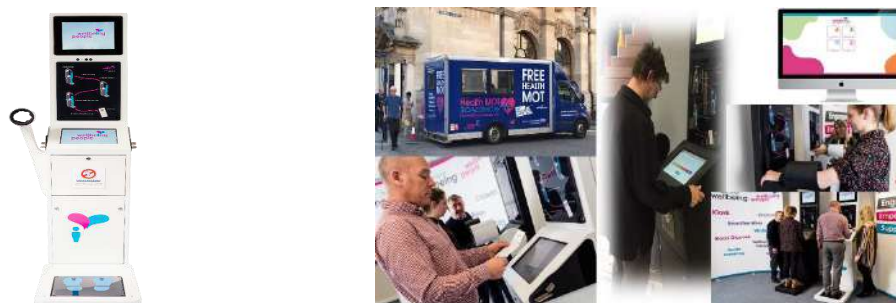

Figure 7: Health Kiosk from Wellbeing People

2. **The ASPIRE participation/employability ladder:** The ASPIRE participation/ employability ladder **(Figure 8)** consisting of a series of 5 steps linked to activities and outputs were used to map participants' progress through ASPIRE. The steps on the ladder were as follows: 'Join an ASPIRE hub', 'Regularly attend hub', 'Begin employment training', 'Volunteer/work experience' and 'Paid employment'.
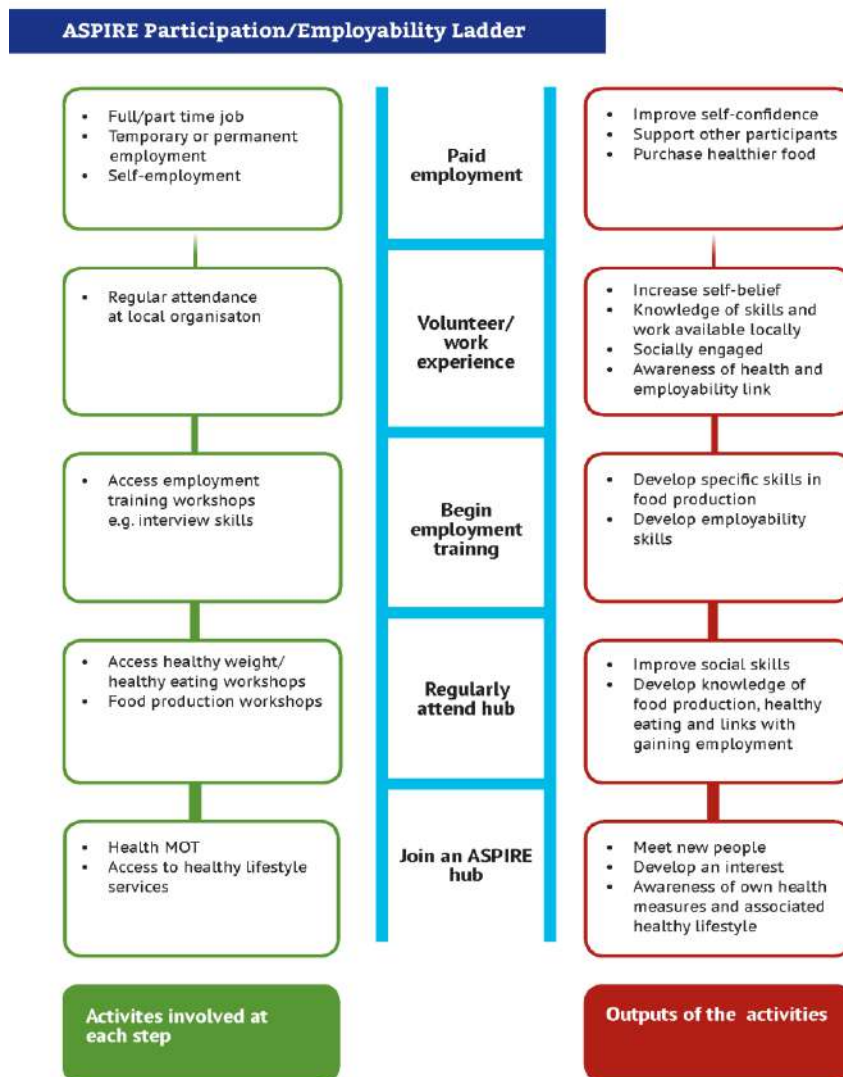

Figure 8: *The ASPIRE participation/employability ladder describing the series of steps, activities and outputs.*

3. **Semi-quantitative food frequency questionnaire (FFQ):** This was used to measure food intake and diet quality. The FFQ was a validated tool which included 183 food

items and a section with open questions. The instrument was an adapted version of the Metacardis (31) and EPIC FFQs (32,33) to reflect the general diet in France and England and was suitable for use in both countries. Using standard portion sizes, the FFQ measured an individual's habitual food and nutrient intake during the past year. Validation studies have shown the instrument to accurately estimate dietary intake with significant correlations with biomarkers and other dietary assessment methods.

4. **The General Self-Efficacy Scale:** Self-efficacy was assessed using The General Self-Efficacy Scale (GSE)(34). This is a 10-item self-administered scale which assesses a general sense of perceived self-efficacy with the aim of predicting how individuals cope with daily challenges and adaptation after experiencing all kinds of stressful life events. Responses are based on a 4-point scale and the sum up of responses to all 10 items yield a final composite score ranging from 10 to 40 with a higher score indicating more self-efficacy. The scale has been validated for use in general adult populations, and in samples from 23 different countries, Cronbach's alpha ranged from 0.76 to 0.90 indicating high reliability. The GSE has been shown to positively correlate with emotion, optimism, work satisfaction. Negative coefficients were found for depression, stress, health complaints, burnout, and anxiety (35).

5. **EuroQol EQ-5D-5L:** This instrument was used to assess participants' health-related quality of life. Th EQ-5D-5L consists of a short descriptive system questionnaire and a visual analogue scale (EQ-VAS) and provides a simple descriptive profile of a respondent's health state. The instrument is one of the most widely used globally for measuring health status and has been proven to be valid, reliable and sensitive in varied populations (36–38).

6. **Health, wellbeing and activity**: This instrument was used to collect data on self-reported health status and workability. Self-reported health status will be assessed using 5-items on the health, wellbeing and activity questionnaire consisting of questions asking participants to rate their physical health over the past 30 days.

3.8   Qualitative data

Qualitative data was collected using the Photovoice method. Photovoice is a community-based participatory research (CBPR) technique whereby participants identify, represent, and enhance their community through photographs and narratives (39). As a methodology, photovoice has been used extensively in research to explore wellbeing and enabled participants to identify activities and places that enhanced their wellbeing (40). It has also been used in studies on unemployment and food insecurity (41), and as a useful tool to engage with

disadvantaged groups (42). The technique has been shown to act as a catalyst, bringing impacts ranging from an increased sense of accomplishment to a deeper understanding of the reality of participants' daily lives (42). Using participatory visual methods enabled participants to create their own stories. Participants were able to exercise control over the presentation of themselves, their wellbeing and their employability aspirations through the process, and using visual images such as photographs was shown to empower participants to recognise their autonomy (43). Within the ASPIRE project, a subset of participants were purposively sampled and encouraged to take at least 7 images of what the project meant to their wellbeing and/or employability over and also completed a logbook documenting each photograph. The photos were further discussed in a semi-structured interview to obtain insights into participants' experience of ASPIRE and impact of the project on their wellbeing and employability. All interviews were recorded on a digital Dictaphone for transcription and analysis.

4 DATA ANALYSIS

4.1   Quantitative data

Statistical analysis of quantitative data was conducted using Statistical Package for Social Sciences (SPSS) IBM statistics (version 26, SPSS UK Ltd Chertsey, UK). The normality of continuous variables will be checked using QQ-plots and the Shapiro-Wilk test. All tests were carried out at the 95% confidence interval and in all analyses, a threshold of $p < 0.05$ was considered statistically significant. Chi-square tests for independence was used for comparing categorical variables such as sex and employment status. Means and standard deviations were computed for continuous variables including age, body weight and BMI. Paired t-tests were used to examine the effect of the intervention on variables over time. Correlations and regressions or non-parametric equivalents as appropriate were used to examine the relationships between continuous variables. Drop-out from the study was accounted for in the analysis using intention-to-treat principles.

4.2   Qualitative data

Qualitative data (photos and transcript form semi-quantitative interview) were analysed using NVivo Pro 12.5 (QSR International, 2020), which permits the coding of photos as well as text. Interviews were audio recorded with the participants' consent and transcribed. Thematic analysis and content analyses using both deductive and inductive approaches (44) were used to test initial theories while allowing for emergence of new themes, and included stages of familiarisation, coding, indexing and charting, mapping and interpretation. The deductive analysis will enabled to test whether data were consistent with prior assumptions. The inductive approach which guided by specific evaluation objectives allowed research findings to emerge from the frequent, dominant, or significant themes inherent in the raw data.

5 RESULTS

5.1 Health Kiosk

Table 3 below describes the background characteristics of participants who used the health kiosk. A total of 2473 participant data were obtained from the Health Kiosk via road shows (63.8%), at the UK hubs (5.2%) and from the French hubs (30.9%). The majority of participants were female (59.7%) with a mean age of 48±18.6 years. A higher proportion of participants were full-time employed (36.8). Motivations for using the Health Kiosk included the following Worried health (18.8%), Not able to see doctor (5.2%), Encouraged by family or friend (6.8%), Encouraged by staff at hub (23.9%), Health conscious (13.0%), More convenient than visiting doctor (3.5%) and Other (28.9%).

Analysis focused on body composition indicated an average BMI of 28.0±6.1, with the majority of participants in the pre-obesity category (34.8%) and mean body fat composition of 33.3±10.3%. Average blood pressure was 125.8±19.8mmHg for systolic and 82.4±13.5mmHg for diastolic blood pressure.

Table 3: Background characteristics of participants from Health Kiosk (n 2473)

Variable	n (%), Mean (SD)
	48.3 (18.6)
Age	
Sex	
Male	997.0 (40.3)
Female	1476.0 (59.7)
Employment status	
Full-time	910.0 (36.8)
Part-time	375.0 (15.2)
Unemployed looking for work	247.0 (10.0)
Unemployed not looking for work	79.0 (3.2)
Full-time student	57.0 (2.3)
Home maker	85.0 (3.4)
Voluntary worker	126.0 (5.1)
Unable to work due to illness	55.0 (2.2)
Home carer	20.0 (0.8)
Retired	476.0 (19.2)
Other	43.0 (1.7)
Location of kiosk	
French hub	765.0 (30.9)
UK hub	129.0 (5.2)
Roadshows	1579.0 (63.8)

Motivation for using health kiosk

Worried about health	465.0 (18.8)
Not able to see doctor	128.0 (5.2)
Encouraged by family or friend	168.0 (6.8)
Encouraged by staff at hub	590.0 (23.9)
Health conscious	321.0 (13.0)
More convenient than visiting doctor	86.0 (3.5)
Other	715.0 (28.9)

Body mass index (kgm^{-2})	28.0 (6.1)

BMI Classification

Underweight (<18.5)	38.0 (1.5)
Normal weight (18.5–24.9)	816.0 (33.0)
Pre-obesity (25.0–29.9)	861.0 (34.8)
Obesity class 1 (30.0–34.9)	475.0 (19.2)
Obesity class 2 (35.0–39.9)	168.0 (6.8)
Obesity class 3 (> 40)	115.0 (4.7)

Body fat composition (BFC)	33.3 (10.3)
Systolic blood pressure (mmHg)	125.8 (19.8)
Diastolic blood pressure (mmHg)	82.4 (13.5)

Data expressed as mean (standard deviation) for continuous variables and frequency (%) for categorical variables. BMI categorised using World Health Organisation (WHO) classification

Table 4 below illustrates the relationship between motivations for health kiosk use, demography and health status indicators. Motivations for health kiosk use differed according to age, sex and employment status (p<0.001). Within group post-hoc analysis indicated that individuals who used the health kiosk because of worries their health (53.3±17.6 years) or who had limited access to a doctor (53.9±17.4 years) were older compared to individuals encouraged by family or friends (46.1±17.9) or hub staff (37.8±16.4) or health conscious. Participants BMI (p<0.001) and BFC differed significantly in terms of motivations for health kiosk use (p<0.001). Post-hoc comparisons indicated that the mean BMI for health-conscious individuals (26.4±5.2kgm^{-2}) while still in the overweight category was significantly lower compared to individuals worried about health (28.9±6.1kgm^{-2}), encouraged by family (28.8±6.6kgm^{-2}) or encouraged by hub staff (28.2±7.3kgm^{-2}). Similarly, individuals who were health conscious (30.9±8.6%) had significantly lower BFC in comparison to individuals who were worried about their health (35.2±10.2%), had limited access to a doctor (34.9±10.2%), encouraged by family or friends (34.4±11.2%) or indicated that it was more convenient to use the health kiosk than visiting the doctor (35.0±8.1%).

Table 4: Relation between motivation for health kiosk usage, demography and health status (n 2473)

	Worried health	Limited access to doctor	Encouraged by family or friend	Encouraged by staff at hub	Health conscious	More convenient than visiting doctor	Other	p-value
Age	53.3(17.6)	53.9(17.4)	46.1(17.9)	37.8(16.4)	44.3(16.5)	51.5(16.4)	54.5(18.4)	**<0.001***
Sex								**<0.001***
Male	202(43.4)	51(39.8)	62(36.9)	207(35.1)	119(37.1)	26(30.2)	330(46.2)	
Female	263(56.6)	77(60.2)	106(63.1)	383(64.9)	202(62.9)	60(69.8)	385(53.8)	
Employment status								**<0.001***
Full-time	201(43.2)	46(35.9)	68(40.5)	200(33.9)	140(43.6)	37(43.0)	218(30.5)	
Part-time	63(13.5)	12(9.4)	30(17.9)	93(15.8)	63(19.6)	14(16.3)	100(14.0)	
Unemployed looking for work	23(4.9)	7(5.5)	7(4.2)	153(25.9)	27(8.4)	3(3.5)	27(3.8)	
Unemployed not looking for work	22(4.7)	3(2.3)	7(4.2)	27(4.6)	7(2.2)	1(1.2)	12(1.7)	
Full-time student	8(1.7)	8(6.3)	6(3.6)	15(2.5)	12(3.7)	1(1.2)	7(1.0)	
Home maker	10(2.2)	6(4.7)	6(3.6)	25(4.2)	12(3.7)	5(5.8)	21(2.9)	
Voluntary worker	11(2.4)	5(3.9)	6(3.6)	36(6.1)	14(4.4)	4(4.7)	50(7.0)	
Unable to work due to illness	14(3.0)	1(0.8)	4(2.4)	4(0.7)	3(0.9)	1(1.2)	28(3.9)	
Home carer	8(1.7)	1(0.8)	4(2.4)	0(0.0)	1(0.3)	0(0.0)	6(0.8)	
Retired	93(20.0)	38(29.7)	29(17.3)	22(3.7)	40(12.5)	19(22.1)	235(32.9)	
Other	12(2.6)	1(0.8)	1(0.6)	15(2.5)	2(0.6)	1(1.2)	11(1.5)	
Location of kiosk								**<0.001***
French hub	53(11.4)	28(21.9)	28(16.7)	408(69.2)	153(47.7)	8(9.3)	87(12.2)	
UK hub	22(4.7)	5(3.9)	13(7.7)	28(4.7)	24(7.5)	8(9.3)	29(4.1)	
Roadshows	390(83.9)	95(74.2)	127(75.6)	154(26.1)	144(44.9)	70(81.4)	599(83.8)	
Body mass index (kgm^{-2})	28.9(6.1)	28.3(5.6)	28.8(6.6)	28.2(7.3)	26.4(5.2)	27.9(4.6)	27.6(5.5)	**<0.001***
Body fat composition (BFC)	35.2(10.2)	34.9(10.2)	34.5(11.2)	32.2(11.8)	30.9(8.6)	35.0(8.1)	33.4(10.3)	**<0.001***
Systolic blood pressure (mmHg)	129.6(20.8)	127.8(19.5)	128.5(19.6)	122.5(18.5)	120.7(19.4)	128.0(18.4)	127.2(19.9)	**<0.001***
Diastolic blood pressure (mmHg)	83.0(13.7)	83.1(12.0)	84.3(14.3)	82.5(14.6)	80.4(12.8)	83.6(11.9)	82.0(12.7)	**0.045***

Data expressed as mean (standard deviation) for continuous variables and frequency (%) for categorical variables. Mean differences significant at the 0.05 level using one-way analysis of variance (ANOVA) and chi-square tests.

Table 5 illustrates the relation between body composition and health and wellbeing metrics. BMI differed significantly for health and wellbeing metrics your body, sleep, exercise, diet and alcohol. Individuals who needed to take action in relation to your body (p<0.001) and diet (p<0.001) had significantly higher BMI in comparison to the other groups. Analysis of BFC and health and wellbeing metrics indicated significant differences for metrics related to your body, sleep and alcohol. Participants categorised as having good wellbeing in relation to alcohol consumption had higher BFC compared to participants categorised as room for improvement (p = 0.001). For sleep and your body metrics, participants with good wellbeing had lower BFC compared to those categorised as room for improvement (p<0.001) and participants needing to take action had the highest BFC compared to the other groups (p<0.001).

Table 5: Relationship between body composition and health and wellbeing metrics (n 727)

Health & wellbeing metrics	Body mass index (kgm^{-2}) mean(SD)				Body fat composition (%) mean(SD)			
	Need to take action	Room for improvement	Good wellbeing	p-values	Need to take action	Room for improvement	Good wellbeing	p-value
Your body	31.6(6.9)	28.6(7.0)	25.5(5.8)	**<0.001**	37.2(9.7)	33.1(11.0)	27.3(10.3)	**<0.001**
Sleep	25.1(2.1)	28.8(7.1)	27.2(6.8)	**0.007**	29.0(6.9)	33.8(11.3)	30.1(10.9)	**<0.001**
Exercise	29.9(7.9)	28.3(7.1)	26.7(6.3)	**<0.001**	34.0(12.3)	31.6(11.1)	30.7(10.84)	0.068
Relaxation	28.4(9.3)	27.8(6.7)	27.8(7.0)	0.912	33.9(13.0)	32.0(10.7)	30.7(11.5)	0.204
Homelife	24.0(7.7)	28.4(7.0)	27.4(6.8)	0.056	26.3(13.0)	32.3(11.5)	31.0(10.8)	0.129
Work life	28.4(7.7)	27.6(8.1)	27.4(6.1)	0.210	31.1(12.4)	31.2(13.0)	31.8(9.8)	0.734
Stress	27.8(7.0)	28.0(7.1)	27.4(6.6)	0.548	32.7(10.0)	32.1(11.1)	30.3(11.3)	0.109
Diet	31.3(10.4)	28.4(7.0)	26.9(6.4)	**<0.001**	33.4(15.5)	32.1(11.3)	30.8(10.6)	0.212
Alcohol	28.0(4.6)	26.6(6.3)	28.3(7.1)	**0.016**	30.0(10.5)	29.1(10.2)	32.4(11.4)	**0.001**

Data expressed as mean (SD). Mean differences significant at the 0.05 level using one-way analysis of variance (ANOVA).

5.2 Engagement and participation

Engagement and participation in ASPIRE was assessed using the ASPIRE participation ladder. The analysis included data from a total of 322 participants, with 64.6% being female and 55.0% of participants living in France (**Table 6**). At baseline, 59.6% of participants indicated their current step on the ladder as joining an ASPIRE hub compared to 37.0% of participants at post-intervention.

Table 6: Background characteristics of participants completing the ASPIRE participation/ employability ladder (n 322)

Variable	n (%), Mean (SD)
Sex	
Male	111(34.5)
Female	208(64.6)
Other	3(0.9)
Age	38.5(17.5)
Country	
France	177(55.0)
UK	145(45.0)
Project site	
AG	29(9.0)
MLPM	55(17.1)
MEEF	56(17.4)
WM	15(4.7)
MCH	57(17.7)
BCP	48(14.9)
YL	38(11.8)
VIF	11(3.4)
CSE	13(4.0)

Data expressed as mean (standard deviation) for continuous variables and frequency (%) for categorical variables. AG, Anges Gardins; MLPM, Mission Locale Picardie Maritime; MEEF, Maison pour l'Entreprise, l'Emploi et la Formation Santerre Haute Somme; WM, Centre Social Audrey Bartier ; MCH, Medway Community Healthcare; BCP, Bournemouth, Christchurch & Poole Council; YL, East Kent hub; VIF, Vivons en Forme; CSE; Centre Social Eclaté

There was a consistent increase in the number of participants moving up a step on the ladder from baseline compared to 12 weeks (**Figure 9**). There was also an increase in the proportion of participants moving a step up the participation ladder in terms to their future aspirations (**Figure 10**). In comparison to 14% indicating their future step on the ladder as getting into paid employment at baseline, 30.4% indicated their future aspiration as getting into paid employment at the post-intervention timepoint.
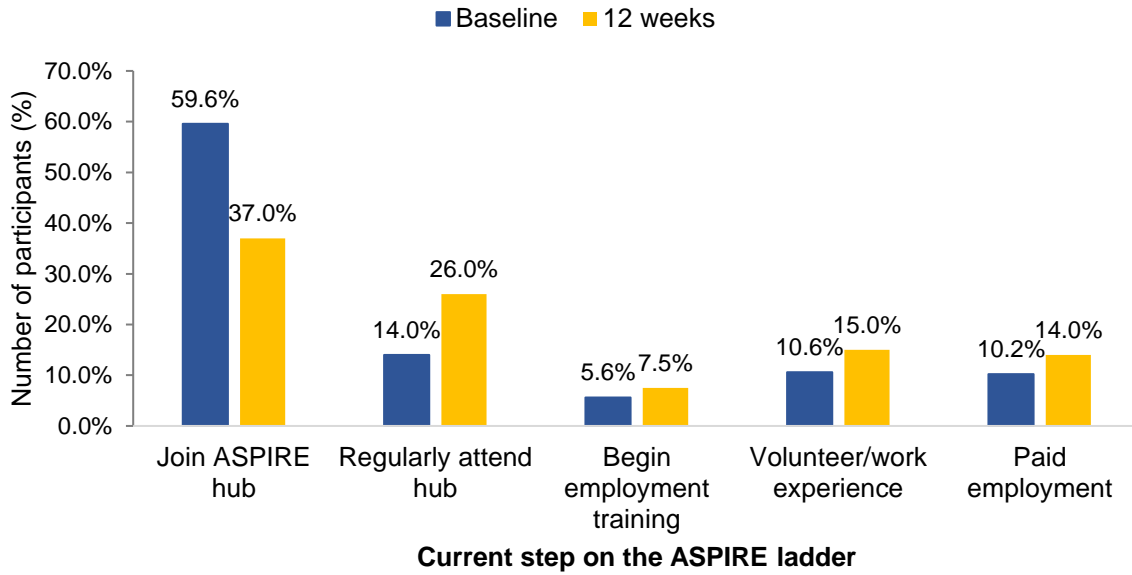
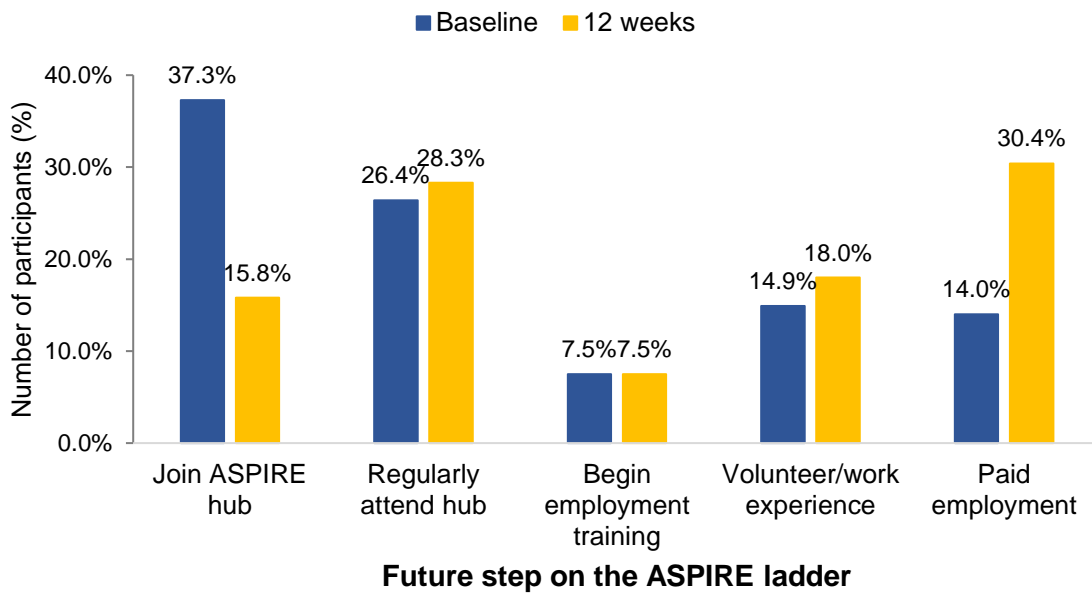**Figure 9:** *Participants' current step on the ASPIRE ladder at baseline and post-intervention*

Figure 10: *Participants' future aspirations on the ASPIRE ladder at baseline and post-intervention*

5.3   Self-efficacy

Table 7 illustrates data on self-efficacy. A total of 252 participants were included in this analysis . The mean age was 37.9±17.9, 65.5% female and 66.7% were participants from France. The mean self-efficacy score at baseline was 28.8±6.5, on a scale ranging from 10 to 40 for all participants, with a higher score indicating a higher self-efficacy. Analysis of post-intervention self-efficacy score indicated a small but significant increase in self-efficacy post-intervention (0.5, p=0.036) in all participants. Subgroup analysis indicated a consistently higher self-efficacy in participants living in France (baseline: 29.8±6.1; post-intervention: 30.0±6.0) compared to participants in the UK (baseline: 26.7±6.7; post-intervention: 27.7±7.1) both at baseline and post intervention. Statistically significant differences in self-efficacy scores were observed between countries at baseline (p<0.001) and at post-intervention (p = 0.003).

Table 7: Background characteristics of participants completing the self-efficacy scale (n 252)

Variable	n (%), Mean (SD)
Sex	
Male	84(33.3)
Female	165(65.5)
Other	3(1.2)
Age	37.9(17.9)
Country	
France	168(66.7)
UK	84(33.3)
Project site	
AG	27(10.7)
MLPM	40(15.9)
MEEF	60(23.8)
WM	17(6.7)
MCH	46(18.3)
BCP	8(3.2)
YL	30(11.9)
VIF	14(5.6)
CSE	10(4.0)
Self-efficacy score	
Baseline	28.8(6.5)
Post-intervention	29.3(6.5)

Data expressed as mean (standard deviation) for continuous variables and frequency (%) for categorical variables. AG, Anges Gardins; MLPM, Mission Locale Picardie Maritime; MEEF, Maison pour l'Entreprise, l'Emploi et la Formation Santerre Haute Somme; WM, Centre Social Audrey Bartier ; MCH, Medway Community Healthcare; BCP, Bournemouth, Christchurch & Poole Council; YL, East Kent hub; VIF, Vivons en Forme; CSE; Centre Social Eclaté

5.4 Health-related quality of life

The health-related quality of life assessment using the EQ-5D-5L tool was completed by a total of 251 participants (**Table 8**). The majority of these were female (64%) and predominantly from France (65.3%). Self-reported health-rated quality of life on the visual analogue scale (EQ-VAS scale) comparing baseline to 12 weeks increased by 0.9 points however, this difference was not statistically significant. While the overall EQ-VAS score did not significantly differ, there were differences observed for the descriptive subscales for mobility, self-care, usual activities, pain/discomfort and anxiety/depression (**Figure 11**). At baseline 66.1% of participants reported no problems with mobility in comparison to 67.3% at 12 weeks. The number of participants who reported having no mobility at all decreased from 1.6% at baseline to 1.2% at 12 weeks. Similarly, there was an increase in participants reporting no problems with self-care at baseline (86.1%) compared to 12 weeks (87.6%), while the number of participants reporting slight, moderate and severe problems with self-care decreased. A similar trend was observed for usual activity, pain/discomfort and anxiety/depression.

Table 8: Background characteristics of participants completing the EQ-5D-5L Questionnaire (n 251)

Variable	n (%), Mean (SD)
Sex	
Male	84(33.5)
Female	164(65.3)
Other	3(1.2)
Age	37.7(17.7)
Country	
France	164(65.3)
UK	87(34.7)
Project site	
AG	25(10.0)
MLPM	41(16.3)
MEEF	58(23.1)
WM	14(5.6)
MCH	52(20.7)
YL	35(13.9)
VIF	15(6.0)
CSE	11(4.4)
EQ-VAS score	
Baseline	64.8(21.0)
12 weeks	65.7(20.8)

Data expressed as mean (standard deviation) for continuous variables and frequency (%) for categorical variables. AG, Anges Gardins; MLPM, Mission Locale Picardie Maritime; MEEF, Maison pour l'Entreprise, l'Emploi et la Formation Santerre Haute Somme; WM, Centre Social Audrey Bartier ; MCH, Medway Community Healthcare; BCP, Bournemouth, Christchurch & Poole Council; YL, East Kent hub; VIF, Vivons en Forme; CSE; Centre Social Eclaté
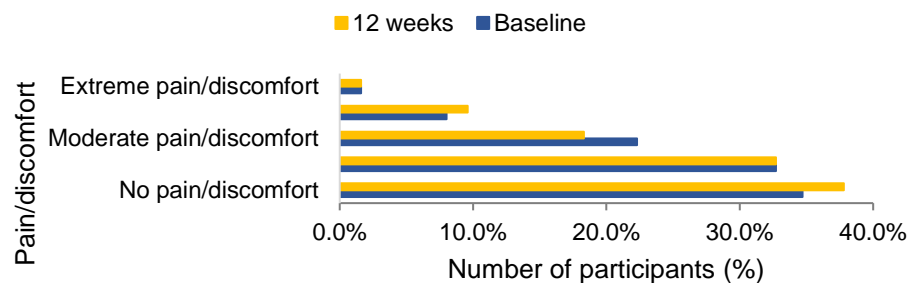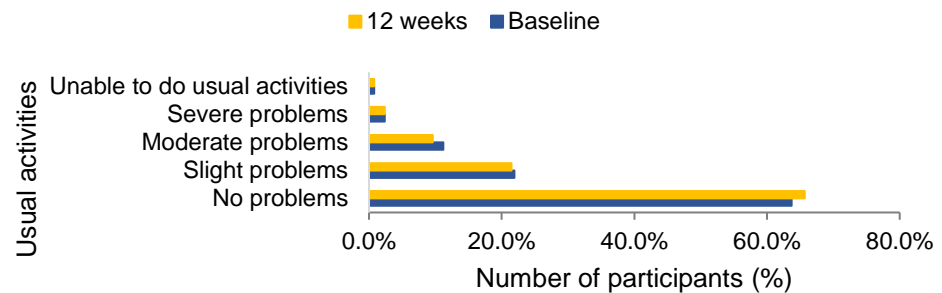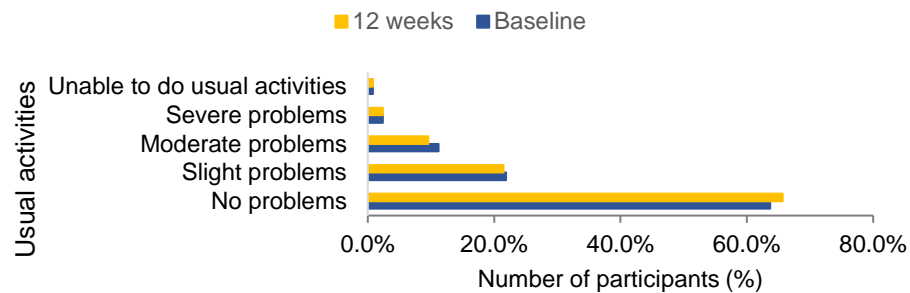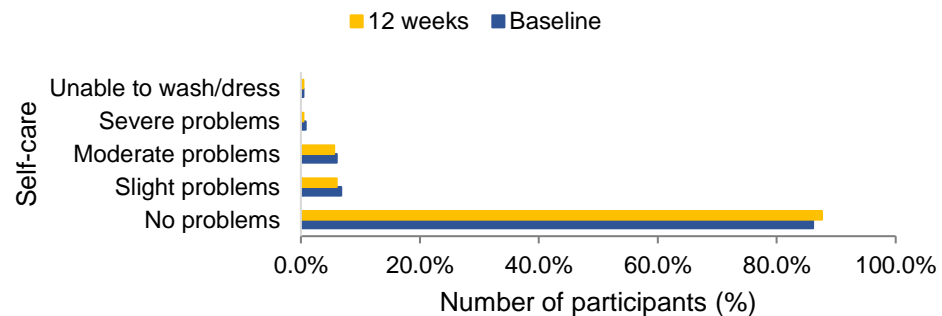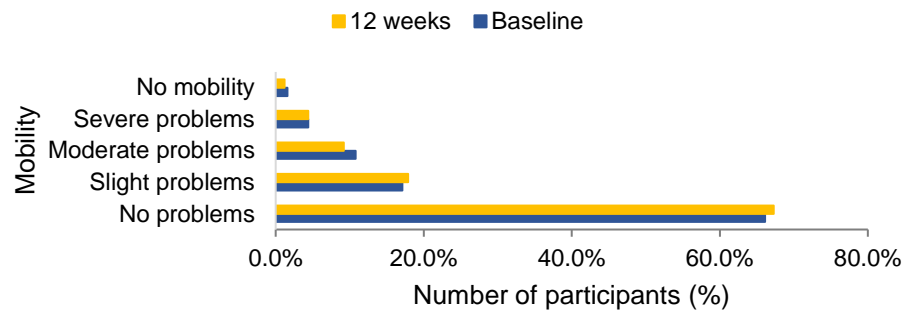
Figure 11: Health-related quality of life at baseline and 12 weeks post intervention

5.5 Diet Quality

The background characteristics of participants completing the food frequency questionnaire and diet quality assessed using the Diet Quality Index – International (DQI-I) are presented in **table 9** below. DQI-I score ranges from 0 to 100 with a higher score indicating a higher dietary quality. Data was obtained from a total of 257 participants, with the majority of participants being female (65%) and predominantly from France (66.1%). Overall participants diet quality would be categorised as average and there were no statistically changes in diet quality in response to ASPIRE activities when comparing baseline to the 12-week timepoint.

Table 9: Background characteristics of participants completing the food frequency questionnaire (n 257)

Variable	n (%), Mean (SD)
Sex	
Male	90(35)
Female	167(65.0)
Age	40.7(18.0)
Country	
France	170(66.1)
UK	87(33.9)
Project site	
AG	45(17.5)
MLPM	9(3.5)
MEEF	62(24.1)
WM	16(6.2)
MCH	52(20.2)
YL	3(1.2)
VIF	18(7.0)
CSE	20(7.8)
Diet quality	
Baseline	54.0(10.7)
12 weeks	54.2(10.3)

Data expressed as mean (standard deviation) for continuous variables and frequency (%) for categorical variables. AG, Anges Gardins; MLPM, Mission Locale Picardie Maritime; MEEF, Maison pour l'Entreprise, l'Emploi et la Formation Santerre Haute Somme; WM, Centre Social Audrey Bartier ; MCH, Medway Community Healthcare; BCP, Bournemouth, Christchurch & Poole Council; YL, East Kent hub; VIF, Vivons en Forme; CSE; Centre Social Eclaté

5.6 General Health

Table 10 illustrates the characteristics of participants completing the health and wellbeing questionnaires. Similar to the other measures, the majority of participants were female (64.9%) and from France (68.1%). The majority of participants had compulsory schooling (40.1%) and

had no previous employment experience (34.8%) and reported living with partner & or family members (44.4%).

Table 10: Background characteristics of participants completing the health and wellbeing questionnaire (n 279)

| Variable	n (%), Mean (SD)
Sex	
Male	92(33.3)
Female	181(64.9)
Other	6(2.2)
Age	37.8 (17.8)
Country	
France	190(68.1)
UK	89(31.9)
Project site	
AG	29(10.4)
MLPM	47(16.8)
MEEF	59(21.1)
WM	15(5.4)
MCH	52918.6)
BCP	1(0.4)
YL	37(13.3)
VIF	14(5.0)
CSE	25(9.0)
Highest level of education	
None	25(9.0)
Compulsory schooling	112(40.1)
Vocational training/job skills training	70(25.1)
Post-secondary education & qualifications	72(25.8)
Duration of previous employment	
None	97(34.8)
< 1 year	47(16.8)
1-2 years	29(10.4)
3-4 years	16(5.7)
5 years or more	90(32.3)
Household	
Living alone	92(33.0)
Living with partner	55(19.7)
Living with a housemate (shared rented accommodation)	8(2.9)
Living with partner & or family members	124(44.4)

Data expressed as mean (standard deviation) for continuous variables and frequency (%) for categorical variables. AG, Anges Gardins; MLPM, Mission Locale Picardie Maritime; MEEF, Maison pour l'Entreprise, l'Emploi et la Formation Santerre Haute Somme; WM, Centre Social Audrey Bartier ; MCH, Medway Community Healthcare; BCP, Bournemouth, Christchurch & Poole Council; YL, East Kent hub; VIF, Vivons en Forme; CSE; Centre Social Eclaté

Self-rated health status in terms of overall general health and physical health in the past 30 days generally improved from baseline to 12 weeks (**Figure 12**). Similarly, there was an improvement in the impact of health on activity level. Compared to baseline where 48.4% of participants reported an effect of their health on their activity levels, fewer participants (47%) reported an effect of their health on their activity level at 12 weeks.
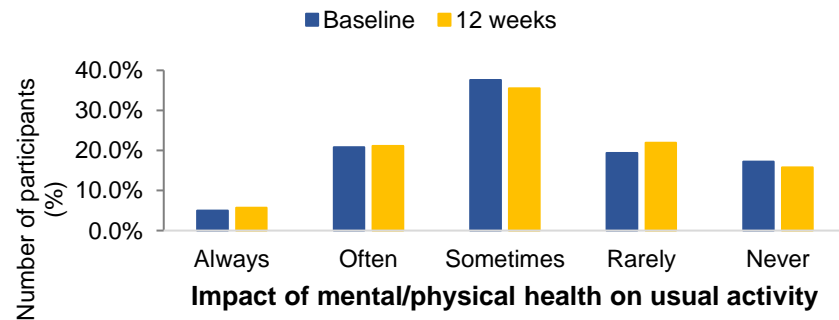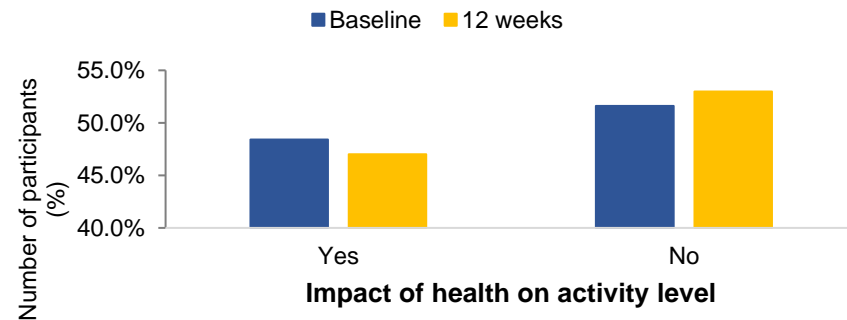
a.
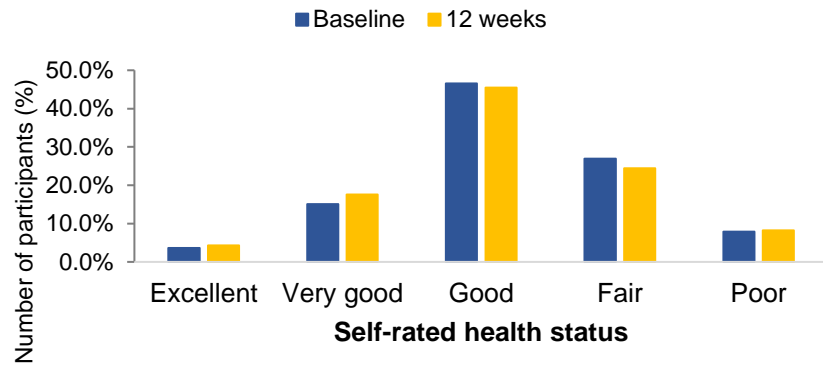
b.
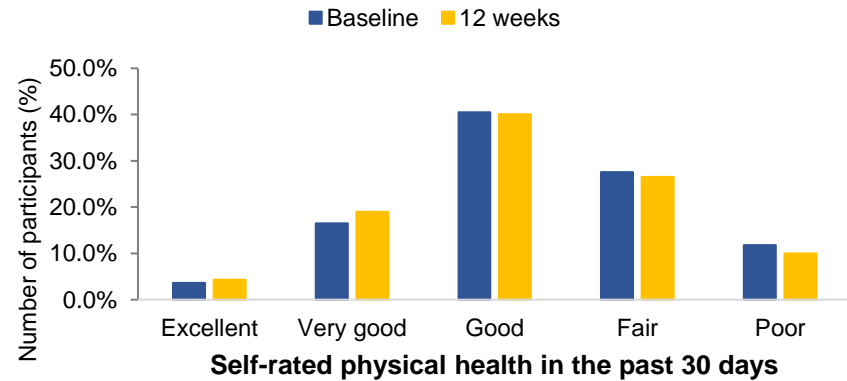
c.

d.

Figure 12: *Participants self-rated health status at baseline and at 12 weeks*

5.7 Participants experiences of taking part in the project – Photovoice study

Background characteristics of participants taking part in the Photovoice study are presented in **table 11**. All the nine ASPIRE hubs were represented with most providing two participants; 65% came from France, 35% from the UK and there was an even gender split with 55% female participants. There was a wide age range (19 to 73 years) with the mean age being 39 years, however the French participants represented a younger cohort (mean age 36 years), UK cohort (mean age 43 years). 40% of the participants lived alone and the rest lived with others (partners or family members). There was a range of educational backgrounds represented with 30% experiencing only compulsory schooling, 35% experiencing vocational or job skills training and 35% obtaining qualifications from post-secondary education. Previous employment was also varied but related to age with 45% having no or less than one year's experience, these participants had an average age of 25 years; 35% having more than five years' experience, these participants had an average age of 51 years and 20% having between one- and four-years' experience, these participants had an average age of 46 years.

Table 11: Demographic characteristics of participants participating in Photovoice (n 20)

Variable	n (%), Mean (SD)
Sex	
Male	9(45)
Female	11(55)
Age	38.5(16)
Country	
France	13(65)
UK	7(35)
Highest level of education	
Compulsory Schooling	6(30)
Vocational/ job skills training	7(35)
Post-secondary education and qualifications	7(35)
Previous employment	
None	4(20)
< 1 year	5(25)
1– 2 years	1(5)
3 – 4 years	3(15)
>5 years	7(35)
Household	
Living alone	8(40)
Living with partner	2(10)
Living with partner and or family members	9(45)
Unknown	1(5)

Data expressed as mean (standard deviation) for continuous variables and frequency (%) for categorical variables.

Overview of Themes and Sub-themes

Figure 13 below shows the main themes and the most frequently coded sub-themes that were identified from the Photovoice analysis.

Figure 13: Main themes and sub-themes from the Photovoice analysis

The following sections examine the main themes and sub-themes with example photos and quotes from the transcripts, participant IDs have been anonymised.

5.7.1   My Life before ASPIRE

The dominating sub-theme for this part of the journey was 'Health and Wellbeing Challenges'. Participants often referred to their poor state of mental wellbeing before starting the ASPIRE programme; sadness, depression and anxiety were commonly experienced "*when I first came here, I was very depressed and very mentally unstable and very not sure about the future*" P3. Lack of confidence and poor self-image were also prevalent "*Because when I came to the ASPIRE workshop, my life was a mess. I had problems that I still have, problems in terms of self-confidence, self-esteem*" P8. The most frequent phrase participants used to express their feelings at this stage was having no hope or no progress, "*your life is zero, so you know you need to um, pick yourself up so that red light means, you know, your life has stopped…it's*

come to a zero" P7. Some participants said they were experiencing loneliness *"I was alone in my room."* P12. There were several references to coping mechanisms, some of them negative "*My weight, my self-image, the fact that I don't eat properly, and that I resort to foods that are more or less harmful to my health.*" P9, and some of them positive – "*So we volunteer in soup kitchens, the rescue services, we become religious to raise our spirits and to find peace so as not to become depressed*" P19. The other sub-theme was 'Challenges with access to opportunities'; participants expressed their experiences relating to lack of opportunities, income, or time, due to unemployment or lack of support before joining the ASPIRE programme, "*I don't have a lot of income at the moment, I feel like a lot of opportunities are shut to me because of income, it does make me feel very um, isolated a lot um from social things, um from progressing on in life, um, its limited opportunities without money*" P5. The photos and photo captions reflected the negative state of mind for most of the participants, examples can be found in **Figure 14**.

Sadness

Dead end life

Stopped

Alone in my thoughts

Figure 14: *Photos and captions from My Life before ASPIRE theme*

5.7.2 My Life during ASPIRE

The three sub-themes 'Actively being involved in ASPIRE', 'Access to and feeling supported' and 'Ongoing Lifestyle changes' reflect the changes that participants experienced whilst being involved in ASPIRE activities. They enjoyed participating in activities such as gardening, cooking and creative activities "*I can help stuff grow, and I can be a part of something that isn't just me in my little world, it's really nice …That's a great comfort*" P1, and found pleasure in being more active through sport and movement "*I was constantly on the move, I was moving because there was sport, there was the nutrition part, there was sophrology, and so on. I mean there was hardly any down time*" P17. Some commented on the positive aspects of learning new skills and getting involved in work "*I learned things about health and well-being. It made me want to move on.*" P11. As well as the activities themselves, participants felt that involvement in the ASPIRE project supported their physical and mental health giving them feelings of hope and happiness "*during the project, what Aspire brought me….to have this sensation of progressing …with each workshop for example.*" P15, "*since being at ASPIRE…. I felt nothing but support……keeping you upright, not just physically supported but mentally supported*" P4. Participants also reported that during ASPIRE they experienced ongoing lifestyle changes with improvements to their mental health, motivation "*Motivating. It's the desire to rebuild myself.*" P14, and social life "*I go to the centre every day, so of course I always see the other girlfriends I made with ASPIRE … and it's great. Let's say we are a family.*" P16 The photos and photo captions for this theme reflected the participants' improvement in mental state through being involved in activities and feeling supported by the ASPIRE project, examples can be found in **Figure 15**.

| Active | Supported |
| Sunshine of happiness | Solidarity group |

Figure 15: Photos and captions from My Life during ASPIRE theme

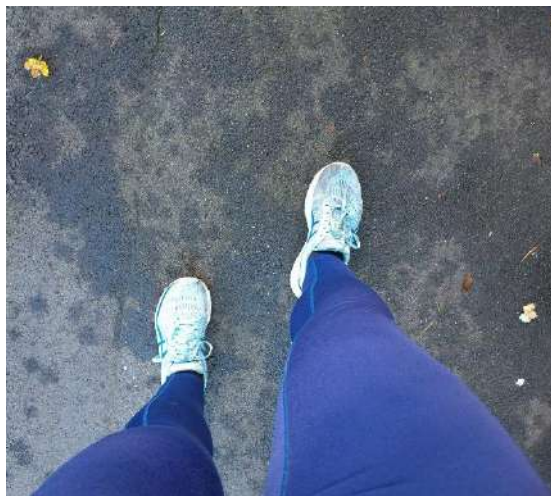### 5.7.3   My Life now after ASPIRE

The dominant sub-theme was 'Positive Life Changes'. In sharp contrast to 'Before ASPIRE', participants expressed feelings of happiness, hope *"we have faith, we have hope, we have light… you see, green, it can represent many things, hope"* P18, increased energy and confidence *"I think I've changed completely in terms of my self-esteem, I have made progress"*, and motivation to move forward in life, *"the activities we do at ASPIRE, sports-wise, gave me the motivation to move on and fight"* P11. The sense of community and friendship was also frequently mentioned *"I love it, I love being there for others now. I feel good, I take care of myself but also of others"* P20 as well as the effect on employability "*I took this photo because I took part in aspire, and I'm job hunting now"* P12. The photos and captions for this theme reflected these positive experiences, examples can be found in **Figure 16**.
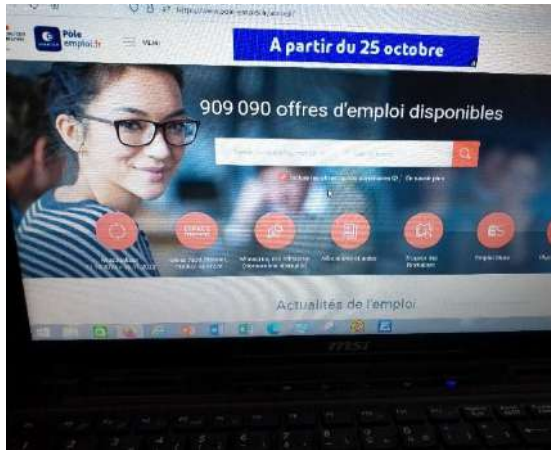
Looking for a job

Green river of hope

Moving forward

Acceptance

Figure 16: *Photos and captions from My Life now after ASPIRE theme*

5.7.4 My Life without ASPIRE

This theme was dominated by negative emotions. Many participants had experienced mental health challenges in the past including depression, suicide, stress, worry, addiction and feelings of being lost with no purpose. They thought that, without ASPIRE, these conditions would have continued. *"I was on the path to suicide, that, and alcohol. I didn't feel well."* P20, *"I would go back to the darkness. I wouldn't have anything to look forward to in my life"* P3. Another major sub theme was 'Inactivity and lack of progress' often described as having no goals, standing still, an empty life or a path full of challenges *"that's pretty easy that one, empty, and that's a wear mark, through sitting in that chair for too long"* P6. There were also participants with unfulfilled aspirations due to lack of money or motivation *"I just felt, before I*

met the people at the ASPIRE, I was just standing still, had lots of aspirations to do things but I didn't have the money to do them or the get up and go". P5. Participants also reported that without ASPIRE they had experienced a lack of guidance and support with no access to professional help for stress management, nutrition advice, increasing knowledge and skills and preparation for employment *"And if we didn't join ASPIRE, would we think of going to see a sophrologist or paying money to go see a nutritionist? Let's not forget that"* P9. The photos and captions for this theme reflected these negative emotions, examples can be found in **Figure 17**.

Without landmarks

Darkness

Empty

Suicide

Figure 17: *Photos and captions from My Life without ASPIRE theme*

5.7.5 ASPIRE and my health, wellbeing, or employability

The dominant sub-themes reflected the intended outcomes of the intervention 'Valuing healthy produce, cooking and eating', 'Improved mental health' and 'Physical fitness and weight loss benefits'. Many participants valued the nutrition and cooking advice "*It's a better way of cooking and we keep the vitamins in the vegetables with the cooking workshops. Before we ate dead food... When we have good vegetables that revitalise the body, we learn to eat smarter*" P19, and found that it had positive effects on their mental health "*this tree symbolises a new phase of my life…sunflowers, sunlight, representing new birth, but overall, ASPIRE's just opened a new light in my life, it's relighted a lot of past dreams I've had as well*" P3. Some also managed to lose weight "*And there's the scales. nine pound I lost in six weeks*" P6. Employability was also mentioned "*because as a result, in terms of employability, I'm really preparing a lot for the future*" P15 as well as the benefits of being part of a community "*Renewal. Well-being. Eating well, being with people, being sociable, involved in activities. I loved it yesterday. There weren't many of us, but it was nice. It's being together*" P20. The photos and captions for this theme reflect the positive effects of the ASPIRE project, examples can be found in **Figure 18**.

| Healthy Eating | Wellbeing |

| Strength | Renewal of being together |

Figure 18: *Photos and captions from ASPIRE and my Health, Wellbeing and Employability*
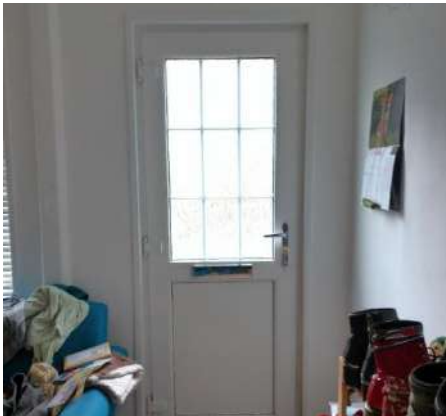
5.7.6   Challenges during ASPIRE

The challenges participants experienced during ASPIRE largely fell into two sub-themes 'Physical health related challenges' *"The challenge for me is to do an activity. Sports, physical activities. It was hard. I was not used to it."* P20, or 'Emotional and Mental Challenges' including anxiety, agoraphobia, facing fears, eating disorders, or speaking in a group *"This is my biggest challenge …which is leaving safety of the nest, leaving I know what's protecting me…I think it's agoraphobia"* P1. Also relevant to some participants were challenges related to life balance, travelling to the Hub and the sociocultural environment at home. However, many participants expressed positive comments about the benefits of overcoming the challenges to physical and mental health, *"And when we exercised, we would feel better. It is the beginning that is difficult, we oxygenated our blood."* P19. The photos and captions for this theme were quite varied depending on individuals' challenges, examples can be found in **Figure 19**.

Sports trail

Life challenges

My door

Possible route despite difficulties

Figure 19: Photos and captions from challenges during ASPIRE

5.7.7 The biggest change in my life from ASPIRE

The most common way that participants expressed the biggest change in their lives was and an increase in confidence and self-efficacy, talking about change of image, rediscovery, overcoming obstacles and being motivated to succeed despite the challenges, *"I think it's really the fact of daring, of saying to myself, well, after all, if I don't dare, it's certain that I won't succeed, that's clear, and also saying that there's something else than this daily routine"* P15. Also strongly featuring in this theme was improved mental health, expressed as a positive frame of mind, appreciation of surroundings, happiness, peace and serenity *"it shows the biggest change ASPIRE has had on life, meaning the walks and the activities again from negativity to positivity"* P7. Many participants also thought that the biggest change was derived from the 'Positive social aspects of the ASPIRE' being accepted by the community, no racism, no judgement, support from others and feeling safe, *"ASPIRE is a place of safety for me from my normal life …it's a place of safety, security, where I can come for a couple hours every*

day, or every week, where I feel safe" P3. Also mentioned were 'establishing healthier routines' and 'employability', *"you can walk right along the coastal walk there, but there's a circular walk, 2.6 miles and I do that quite a few days if I can"* P6. The photos and captions for this theme reflected the positive changes on participants lives, examples can be found in **Figure 20**.

My rebirth	Serenity
Sociability	Freedom and happiness

Figure 20: *Photos and captions from Biggest change in my life from ASPIRE*

5.8 Demonstrating what works, how, why and for whom

Consistent with realist evaluation principles, further analysis were carried out to elucidate which strategies implemented within the ASPIRE model were successful or unsuccessful and for which participants. **Tables 12 and 13** below provide a summary of successful intervention activities, strategies that were effective for recruitment, engagement and why these were successful or unsuccessful.

Table 12: Summary of intervention activities, recruitment and engagement strategies that worked well in ASPIRE

	WHAT WORKS	FOR WHOM	HOW	WHY	CHALLENGES
INTERVENTION ACTIVITIES	Cooking workshops Food growing workshops Nutrition classes	All participants in all hubs	• Free vegetable basket as a reward. • Tasting and sharing foods/recipes after a cooking class. • Using food from the garden and learning new recipes. • Volunteering opportunities • New skills and knowledge around food and fresh produce • Small classes and group-specific programmes • Adaptation of activities to the needs of participants • Frequency of workshops • Good atmosphere /environment • Proactive staff	• Higher social engagement, involvement and adherence of participants. • Varied activity schedule: always exploring members' interest in new activities/topics. • Frequent workshops fostered regular engagement with activities • Resources to support activities (recipe book etc). • Access to the digital support platform.	• Finding service providers (for cooking • Require a physical structure & equipment • Need for clear food distribution policy • Aligning the physical space to the number of activities. • Encourage participants to attend other activities that they did not enrol in. • Aligning proposed activities with participants' interests and availability (timetable).
RECRUITMENT	Word of mouth	All participants in all hubs	• Testimony • Showing own results. • Sharing positive thoughts on the project.	• People notice a real change from the person who recommended the	

			• Website with commissioned videos. • Video testimony of participants.	programme, so they are more diligent.	
	Availability of hub coordinators to facilitate recruitment	All participants in all hubs	• Formal meetings to outline aims of project to interested participants. • Individual conversations between hub coordinators and potential participants • Stalls at local community events • Showing facilities, and materials, with samples of activities, cooking demonstrations, opportunities to speak to staff and participants etc.	• Easy access & availability of information on the project. • Pop-up events showed positive recruitment results through demonstration activities in public spaces.	• Events that are not open to the public while useful for networking with other agencies, require a lot of organisational effort. • Meeting with stakeholders may be more cost-effective for building the network.
	Referral system (NHS primary care networks (PCNs), GP surgeries, Social Prescribing Services, job and leisure centres).	All participants in all hubs	• Target the same audience	• GP referrals prove to be well founded in remaining with/in receiving regular participants in any choice of activity.	• Health professionals were overwhelmed by the pandemic and other internal issues (lack of time). • Social prescribing services: frequent staff turnover, complex provision.
	Social media (Facebook, Instagram).	Young people New community members	• Facebook events and digital posters advertised on ASPIRE's pages or partners' social media platforms. • Texts and newsletter	• Wide reach of audience • Keeping participants informed about the programme as it evolved.	• Exclusion of population not connected to social media. • Overload of information/competing interests on social media
ENGAGEMENT WITH PARTICIPANTS	Participant engagement was mainly attributed	All participants in all hubs	• Identification with the project's values.	• Participants' perception of their	

	to the benevolence of the programme.		• The quality and diversity of activities offered • Free access to activities & resources • Individualised follow-up/coaching. • Support materials, gifts, and a diploma of course completion • Frequent feedback on progress • Participatory, cooperative, and collaborative methods in individual and group settings	results and/or peers' progress. • Showing the achievements of the various groups as/when it was possible to do so. • Participants felt confident & empowered
	Interpersonal relationship (hub coordinators & participants)	Younger participants	• Policy of including participants in programme phases • Making the participants responsible for elements of activities • Continuous participation encouragement with regular contact (by telephone or in person). • Opportunities for the wider community to be involved, such as Street Theatre & dance. • Follow-up participants who did not attend by keeping in touch by phone call and text	• Participants feel confident & listened to • Feeling valued • Sense of belonging • Fostering relationships between participants & hub coordinators.

	Progression to volunteering on the project	Younger participants	• Participants volunteering in project activities including cooking sessions, working in ASPIRE gardens or providing catering for ASPIRE events • Promotion of the programme at local events by young people involved in the project	• Increase in participants' self-confidence & self-esteem
PARTICIPANT INCENTIVES	Support with transport (public transport & taxi)	• Participants residing in rural areas or areas with little connection to bus services. • Individuals facing particular mental health conditions (anxiety, phobias)	• A local association of transport was used to provide transport • Reimbursement of transport costs: public transport (face value of the ticket) or driving to the hub (on a mileage basis).	• Promoted accessibility of project activities • Increased attendance
	Social credit or participant reward system.	• Anges Gardins Hub	• Programme of reward: MANNE. Participants earned points from attending activities & this could be used in exchange for produce or services including hairdresser	• Encouraging commitment through the MANNE exchange system.
	ASPIRE uniform (T-shirts and kitchen aprons)	All participants in all hubs		• Promoted sense of belonging & identity for participants

Table 5: Summary of intervention activities, recruitment and engagement strategies that did not work well in ASPIRE

	WHAT DID NOT WORK	FOR WHOM	HOW	WHY	CHALLENGES
Intervention Activities	Activities related to physical activity (wellbeing walks, cycling, guided walks, boxercise, fitness courses).	All ASPIRE Hubs	• Difficulties in carrying out sports-related activities.	• Outdoor activities (for example cycling) depend on the weather. • Equipment: bicycle weight limit. • Requiring strong involvement of the hub team members to carry out activities with the participants.	• Considering winter alternatives. • Resilient and dedicated staff.
Recruitment	Flyers, posters, articles promotion on the local media & publicity campaigns.	All ASPIRE Hubs	• Leaflet drops in local shops • Posters in public spaces • Local radio coverage	• Raised awareness across the community but did not appear to raise a significant cohort of participants to the programme. • Posters and roller banners in shopping centres were not effective due to no human intervention and a non-specific audience.	
Engagement with Participants	Weekly workshop registration system	The majority of ASPIRE hubs	• Instead of a weekly posting of scheduled activities, run the programme on a cohort basis		
	Staff recruitment	The majority of ASPIRE hubs	• High staff turnover	• No stable team dedicated to the project throughout the programme.	
PARTICIPANT INCENTIVES	Using food from the garden	BCP hub	• Not establishing an initial policy for the use of the growing area and harvesting food from the garden.	• Not having a clear food distribution policy created issues such as "not having enough to go around,	

deciding who gets what is available".