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Short communication

Physical activity levels and barriers to exercise referral among patients with cancer

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ABSTRACT

Objective: Physical activity after cancer is associated with a lower rate of adverse effects and better survival. The objectives of this study were to assess the exercise levels of people living with and beyond cancer attending a local oncology unit, and explore their attitudes to supervised exercise referral.
Methods: 134 patients attending the oncology unit over a 2 month period were approached to complete a questionnaire about their exercise levels and barriers to exercise.
Results: 12 of 114 (11%) patients were classed as active according to the General Practice Physical Activity Questionnaire. Despite receiving written and verbal explanations about the benefits of exercise, 44% of eligible patients declined exercise referral, with health concerns, time pressures, and the perception that they were already adequately exercising stated as the most common justifications. Overall, 82% met one or more of the current indications for the National Exercise Referral Scheme, so even in regions where the inclusion criteria have not been broadened to include cancer, this scheme is a practical option for most.
Conclusion: It is clear from these results that we are failing to motivate cancer patients into healthier lifestyles.
Practice implications: Further efforts are needed to determine and implement behavioural change strategies.

1. Introduction

Due to a combination of earlier detection and enhanced treatments, the chances of surviving cancer are significantly improving. As a result, the number of cancer survivors in the United Kingdom is growing by 3% per annum. By 2040, it is forecast that there will be over 3.5 million people living with and beyond cancer (PLWBC) in the UK [1–3]. Unfortunately, many of these individuals suffer from both acute and long-term physical and psychological adverse effects inflicted by cancer therapies.

A physically active lifestyle after cancer is linked to reduction or improvement of many of the most common adverse effects [4–6]. Several randomised controlled trials (RCTs) have explored the feasibility and benefits of physical activity and exercise rehabilitation programmes for cancer survivors [4,5,7,8]. These studies have shown statistically significant benefits for arthralgia, cancer-related fatigue, muscle power, exercise capacity, mood, mental health, and overall quality of life [4,5,7–14]. Numerous studies have also suggested that supervised exercise programmes result in more effective alleviation of symptoms than home-based programmes [4,5,15,16].

As a consequence of this accumulated evidence, guidelines from UK organisations such as Prostate Cancer UK [17] and Macmillan Cancer Support [18], as well as the National Institute for Health and Care Excellence (NICE) guidelines for prostate cancer [19], recommend formal referral for patients into supervised exercise programmes.

The National Exercise Referral Scheme in the UK currently exists for several non-cancer conditions, such as cardiac rehabilitation, low back pain, and depression [20]. This allows patients to be referred for a 2–3 month supervised gym programme run by

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trained professionals, or similar supervised, structured activity programmes. Several pilot schemes have been initiated throughout the UK with the aim of incorporating such exercise programmes into standard oncology practice, subject to evaluation of their cost-effectiveness [6,21]. For example, the National Exercise Referral Scheme has been expanded to include cancer as a referral indication in Bedfordshire, where it has successfully run for the past 5 years [21]. Other areas across the UK are also starting to include cancer as a referral indication for exercise programmes.

Despite the benefits of physical activity, national surveys and a previous local study have reported very low levels of physical activity among PLWBC [22,23]. Resources for promoting and encouraging exercise among patients have since continued to be improved, with increased availability of Macmillan Cancer Support information materials and more effective verbal and written signposting to exercise schemes by clinicians.

In this study, we aimed to explore the current exercise levels of PLWBC attending our local oncology unit at a UK community hospital in Bedfordshire, the proportion of patients accepting exercise referral, and the anticipated reasons for non-attendance at the exercise referral programme.

2. Methods

2.1. Study design and participants

This was a cross-sectional study approved by the Clinical Governance Department at Bedford Hospital. Research ethics committee exemption was granted in written correspondence from the chair of the regional committee.

From November 2014 to December 2014, the entire cohort of patients with bowel cancer, breast cancer or prostate cancer attending the Primrose Oncology Unit at Bedford Hospital for follow-up were approached for data collection. Study participants were required to have completed chemotherapy or radiotherapy at least 3 months previously, and have no metastatic disease or physical disabilities precluding exercise. Overall, 134 patients were approached, with 114 patients meeting these inclusion criteria, all of whom gave informed consent.

2.2. Data collection

Each patient was interviewed in a quiet room in the clinic, beginning with measurement of height and weight and recording of basic demographic information. The baseline demographics of our study population are summarised in Table 1.

Patients then completed the first component of the study questionnaire, the General Practice Physical Activity Questionnaire (GPPAQ). This is a validated tool developed by the UK Department of Health (DH) for assessing patients' physical activity levels [24]. (The GPPAQ questions are shown in Appendix A [25].)

All patients were given a Macmillan Cancer Support "Move More" booklet containing written information on the benefits of exercise, supported by a standardised verbal summary of the benefits of exercise and the exercise referral process during the interview. Patients then completed the second component of the study questionnaire. They were asked whether they met any of the inclusion criteria for exercise referral (listed in Table 3), excluding cancer, and whether they would accept referral to a supervised exercise programme at a local council-run gym. They were then asked if they anticipated any significant barriers that would prevent them from attending this exercise programme. Each barrier listed in Table 4 was presented with the appropriate description, with "no anticipated barriers" clearly stated as an option. Patients were also invited to describe any other personal barriers they felt were significant.

Table 1
Baseline patient demographics.

	Number of patients ($N = 114$) n (%)
Age, mean (years)	70.2
Age, range (years)	42–88
Sex	
Female	29 (25)
Male	85 (75)
Height, mean (m)	1.71
Weight, mean (kg)	81.59
BMI, mean (kg/m^2)	27.81
BMI <18.5 (underweight)	2 (2)
BMI 18.5–24.9 (normal)	34 (30)
BMI 25.0–29.9 (overweight)	49 (43)
BMI ≥30.0 (obese)	29 (25)
Smoking status	
Current smoker	8 (7)
Ex-smoker	59 (52)
Never smoker	47 (41)
Type of cancer	
Bowel	16 (14)
Breast	22 (19)
Prostate	76 (67)

After each interview, patients' medical notes were reviewed to check for other medical conditions, and confirm that any of the inclusion criteria they might meet for exercise referral were recorded correctly.

2.3. Analysis

Patients' answers to the GPPAQ were input into an electronic template provided by the DH [25], which automatically generates a 4-level Physical Activity Index (PAI): active, moderately active, moderately inactive, and inactive.

All collected data were summarised and analysed using descriptive statistics to characterise the study population.

3. Results

3.1. Current physical activity levels

The GPPAQ results showed that 102 of 114 patients (89%) could be classed as moderately active, moderately inactive, or inactive, with only 12 patients (11%) achieving active levels of physical activity (Table 2).

3.2. Eligibility for the National Exercise Referral Scheme

93 patients (82%) met one or more of the current indications for the National Exercise Referral Scheme (excluding cancer) (Table 3). The most common criteria for inclusion included high BMI and waist circumference and cardiovascular risk factors.

3.3. Willingness and anticipated barriers for exercise referral

Of the 93 patients who were eligible for exercise referral, 44 (47%) stated that they would like to be referred, 41 (44%) stated that they would not like to be referred, and 8 (9%) were undecided. However, all 114 patients were asked whether they would attend the exercise programme if offered the option, and what their

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