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**Exercise on Prescription Evaluation Report for South Gloucestershire**

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**University of Gloucestershire 2014**

**Acknowledgements**

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# Executive Summary

Physical inactivity has been identified as the fourth leading cause of non-communicable disease worldwide (Kohl et al. 2012) and is associated with a range of diseases including Type II diabetes, cardiovascular disease, hypertension and obesity (HSE, 2012; Department of Health (DH), 2011). Currently, 61.9% of adults are overweight and obese in the UK (HSE, 2012). The beneficial effects of regular physical activity including protection from serious illness such as cardiovascular disease (CVD) easily exceed the effectiveness of drugs or other medical treatments (Department of Health, 2009). It is recommended that all adults should aim to be active daily, engaging in moderate to moderate intensity physical activity for at least 150 minutes per week including activities that improve muscle strength on at least two days a week (Department of Health, 2011). Regular physical activity has also been advocated as part of the treatment for heart failure (British Heart Foundation (BHF), 2010; NICE, 2010). However, any increase in physical activity levels needs to be sustained in order for the health benefits to be maintained (BHF, 2010).

**Aim**

To evaluate the effectiveness of the South Gloucestershire Exercise on Prescription (EOP) Scheme.

**Quantitative findings**

*Participant Demographics*

Overall, there were 2,505 participants in the programme aged 18-94 years old (M = 53.02, SD = 15.40) with a modal age of 66. Most participants were female (60.6%) (n = 1,517) versus 39.4% of males (n = 987), and the majority were White British (95%). Frequent reasons for programme referral were a BMI >30 and depression. Proportionally, postcodes B37 and B16 had the highest number of service users (n = 407; n = 389) and the Index of Multiple Deprivation (IMD) ranged from 5.9-21.1. A total of 312 (12.5%) participants presented with a longstanding illness. This may not be an accurate representation of the service users as a whole due to a high degree of missing data.

*Main findings*

* There was a significant increase in the number of reported 30 minute exercise sessions per week between the start and the end of the programme.
* There was a significant decrease in reported systolic blood pressure and waist measurement between the start and the end of the programme.
* The programme did not appear to make a difference to the service users’ weight, BMI, hip measurement, or diastolic blood pressure.
* There was a significant increase in reported well-being WEMWBS scores between the start and the end of the programme.

**Qualitative component**

A total of 14 participants and two practice nurses consented to take part in phone interviews.

*Main findings*

* Participants’ identified the main themes of benefits, barriers, referral process, sustainability, and staff. Subthemes included health and psychological benefits, enhancing motivation, promotion of the scheme, and incorporating alternative activities.
* Health professionals’ identified the main themes of the referral process, recommendations, benefits, and barriers. With subthemes of understanding referral criteria, providing patient feedback to them, continued structured and tailored support, and cost for long term programming.

*Cost analysis of the Exercise on Prescription Service*

* Programming spend from April 2011-March 2012 was £107,426.73 and from April 2012-March 2013 was £120,530.78 equating a total programme spend of £227,957.51.
* With 2,505 service users (including those who did not complete) the total cost per participant was £91, i.e., £7.58 per session ( for 12 weeks).
* Total programme cost per participant who completed the programme (55% n = 1,379) was £165.30 (£227,957.51/1,379).
* Costs per participant who completed the programme ranged from £13.77 (12 weeks) to £20.66 (8 weeks) per session.

**Recommendations**

*EOP management and evaluation*

**Recommendation 1**: There is a need to clarify the number and type of health measures taken in the EOP.

**Recommendation 2**: Data on health measures are required at baseline and completion of the programme.

**Recommendation 3**: It is recommended that all staff involved in the EOP scheme receive training with regards to data collection and evaluation.

**Recommendation 4**: Simplification of the current database is required to ensure it is robust and easily maintained.

*EOP processes*

**Recommendation 1**: Participants should be provided with alternative forms of exercise post intervention, including signposting to existing physical activity opportunities.

**Recommendation 2**: There is a need to establish a clearer referral process and a consistent approach across the region.

**Recommendation 3**: Re-launching the scheme or providing GP surgeries with greater information about the programme should be considered.

**Recommendation 4**: Health professionals should be provided with regular feedback regarding whether participants have completed the EOP scheme.

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# 1.0 Introduction

Physical inactivity has been identified as the fourth leading cause of non-communicable disease worldwide (Kohl et al. 2012). Physical inactivity is associated with a range of diseases including type II diabetes, cardiovascular disease, hypertension and obesity (HSE, 2012; Department of Health (DH), 2011). Currently, 61.9% of adults are overweight and obese in the UK (HSE, 2012). According to the British Heart Foundation (2014) heart and circulatory diseases (e.g. stroke, heart attacks) is one of the biggest causes of death in the UK, with at least one in six men and one in ten women who die from the disease. Regular physical activity has been advocated as part of the treatment of heart failure (British Heart Foundation (BHF), 2010; NICE, 2010). However, any increase in physical activity levels needs to be sustained in order for the health benefits to be maintained (BHF, 2010).

The current physical activity guidelines in the UK (DH, 2011) recommend 150 minutes of moderate activity which can be done in bouts of 10 minutes. For older people, the DH (2011) recommends that weight bearing activities are included once a week. However, latest evidence from the health survey for England, (HSE, 2012) indicates that only 67% of men and 55% of women aged 16 and over met the current minimum physical activity recommendations. The report showed that physical activity levels tended to decline with age and tended to be higher for those with a greater household income (HSE, 2012). Whilst, it should be noted that the current levels are significantly higher than those recorded 2008, the current physical activity levels reflect a change in how physical activity measures were collected, i.e. bouts of 10 minutes verses 30 minutes activity, and thus must be interpreted with caution.

Well-being has been identified as an important aspect of peoples overall health (HSE, 2012) and refers to the way people feel about themselves and their lives and not just the absence of ill health (HSE, 2012). The latest evidence from the HSE, 2012, (which used the Warwick-Edinburgh mental well-being scale) reported a mean score of 52.5 for both men and women. The findings indicated men and women in lower income households had lower well-being scores (HSE, 2012) and adults who self-reported having a greater level of health had a healthier Body Mass Index, were physically active had higher levels of well-being.

For South Gloucestershire, the latest public health profile (PHE, 2013) indicates that overall health is better than the national average for England. In addition, over the past 10 years, early death rates from heart disease and stroke have fallen. However, obesity levels are higher than the national average and one of the main priorities for the region is to increase everyday physical activity (PHE, 2013).

Despite the known benefits of regular physical activity, effective strategies to increase physical activity levels have yet to be identified (Morgan, 2005). As mentioned previously, exercise has been advocated as part of the treatment for heart health. Exercise referral schemes have been developed to provide opportunities for individuals to access local facilities and support. Williams et al. (2007: p979) defined exercise referral schemes as *‘referral by a primary care clinician to a tailored programme of increased physical activity with an initial assessment, and monitoring and supervision throughout’*.

## Exercise referral schemes

In the UK exercise referral schemes were set up around 1990 (Pavey et al. 2011), and there has been a significant increase in the number of schemes across the UK with Pavey et al. (2011) reporting that there are now more than 600 schemes. However, NICE (2006) reported that there was insufficient evidence to support their use as an intervention. The main issue with exercise referral schemes is that there is a lack of evidence as to whether the schemes result in a sustained increase in physical activity and the cost affiliated with programming (NICE, 2014).

Pavey et al., (2011) conducted a systematic review on exercise referral schemes. Whilst they highlighted that primary care is a key setting for the promotion of these types of schemes they found a lack of evidence to support the use of exercise referral schemes to increase activity levels. The majority of exercise referral schemes tend to involve the referral by a health professional to a third party service (Pavey et al. 2011). In addition, Harrison et al., (2004) conducted a randomized controlled trial in the North West of England and compared a local authority exercise referral scheme and an information only intervention. Findings indicated a significant increase in physical activity at 6 months post exercise intervention but there was a non-significant increase (5%) in physical activity 12 months post intervention. Conversely, a systematic review by Williams et al. (2007) aimed to determine whether exercise referral schemes increased physical activity participation in sedentary adults and to also explore the reasons for drop out. Their findings indicated that ERS have a small effect on physical activity levels in sedentary people. In doing so, additional research needs to occur within ERS programmes, hence the need for this evaluation.

## 1.2 South Gloucestershire’s Exercise on Prescription scheme

The scheme was established in 2003 to enable referred patients, under supervision to manage a range of medical conditions by increasing their physical activity, by participating in a tailored, supervised, safe, personal activity programme. The activity programme is applicable to the patient’s health status, agreed with the patient and ultimately matches the patients’ desires and realistic expectations. With the patient at the centre of the process EOP aims to lay foundations to behaviour change to highlight and overcome barriers to participating in physical activity, explore patient’s attitudes and beliefs in regards to taking up a more active life style and to provide education, motivation and support. Additionally, the service aims to deliver an accessible and equitable scheme that will provide a GP referral pathway for inactive patients in the management of a range of medical conditions by increasing their physical activity. EOP helps individuals to make healthier choices and be more active, focusing on the needs of the local community, while also aims to improve the local health profile and work alongside a network of organisations placing emphasis for uptake of the service within Priority neighbourhoods to tackle the wider health agenda.

The EOP scheme in addition helps to address South Gloucestershire’s Health and Well Being Strategy 2013-2016 priority theme- 1. Making the healthy choice, the easy choice;by creating the right conditions so that everyone is able to lead a healthy lifestylethroughout their life course. The EOP address two subthemes of the overall priority in particular 1.1-overweight and obesity and 1.2-physical inactivity (South Gloucestershire, 2013).

Given the mixed findings supporting these schemes and the need for further understanding of service users for priority strategic theme 1, the current evaluation aimed to assess the effectiveness of the Exercise on Prescription Scheme in South Gloucestershire.

# 2.0 Evaluation aims and objectives

This section outlines the aims and objectives which provide the basis of the evaluation.

## 2.1 Aim

To evaluate the effectiveness of the Exercise on Prescription Scheme in South Gloucestershire.

## 2.2 Objectives

To address the evaluation aim the following objectives were defined:

1. To assess whether there has been an increase in the physical activity levels for participants on the EOP scheme
2. To assess the impact of the EOP scheme on other health outcomes such as BMI and BP
3. To assess whether there has been a change on mental well-being for participants on the EOP scheme
4. To explore health professionals’ views on the service
5. To explore patients’ and staff’s views/experiences of service
6. To undertake a cost analysis of the Exercise on Prescription Service
7. To make recommendations on the findings

# 3.0 Quantitative methods and results

Service users’ demographic and health indicators from April 1, 2011-April 1, 2013 were downloaded from the Cascade system and cleaned for data base entry by South Gloucestershire Council Health project team. All patient identifier information was removed and delivered in a secure data file to the University of Gloucestershire evaluation team. The University of Gloucestershire team input the data into SPSS (v.20) and conducted all of the analysis.

Data was provided for 2,516 service users, with 2,505 meeting the inclusion criteria (aged 18 or older). However, as a note of caution response rates varied as some service user records were incomplete.

## 3.1 Referral locations

Referrals were provided from a range of services including family GP surgeries, Physiotherapy clinics, and drug and alcohol treatment centres. The top five referring locations (Figure 1) were Thornbury Health Centre, Hanham Surgery, North Bristol NHS Trust Cardiac Rehab Phase IV, Frome Valley Medical Centre, and Courtside Surgery. See Figure 1 for full listing of referral locations.

## 3.2 Missed uptake and no participation

In 2011, 68 inappropriate referrals were not accepted onto the EOP as not meeting the criteria. In 2012, 55 inappropriate referrals occurred. In 2011, 188 referrals did not book a follow up consultation to be part of the service (i.e., did not start the intervention), and an additional 289 did not book a follow up consultation in 2012.

## 3.3 Service user demographics *(characteristics of a population that was evaluated)*

Service users who participated in the programme were aged 18-94 years old (M = 53.02, SD = 15.40) with a modal age of 66 (Figure 2). Most were female (60.6%) (n = 1,517) versus 39.4% of males (n = 987). The majority of service users were White British (95%) (Figure 3). Frequent reason for programme referral was a BMI >30 and depression (see Figure 4). Postcodes B37 and B16 had the highest number of service users (n = 407; n = 389) (Table 1) and the Index of Multiple Deprivation for participants ranged from 5.9-21.1 (Table 2). A total of 312 (12.5%) service users presented with a longstanding illness, however this may not truly reflect the service users as a number of entries had missing data.

Figure 1: Referral locations

Figure 2: Age profile of service users (%)

(Note: Responses n = 2,482).

Figure 3: Service users’ ethnicity

Notes: Responses are based on n = 2,505. a Includes: White Irish, White Other, mixed multiple ethnicity other, mixed multiple ethnicity White and Black. b Includes: Asian Bengalese, Asian Indian, Asian Pakistani, Asian Chinese, Asian British. c Includes: Black African, Black Caribbean.

Figure 4: Reason for service user referral (gender %)

Table 1: Service user by postcode location

|  |  |  |  |
| --- | --- | --- | --- |
| **Rank** | **Group** | **%** | **n** |
| 1 | BS37 | 16.2 | 407 |
| 2 | BS16 | 15.5 | 389 |
| 3 | BS15 | 14.8 | 371 |
| 4 | BS30 | 13.4 | 335 |
| 5 | BS34 | 11.3 | 284 |
| 6 | BS35 | 10.2 | 255 |
| 7 | BS32 | 6.9 | 174 |
| 8 | BS36 | 6.3 | 157 |
| 9 | BS5 | 1.2 | 31 |
| 10 | GL12 | 1.2 | 31 |
| 11 | BS7 | .8 | 20 |
| 12 | BS3 | .4 | 9 |
| 13 | SN14 | .2 | 5 |

Note: Postcodes with less than four respondents not included in calculations.

**Table 2: Index of Multiple Deprivation and service user** **postcodes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Rank** | **Group** | **n** | **Mean (*SD*)** | |
| 1 | BS7 | 18 | 21.1 | (14.5) |
| 2 | BS5 | 25 | 18.3 | (6.1) |
| 3 | BS15 | 302 | 16.7 | (7.4) |
| 4 | BS3 | 6 | 16.0 | (16.0) |
| 5 | BS34 | 243 | 15.2 | (7.2) |
| 6 | BS16 | 327 | 12.9 | (9.6) |
| 7 | BS37 | 326 | 11.2 | (5.2) |
| 8 | SN14 | 5 | 10.6 | (3.8) |
| 9 | BS30 | 282 | 10.1 | (6.6) |
| 10 | BS35 | 207 | 9.7 | (7.1) |
| 11 | BS36 | 128 | 9.2 | (6.1) |
| 12 | GL12 | 22 | 7.1 | (3.5) |
| 13 | BS32 | 139 | 5.9 | (4.3) |

Note: Postcodes with less than four respondents or those with

missing IMD data were not included in calculations.

## 3.4 Obesity (*an excessive accumulation of body fat, usually 20% or more over an individual's ideal body weight, Mayo Clinic, 2013)* and Heart Disease *(a broad term used to describe a range of diseases that affect your heart and often used interchangeably with "cardiovascular disease", Mayo Clinic, 2013)*

Figure 5 depicts obesity and heart disease data by service user postcodes. There was a 33% variation for obesity and 17% variation for heart disease across the postcodes, rates for obesity being higher than heart disease across all postcodes.

Figure 5: Obesity, heart disease and programme user postcodes (%)

Note: Postcodes with less than four respondents or those with missing IMD data were not included in calculations.

## 3.5 Exercise Base sites

Service users were referred to one of five exercise base sites to complete their 12 week referral, with Bradley Stoke having the most service users (28.5%) and Thornbury the least (9.2%) (Table 3).

Table 3: Exercise site and user postcode

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **Postcode** | **Bradley Stoke** | | **Yate** | | **Kingswood** | | **Thornbury** | | **Longwell Green** | | **Total** |
| **%** | **n** | **%** | **n** | **%** | **n** | **%** | **n** | **%** | **n** | **n** |
| BS3 | 0.0 | 0 | 75.0 | 6 | 0.0 | 0 | 0.0 | 0 | 12.5 | 1 | 8 |
| BS0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 50.0 | 2 | 4 |
| BS10 | 50.0 | 1 | 0.0 | 0 | 0.0 | 0 | 50.0 | 1 | 0.0 | 0 | 2 |
| BS15 | 1.9 | 6 | 1.2 | 4 | 0.0 | 0 | 0.3 | 1 | 48.3 | 156 | 323 |
| BS16 | 10.4 | 51 | 9.0 | 44 | 37.6 | 184 | 0.8 | 4 | 21.1 | 103 | 489 |
| BS30 | 1.8 | 11 | 0.6 | 4 | 4.3 | 27 | 0.0 | 0 | 46.6 | 290 | 622 |
| BS31 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 50.0 | 3 | 6 |
| BS32 | 88.8 | 150 | 1.2 | 2 | 1.2 | 2 | 7.7 | 13 | 0.6 | 1 | 169 |
| BS34 | 94.7 | 266 | 1.4 | 4 | 0.0 | 0 | 2.5 | 7 | 0.7 | 2 | 281 |
| BS35 | 22.9 | 46 | 3.0 | 6 | 0.0 | 0 | 74.1 | 149 | 0.0 | 0 | 201 |
| BS36 | 40.8 | 64 | 51.6 | 81 | 3.2 | 5 | 1.9 | 3 | 1.3 | 2 | 157 |
| BS37 | 2.0 | 8 | 92.6 | 377 | 0.0 | 0 | 2.9 | 12 | 1.2 | 5 | 407 |
| BS39 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 50.0 | 1 | 2 |
| BS5 | 0.0 | 0 | 0.0 | 0 | 26.5 | 13 | 0.0 | 0 | 36.7 | 18 | 49 |
| BS7 | 95.0 | 19 | 5.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 20 |
| GL12 | 6.5 | 2 | 54.8 | 17 | 0.0 | 0 | 38.7 | 12 | 0.0 | 0 | 31 |
| SN14 | 0.0 | 0 | 100 | 5 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 5 |
| **Total** | **28.5** | **624** | **25.1** | **551** | **10.5** | **231** | **9.2** | **202** | **26.6** | **584** | **2,192** |

## 3.6 Reported Physical Activity *(any bodily movement produced by skeletal muscles that requires energy expenditure, World Health Organization, 2014).*

As expected the majority of service users were not active at baseline with two 30 minute exercise sessions per week upon completion being the most frequently reported. Data showed little differences between males and females at baseline or follow up although it was possible to see a positive increase in weekly physical activity following participation in the EOP (Figures 6 and 7).

Figure 6: Males pre/post report of 30 minute weekly physical activity sessions (%)

**Figure 7: Females pre/post report of 30 minute weekly physical activity sessions (%)**

3.7 Programme Completers

Service users were offered the EOP service for 12 weeks; a programme completer defined as someone who attended at least eight out of the 12 sessions. Overall, 55% (n = 1,379) of the service users completed eight or more sessions, with 57.8% males and 54.4% females being categorised as completers (Figure 8) which is similar to previous EOP findings (James et al., 2009). A chi2 analysis revealed no statistically significant differences between deprivation level (IMD) and likelihood to complete the 12 week programme. Frequency counts were also generated for programme drop out, most citing: deterioration in health status; awaiting surgery; returning to work; time restraints of the sessions; time away from children and family; cost, and motivation.

Figure 8: Sessions attended by gender (%)

## 3.8 Health Measures *(a standard used to make a comparison of health factors)*

A paired-samples t-test was conducted to evaluate the impact of the scheme for referral patients on physiological measures (weight, BMI, waist measurements, hip measurements, systolic BP and diastolic BP), a well-being measure (WEMWBS), and levels of physical activity at the start (baseline) and completion (12 week) of the programme. Key findings are presented below and are summarised in Figure 9.

### 3.8.1 Physical activity *(any bodily movement produced by skeletal muscles that requires energy expenditure, World Health Organization, 2014).*

There was a statistically significant[[1]](#footnote-1) increase in the number of reported 30 minute exercise sessions per week from baseline (start) (*M =* .06, *SD =* .34) to 12 weeks (completion) (*M* = 2.06, *SD* = .96), t(1126) = -67.87, p < .000 (two-tailed[[2]](#footnote-2)). The mean increase is physical activity scores was 1.99 with a 95% confidence interval[[3]](#footnote-3) ranging from -2.06 to -1.94. A follow-up eta squared statistic (.80) indicated a large effect size[[4]](#footnote-4) supporting magnitude of the service users self-report. However caution is required when interpreting the results as participants included weekly exercise sessions that were part of the referral scheme in their weekly tally.

### 3.8.2 Well-being *(a state of health, happiness and prosperity)*

There was a statistically significant increase in reported well-being WEMWBS scores from baseline (*M* = 48.36, *SD* = 11.02) to 12 weeks (*M* = 54.46, *SD* = 9.39), t(652) = -19.67, p < .000 (two-tailed). The mean increase in well-being scores was 6.10 (95% CI ranging from 5.49 to 6.71). An additional eta squared statistic (.37) indicated a large effect size supporting the magnitude of this finding. Caution does need to be heeded as only 652 of the 2,505 participants provided matched pre and post responses.

### 3.8.3 Waist measurement *(the distance around the waist, used to determine obesity levels)*

There was a statistically significant decrease in reported waist measurement from baseline (*M* = 110.33, *SD* = 43.42) to 12 weeks (*M* = 106.47, *SD* = 41.99), t(1020) = 2.17, p < .031 (two-tailed). The mean decrease in waist measure scores was 3.86 with a 95% confidence interval ranging from .36 to 7.36. However, the eta squared statistic (.004) indicated no real effect size/magnitude from the findings.

### 3.8.4 Systolic BP *(the top number in a blood pressure reading)*

There was a statistically significant decrease in reported systolic BP from baseline (*M* = 138.30, *SD* = 17.79) to 12 weeks (*M* = 135.07, *SD* = 40.44), t(1053) = 2.57, p = <.010 (two tailed). The mean decrease in systolic BP scores was 3.22 with a 95% confidence interval ranging from .76 to 5.70. However, the eta squared statistic (.006) indicated no real effect size/magnitude from the findings. Exercise can help control the risk of high blood pressure a symptom of coronary heart disease. The Mayo Clinic (2012) suggests becoming more active can lower systolic blood pressure by an average of 4 to 9 millimeters of mercury (mm Hg), which is reflective to findings with the EOP programme.

### 3.8.5 Weight *(a person’s physical mass)*, BMI *(Body Mass Index- a measurement to determine obesity),* hip measurement *(the distance around the hips, used to determine obesity levels)* and diastolic BP *(the bottom number in a blood pressure reading)*

No statistically significant differences were found from baseline to 12 weeks for weight t(1116) = .49, p < .625; BMI t(1112) = -1.15, p < .252; hip measure t(928) = .18, p < .856; and diastolic BP t(1053) = .60, p < .556.

Figure 9: Comparison of health measures at baseline and 12 weeks for males & females

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Note: \* *P* < 0.05. (1) = baseline; (2) = 12 weeks.

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*Lay person review of quantitative findings:*

* There was a significant increase in the number of reported 30 minute exercise sessions per week between the start and the end of the programme.
* There was a significant decrease in reported systolic blood pressure and waist measurement between the start and the end of the programme.
* The programme did not appear to make a difference to the service users’ weight, BMI, hip measurement, or diastolic blood pressure.
* There was a significant increase in reported well-being WEMWBS scores between the start and the end of the programme.

## 3.9 Service Delivery Costs

Analysis of EOP programme costs and service user progress through the EOP revealed the following cost calculations:

1. Programming spend from April 2011-March 2012 was £107,426.73 and from April 2012-March 2013 was £120,530.78, equating a total programme spend of £227,957.51.
2. With 2,505 service users (including those who did not complete) the total cost per service user was £91, i.e., £7.58 per session (for 12 weeks).
3. Total programme cost per service user who completed the programme (55% n = 1,379) was £165.30 (£227,957.51/1,379).
4. Costs per service user who completed the programme ranged from £13.77 (12 weeks) to £20.66 (8 weeks) per session.

# 4.0 Qualitative methods and results

Qualitative research methods have been used previously to explore heart patients’ reasons for not engaging in physical activity (Tierney et al. 2011). Findings from their study indicated that internal (e.g. health issues) and external factors (e.g. bad weather) contributed to poor participation.

Consistent with the research by Tierney et al. (2011) the current evaluation used semi-structured telephone interviews. Interviews took place at agreed dates and times selected by the service users with the lead evaluator. The interview schedule was based on a review of existing literature and consultation with the EOP evaluation commissioning team. The initial questions were based around what triggered patients to enrol on the scheme and then progressed to a focus on the experiences of the scheme. Semi-structured interview guides are widely used in qualitative research as a means of eliciting data based on the experiences of those affected by phenomena (Braun & Clarke, 2013).

## 4.1 Participant recruitment

A multi stranded approach was used to identify and recruit participants representing EOP users and staff

## 4.1.1 Recruitment of service users

Random sampling was used to recruit users of the EOP. Over 200 participants were randomly selected from the EOP database. Phone calls were made to potential participants by the EOP staff. From the 200 participants, 50 participants were contacted by the staff who explained the aim of the research and what would be involved. If service users agreed to take part they were then sent a participant information sheet and voluntary informed consent form and asked to return the form with a preferred time and date for the intervention to the lead researcher. Overall, 14 service users consented to take part in the evaluation. Ethical approval was granted by the University of Gloucestershire Research Ethics Committee. Service user anonymity and confidentially was ensured in written and verbal form prior to the telephone interview. All service users signed a consent form prior to the interview which made clear participation was entirely voluntary and that they could withdraw at any point. All data was stored on a secure computer server with only the authors having access. Service user responses were numerically coded in order to remove any identifiers.

## 4.1.2 Recruitment of Health Professionals

An email was sent to the health professionals (HPs) who were involved in the scheme by the EOP staff (n = 15). Seven HPs responded via email and letter to the lead researcher and declined to take part. No reasons were provided. Following a meeting with the EOP team, another email was sent to HPs and 2 (practice nurses) consented to take part in a telephone interview. Participant anonymity and confidentially was ensured in verbal format prior to the telephone interview. All data was stored on a secured computer server with only the authors having access. HP responses were numerically coded in order to remove any identifiers.

## 4.2 Data analysis

Thematic analysis was used to analyse service user data which analysis allows the researcher to organise, identify and report the themes from the data, and as a result a rich and meaningful description of the data is presented (Braun & Clarke, 2006; 2013). The current report adhered to guidelines recommended by Braun & Clarke (2006) whereby the interview transcripts were read and re-read and initial ideas noted down. Initial codes were generated across the entire data set and then collated into emergent themes whilst ensuring that data relevant to each theme was collated from the entire sample.

## 4.3 Results

This section presents findings of the qualitative component. Findings for EOP users are presented first, followed by Health Professionals.

### 4.3.1 Service users

An overview of the themes that emerged from the thematic analysis of the interviews with the service users is presented in Table 4 and are supported with direct quotations from the participants that help to maintain the voice of service users in the evaluation (Braun & Clarke, 2006), following which data from the table is explored more fully.

Table 4: Themes from service users involved in the EOP scheme

|  |  |
| --- | --- |
| THEME | Sub theme |
| Benefits | Health benefits  Psychological benefits  Social benefits  Cost |
| Barriers | Motivation  Cost  Physical self-perception |
| Referral process | Health Professionals role  Promoting the scheme |
| Sustainability | Alternative activities |
| Staff | Attributes |

*Benefits*

The users reported a number of benefits to the scheme from a health and psychological perspective. In addition some service users reported there were some social benefits although this was not consistent across the sample. These are presented in more detail below.

1. Health benefits

There were a wide variety of health reasons for taking part in the EOP scheme (which is further supported by the quantitative analysis) and included weight, stroke and high blood pressure. It is interesting to note that for some participants, despite presenting with a health condition, they had to specifically request to be referred onto the programme indicating potential inconsistencies in the referral process across the region:

*“…it encourages you to do it and two I felt that the medical support was important because in my case I was concerned you know was I going to complicate my heart if I exercised too much”*

*“The fact that I am a diabetic and I don’t get much exercise and I went to the practice nurse and she said about it and we decided to take it up”*

*“I think it was the fear of going on to the insulin which really set me off and made me go”*

1. Psychological benefits

Service users also reported a number of psychological benefits as a result of participation in the EOP scheme. In general participants reported that the EOP helped provide an overall sense of well-being.

*“…you really feel as if you do some good, mentally and physically when you do it”*

*“I have lost weight and I am feeling a lot happier in myself and I want to lose more but I am feeling happier in my own skin”*

1. Cost

Service users reported that the reduced cost of the EOP scheme was one of the main benefits of the scheme. However, it should be noted that this was also cited as a barrier and for some individuals and continued to be a barrier post intervention.

*“…it was subsidised a bit that helped really and we thought that was it and then you have to pay the full gym fee and we got a bit put off by that”*

*“…you need more subsidised sessions and provide more alternative exercise options like tai chi”,*

1. Social benefits

There was mixed opinion as to whether there were clear social benefits of the programme. The nature of the EOP scheme meant that service users attended sessions individually or with their partners and while they interacted with people at the gym (predominantly the staff), the social support element which can be provided by some schemes was not provided in the current EOP scheme. However, the one to one support was regarded as a positive factor by the service users and this may not be evident in all schemes. The service users were pleasantly surprised by how helpful the gym staff were in general which is important as many had a perception that the gym was full of ‘people in lycra’. The friendliness of the gym staff made them feel at ease.

*“Yes I mean you get to see people and said hello, i haven’t made friends but you make acquaintances and chat to them”*

*“I met an old friend who was also recovering from a heart attack and he goes and occasionally you get people you know from work and the rugby club and you see them there so it is a social thing”*

*“…you feel that you can approach anybody in the gym and ask them something and they are willing to help*”

*Barriers*

Service users were asked about the main perceived barriers to participating in physical activity both prior to the programme and once the programme was completed. In terms of the main barriers prior to the programme the service users indicated that a lack of motivation, cost and a poor physical self-perception (as an active individual). These findings were also supported by feedback from the health professionals.

1. Motivation

***Did you continue on with the exercise when the scheme had finished?***

*“No we didn’t, neither of us”.*

**Was there any particular reason why?**

*“…no not really just the fact you had an appointment every week and that would make you go there. It was the push to do it and then that was gone and you need something to motivate you”.*

1. Cost

As mentioned previously the reduced cost was one of the main benefits of the programme, thus;

*“Perhaps cost, I don’t know, really just something to get you off you backside, a bit of encouragement in some way you know”.*

*“Yes I think if you are on a limited budget then it very often can do”*

1. Physical self-perception

One of the main reasons cited for not participating in physical activity prior to the EOP scheme was a low physical self-perception and a belief that the gym was just for really active individuals.

“you feel embarrassed and apprehensive but you know he made us feel at ease and he checked us out first”

*“I think people don’t feel they belong in a gym and they lack the confidence but then you can always make the excuse that you don’t have the time”*

*Referral process*

In terms of referral onto the EOP scheme the service users reported a number of different referral processes which included GPs, practice nurses, consultants and recommendation by friends or partners. This is demonstrated in the analysis of the referral location above and reflects the wide scope of the EOP referral process in addition to potential inconsistencies in the ways GP practices to refer patients.

1. Health professional’s role

Service users reported that whilst GPs tend to be the first point of contact for health concerns, for some participants, despite presenting with a number of health issues when starting the EOP scheme such as diabetes, obesity, depression, they had to ask their GP or practice nurse to be referred onto the scheme.

*“From my point of view, the attraction came from the consultant saying that you need to do more exercise. I wonder whether the consultants are aware of the scheme. The medical practitioners should be able to say you need to do more exercise and there is this programme available”.*

*“I heard about it through my wife and she asked if I could go and explained my issues and they said that it would be good for me too”.*

*“Well my husband’s friend mentioned it to him, and so my husband went along to the doctor and they gave him a letter to say he could do it for 12 weeks”*

1. Promoting the scheme

Whilst the service users felt that people were generally aware of the importance of exercise they felt that more needed to be done to promote the programme locally and they stressed the importance of getting the health professionals involved. The current users felt that promotion of the scheme should include the use of posters within the GP surgeries and information in local newspapers.

*“I suppose advertise it but we all know about it, we all know we should do it. If the practice nurse had not said it I wouldn’t have done it”.*

*“I don’t think a lot of people know about the EOP and I think GPs need to do more. I had to speak to my health team about it. The benefits are that it is half the price to do the exercise”.*

*Sustainability*

The service users in the current study made a number of suggestions as to how to increase the long term sustainability of the programme. There was mix across the current sample where some participants reported that they continued with the exercise whereas other participants stopped once the scheme was finished. Whilst the reasons for not continuing with exercise after the EOP had completed have been discussed above, the service users suggested that providing alternative activities in the community, promoting home based exercise and providing taster sessions for other activities may help increase/maintain physical activity level post the EOP scheme.

*“Just getting someone interested and maybe just providing taster sessions for people to get them engaged”.*

*“…you need more subsidised sessions and provide more alternative exercise options like tai chi, so those with disabilities would be able to do”*

*“…the gym is only one form, and you should encourage people to do more exercise at home or join walking clubs or whatever”*

*Staff*

The service users were very positive with regards to the staff that were involved in the delivery of EOP and cited their friendliness, support and empathy towards them as the main benefits of the programme. They felt that staff provided a one-to-one service and by tailoring the exercise sessions to each individual and by considering their health issues it resulted in an increase in the participants’ confidence.

*“Friendliness more than anything”*

“*They need to be caring, not fussing over you, just show empathy and be encouraging”*

“I met the staff at the scheme and they reviewed the medical data that they had been provided and then they created a programme”

### 4.3.2 Health Professionals

An overview of the themes that emerged from the thematic analysis of the interviews with the health professionals is provided in Table 5 supported with direct quotations from the participants.

Table 5: Themes from Health Professionals involved in the EOP scheme

|  |  |
| --- | --- |
| THEME | Sub Theme |
| Referral Process | Referral criteria  Inconsistencies of referral across the region |
| Recommendations | Feedback  Alternative activities |
| Benefits | Motivation  Structure and tailored support  Psycho/social benefits |
| Barriers | Physical self-perception  Cost |

*Referral process*

1. Referral criteria

An interesting finding from the health professionals was that when promoting the EOP scheme to their patients, service users who were already active were more likely to take up the programme. Interestingly, the HPs felt that participants lacked knowledge about what contributed to physical activity levels e.g. actively commuting to work, walking, and gardening which influenced whether they considered themselves suitable for the programme and suggested improving the form for this process.

*“That’s one thing I don’t know whether I should refer them and them some will say they are active but they are not really, whereas i don’t know who is active or not and who can go on the scheme”*

The quote above highlights the confusion of HPs and the referral process.

1. Inconsistent referral

The HPs also supported the findings from the service users that promotion and referral of the EOP scheme was inconsistent across the region. When probed on the poor promotion of the scheme amongst other health professionals the HPs felt that a lack of time (particularly for GPs) and a lack of awareness of the scheme were the main reasons, particularly in terms of referral.

*“I think time is an issue, but we are very active at this surgery but I think in some areas they just don’t know about it” (HP, 2)*

HPs were further probed on ‘how’ this could be addressed. However, they were unable to offer recommendations; they highlighted how they were fortunate to have *‘forward-thinking doctors’*.

*“I don’t know, I think we are very lucky in that we have very forward thinking doctors who realise that it has a knock on effect to their jobs if we can get people to exercise more and lose weight but not all practices are the same”*

*“trying to engage more GP practices with it would help. It is really difficult. We are very fortunate”*

However, they did suggest that there was a need to utilise practice nurses and healthcare assistants more, as they have the time to discuss exercise with patients.

*“Yes I think those who have regular contact, for those who see them for their checkups and things like that I think health promotion comes to the fore”*

*“I think that is a major part of our role and we have time and luxury to be able to speak with people in more depth and explain to them how their lifestyles can be more healthy really”*

1. Feedback

When probed on possible improvements to the programme, the HPs recommended a process where feedback on whether the patients they had referred had completed or dropped out of the programme. They felt that they could use this information in future discussions about their health issues, and refer those who may need it. The current NICE (2013) guidelines for childhood obesity interventions, highlighted this as a simple but important part of future programmes.

*“I would just like feedback after the 12 weeks”*

1. Alternative activities

One of the key recommendations from the HPs was to provide alternative forms of exercise to improve the long term sustainability of the programme. Suggestions included promoting the use of local green space, swimming and men only activities. They felt there was a lack of activities available, particularly in the wider community and that there should also be more options available in terms of the type of activities offered and for specific groups e.g. men.

“*and more classes for over 50;s and men. I think with classes you are motivated and you have that support from others, rather than just going to the gym on your own. You know gentle spinning classes or something” (HP, 2)*

*Benefits*

In terms of the benefits of the scheme, the HPs felt that the EOP offered a safe and supportive environment which considered the individual needs of the service users.

*“ I think it encourages people to go to the gym and I think that is a good thing, it is a safe and structured environment and I think they like that” (HP,2)*

The HPs were also aware of the benefits of regular exercise in terms of health outcomes and the social and psychological benefits.

*“People do say when they look after themselves and they exercise regularly, it does have an effect. It does make a difference, you know their blood pressure comes down in some cases and it is good, they feel better, mentally. People suffering from depression its brilliant for them even if there is no other health issue. I am all for it. It’s great”* (HP,1)

*Barriers*

There was congruence amongst the service users and HPs in terms of the main barriers to participation in physical activity, with cost of exercise and poor physical self-perception identified as the main issues.

*“I think money and the fact that they think people are going to look at them and they are self-conscious and because they have never done it before” (HP, 2)*

*“Yes for those who have money, it might be enough to get them started, but for those who can’t afford it, they will think well I can’t afford to go to it long term. So they stop going and then they go back to their old behaviours” (HP, 1)*

# 5.0 Discussion

The aim of the study was to evaluate the effectiveness of the Exercise on Prescription (EOP) Scheme in South Gloucestershire. Consistence with previous research on exercise referral schemes (Sharma et al. 2012) the service users in the current study were very satisfied with the EOP scheme. Positives of the programme included the staff involved in the delivery, in particular the encouragement and support they provided and the individuality of the exercise programme to their specific health needs. Participants also reported a range of benefits which included physical (e.g. weight loss, decrease in blood pressure), social (e.g. interacting with staff at the gym) and psychological (improved well-being).

Service users were asked why they had not previously participated in exercise. Responses included cost, a lack of time, work and family commitments, laziness, and the perception of not feeling like they belonged in a gym. Participants were further probed on this issue and in general participants felt that the gym was full of *‘gym bunnies and people in lycra’* and that they did not belong in the gym and they were unsure of how to use the equipment. Whilst the service users reported that as a result of the EOP scheme their physical self-perception changed and their perception of the gym changed. However this was not enough to maintain their activity post the EOP scheme and thus additional physical activity programming needs to occur to sustain positive behavior as 12 weeks may not be sufficient.

As with previous research (Williams et al. 2007) the current EOP scheme resulted in a statistically significant increase in physical activity during the EOP the programme. However, there was no follow up data collected to determine whether the activity levels continued post programme. In addition, the qualitative research with the service users indicated that only half the participants continued to be physically active post programme. For those who maintained their increase in activity they reported they continued going to go the gym and also increasing their daily activities which included walking and gardening. However, for those who did not continue to be physically active, cost and a lack of motivation continued to be the main reasons cited. In order to address this, participants recommended that they would like to be provided with alternative activities in the community when they finished the EOP scheme. This was further supported by the Health Professionals, who recommended providing or promoting alternative activities in the wider community for specific groups e.g. men and over 50’s. However, a range of physical activity classes are available in the local community and it may be that more needs to be done to promote activities that are happening locally and improve the awareness and signposting to these activities.

One of the principal benefits of the EOP scheme was that the staff tailored the exercise programme to the individual health needs, the importance of which is supported by existing research (Williams et al. 2007). In the current study, the participants highlighted this as one of the main positives of the programme. Previous research in the exercise literature has previously highlighted the importance of tailoring activities to the needs of the individual, particularly for a sedentary population (Woodward & Berry, 2001). One of the benefits of this approach is that it allowed the participants to feel at ease. However, whilst this was a strength of the scheme it meant that there was a lack of social support available to participants, which may help improve adherence and maintenance long term. Previous research has highlighted that social support particularly for an older population group is a key element of adherence to exercise programmes (Woodward & Berry, 2001). This may be a future aspect to consider for the programme.

*Strengths and limitations*

One of the strengths of the current study was the use of a mixed method approach to evaluate the Exercise on Prescription scheme. These help to provide a more complete understanding of the nature of the research problem. However, as with previous research, in particular the reviews by Pavey et al. (2011) and Williams (2007), there continues to be issues with the lack of evidence collected in exercise on prescription schemes and challenges in establishing robust data sets. This is a fundamental limitation in the current study and suggests that data monitoring systems need to be improved in order to establish more complete participant data.

# 6.0 Recommendations

As a result of the evaluation process and the analysis of the quantitative and qualitative data a number of recommendations which are programme specific, and based on the evaluation process have been suggested to improve the Exercise on Prescription scheme. These are listed below.

*EOP management and evaluation*

**Recommendation 1**: There is a need to clarify the number and type of health measures taken in the EOP. This includes referral (source), reason for referral (e.g. if there are multiple reasons there needs to be clear and consistent measures taken pre and post the EOP scheme of these). Clarification is also needed in terms of the physical activity measure (e.g. does it relate only to the amount of time the participants exercise outside of the scheme?).

**Recommendation 2**: Data on health measures are required at baseline and completion of the programme.

**Recommendation 3**: It is recommended that all staff involved in the EOP scheme receive training with regards to data collection and evaluation. Establishing a framework for evaluation of exercise on referral schemes with key ‘essential and desirable’ information would address the current issues with the evaluation of these schemes.

**Recommendation 4**: Simplification of the current database is required to ensure it is robust and easily maintained e.g. the use of MS Excel/Access.

*EOP processes*

**Recommendation 5**: Service users should be provided with alternative forms of exercise post intervention, including signposting to existing physical activity opportunities. Participants suggested that home based exercises and information on activities in the local area would help sustain their increased activity levels. Promoting taster sessions and group based exercise may also help enhance the sustainability. As with previous research social support is a key element for exercise adherence with this population group. Thus, signposting to relevant local classes and community based activities may maintain physical activity levels.

**Recommendation 6**: There is a need to establish a clearer referral process and a consistent approach across the region. All health professionals should be made aware of the EOP scheme, with clear information provided to health professionals in terms of the appropriateness of participants for referral. For instance a simple criteria checklist could be provided to HPs for easy referral and clarification.

**Recommendation 7**: Re-launching the scheme or providing GP surgeries with greater information about the programme should be considered. Thus, consider developing further marketing materials to promote the scheme.

**Recommendation 8**: Health professionals should be provided with regular feedback regarding whether participants have completed the EOP scheme. This information can then be used to discuss progress or refer participants back to the scheme. GP’s would then have greater insight as to patient uptake and impact on health conditions.

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1. Statistical significance suggests that the result is meaningful and did not occur by chance i.e. there has been a true effect of the EOP and a health outcome. [↑](#footnote-ref-1)
2. Two-tailed tests are used to calculate the statistical significance of data. Tails represent the extreme distribution of data within a normal bell-curve. Two tails account for both directions i.e. extremes on both sides of the curve and are used when extremes on both directions are considered equally likely in the data. [↑](#footnote-ref-2)
3. 95% confidence interval relates to the reliability of the results i.e. whether the same findings would arise if the study were repeated. It is expressed as a percentage which represents how often the true percentage of the population would pick an answer that lies within the confidence interval i.e. 95% [↑](#footnote-ref-3)
4. The effect size is a measure of the strength of a phenomenon which provides a practical way of quantifying the size of the difference between data e.g. baseline and follow up measures. [↑](#footnote-ref-4)