



Research

Motivational interviewing added to oncology rehabilitation did not improve moderate-intensity physical activity in cancer survivors: a randomised trial

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KEY WORDS

Cancer
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ABSTRACT

Question: Does adding weekly, physiotherapist-delivered motivational interviewing to outpatient oncology rehabilitation for cancer survivors increase physical activity levels and improve physical and psychosocial outcomes that are typically impaired in this cohort? **Design:** Randomised controlled trial with blinded outcome assessment, concealed allocation and intention-to-treat analysis. **Participants:** A heterogeneous sample of 46 cancer survivors (n = 29 female; mean age 59 years) participating in a public outpatient oncology rehabilitation program. **Intervention:** Participants were randomly allocated to receive oncology rehabilitation (n = 24) or oncology rehabilitation with motivational interviewing delivered once weekly for 7 weeks via telephone by a physiotherapist (n = 22). **Outcome measures:** The primary outcome was amount of physical activity of at least moderate intensity completed in 10-minute bouts, measured by an accelerometer worn continuously for 1 week. Secondary outcomes included other measures of physical activity, sedentary behaviour, physical function, psychosocial function, and quality of life. **Results:** When added to oncology rehabilitation, motivational interviewing caused no appreciable increase in the amount of moderate-intensity physical activity (MD -1.2 minutes/day, 95% CI -2.5 to 0.02). Among many secondary outcomes, the only statistically significant result was a small effect on nausea, which probably represents a Type I error. However, several secondary outcomes related to lower-intensity physical activity had non-significant confidence intervals that included large effects such as: sedentary time (SMD -0.67, 95% CI -1.32 to 0.02), light-intensity physical activity (SMD 0.56, 95% CI -0.12 to 1.21) and daily step count (SMD 0.37, 95% CI -0.30 to 1.02). **Conclusion:** Adding motivational interviewing to oncology rehabilitation did not increase moderate-intensity physical activity. Favourable trends on measures of lower-intensity physical activity suggest that motivational interviewing should be further investigated for its effects on reducing sedentary time and improving light-intensity physical activity for cancer survivors participating in rehabilitation. **Trial registration:** ANZCTR 12616001079437. [Dennett AM, Shields N, Peiris CL, Prendergast LA, O'Halloran PD, Parente P, Taylor NF (2018) Motivational interviewing added to oncology rehabilitation did not improve moderate-intensity physical activity in cancer survivors: a randomised trial. *Journal of Physiotherapy* XX: XX-XX]

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Introduction

Cancer is now considered to be a chronic disease.¹ As survival has improved, so has the need for rehabilitation to address the debilitating effects of cancer and the side-effects of its treatment. Cancer survivors have reduced physical and psychosocial wellbeing and quality of life, and are also at increased risk of cardiovascular disease and secondary cancers.²⁻⁴ Oncology rehabilitation assists cancer survivors to improve their physical and psychosocial functioning through addressing impairments, reducing symptom burden and providing support.⁵

One goal of oncology rehabilitation is to improve physical activity levels.⁶ High levels of moderate-intensity physical activity are associated with improved cancer outcomes,

including increased survival, reduced disease recurrence, and fewer side-effects such as fatigue.^{7,8} However, cancer survivors often reduce their physical activity during treatment and have difficulty regaining their pre-morbid physical activity levels after treatment completion.⁹ Consequently, physical activity levels in some cohorts of cancer survivors are very low.^{10,11} One large population-based study of 508 cancer survivors found that as few as 8% of cancer survivors achieved the recommended 150 minutes per week of physical activity of at least moderate intensity.¹⁰ Another study of 49 cancer survivors awaiting oncology rehabilitation found that only 8% of participants achieved physical activity recommendations.¹¹ The effectiveness of rehabilitation for improving physical activity levels is unclear.¹²

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For oncology rehabilitation to improve participation in physical activity, the addition of behaviour change interventions may be required. Motivational interviewing is a patient-centred style of behavioural counselling that aims to increase physical activity through addressing ambivalence about behaviour change.¹³ It differs from other behaviour change interventions, such as health coaching, because the primary emphasis is on people producing their own arguments for change.¹³ Motivational interviewing may improve physical activity levels of cancer survivors.¹⁴ One pre-post study of 13 women with early breast cancer showed that weekly, nurse-delivered motivational interviewing combined with a home-based walking and resistance exercise program over 16 weeks increased moderate to vigorous physical activity by 5 minutes per day.¹⁵ A randomised controlled trial with 56 long-term cancer survivors reported a 37% improvement in physical activity levels compared to usual care after a 6-month motivational interviewing intervention comprising three 30-minute sessions with a trained research assistant.¹⁶ However, these studies were in laboratory settings and only included cancer survivors who had completed treatment. No pragmatic trials have been completed within clinical settings. It is unknown whether motivational interviewing as part of rehabilitation is more successful at improving physical activity than standard rehabilitation.

Therefore, the research question for this randomised controlled trial was:

Does adding weekly, physiotherapist-delivered motivational interviewing to outpatient oncology rehabilitation for cancer survivors increase physical activity levels and improve physical and psychosocial outcomes that are typically impaired in this cohort?

Method

Design

A single-blind, parallel, randomised controlled trial was completed with intention-to-treat analysis. Cancer survivors awaiting oncology rehabilitation were recruited and baseline measures were undertaken. Participants were then randomly allocated to either an experimental or a control group according to a randomisation website. Randomisation was stratified by treatment status (treatment/post treatment) and tumour stream (solid/haematological) using permuted blocks of four. To ensure concealed allocation, assignments were placed in opaque, sequentially numbered, sealed envelopes prior to study commencement by a researcher (NT) not involved in recruitment or intervention delivery. Participants were enrolled by a research assistant and assigned to groups by another researcher (AD). Participants in both groups underwent oncology rehabilitation for 7 weeks. During this period, participants in the experimental group also received motivational interviewing, delivered once weekly by a physiotherapist via telephone. Outcome measures were undertaken at baseline and at the end of the intervention period by an assessor who was blinded to group allocation.

Participants, therapists, centre

Participants were recruited from the waiting list of a public, metropolitan, outpatient oncology rehabilitation program. Participants were eligible if they: were aged ≥ 18 years, had a cancer diagnosis, could speak conversational English, and were undergoing treatment or had completed adjuvant therapy in the last 12 months (except for long-term, oral hormonal therapies). Cognition was screened prior to baseline assessment using the Short Portable Mental Status Questionnaire.¹⁷ Participants scoring more than seven errors (indicating severe cognitive impairment) were excluded because they would not have been able to participate adequately in the intervention. Participants were also

excluded if they: had a medical condition that contraindicated participation in exercise, as assessed by a medical practitioner; were > 12 months post treatment; were receiving end-of-life care (estimated < 3 months to live); or had high levels of psychological distress indicated by a score of > 29 on the Kessler 10 questionnaire.¹⁸ If participants were already meeting physical activity guidelines (achieving > 8000 steps per day on 5 days of the week¹⁹), as measured by an accelerometer, they were excluded prior to randomisation because the aim of the intervention was to guide people to achieve recommended physical activity levels.

Interventions

All participants in both groups were scheduled to attend oncology rehabilitation twice weekly for 7 weeks. Each session comprised 1 hour of individualised exercise and 1 hour of group education. All participants received a video or written home exercise program and diary to encourage exercise outside the program and monitor exercise adherence, as per standard practice at the health service.

The exercise component used a supervised, group circuit format including aerobic and resistance exercise. In accordance with guidelines,²⁰ participants aimed to exercise at moderate intensity. For aerobic exercise, participants worked at between 3 (moderate) and 5 (severe) on the modified Borg rating of perceived exertion scale. Participants aimed for a rating of 2 to 3 (slight to moderate) for the first 2 weeks, progressing to 4 to 5 (somewhat severe to severe) by the seventh week. For resistance exercise, participants completed 10 to 12 repetitions maximum of each exercise.²⁰ Weights were progressed once they achieved two to three sets of 10 to 12 repetitions maximum. Resistance exercise included upper and lower body exercise (eg, squats, step-ups, free weights, wall push-ups, and resistance bands). Aerobic exercise included treadmill, stationary cycle, outdoor walking and arm cycle. Flexibility and balance exercises were incorporated based on patient preferences and goals. The home exercise program comprised the same strengthening, balance and flexibility exercises completed in the supervised exercise class. Participants were also instructed to complete aerobic exercise, such as walking, in between rehabilitation sessions. Exercise diaries were used to document any exercise completed outside of the supervised program. Exercise was tailored to each participant following assessment by a physiotherapist with > 5 years of experience in rehabilitation. Exercise sessions were supervised by the physiotherapist, nurse and allied health assistant. In addition, participants were advised that they were expected to continue with the exercises at program completion.

The education component comprised group sessions that provided information about managing cancer as a chronic disease. These interactive sessions were led by a nurse, social worker, occupational therapist, dietician and physiotherapist. The sessions included discussion about emotions, exercise, nutrition, fatigue, relaxation, support services, sleep, relationships, and advanced care planning. The exercise education presented information related to physical activity recommendations for cancer survivors (ie, 150 minutes per week of physical activity of at least moderate intensity) and how to exercise safely, and included group tasks to motivate and overcome barriers to exercise. For example, participants were asked to develop a list of reasons to exercise. All participants completed goal setting and discharge planning with the physiotherapist, including discussion about ongoing community exercise options.

Motivational interviewing intervention

Participants randomly allocated to the experimental group received weekly motivational interviewing sessions by telephone for 7 weeks in addition to standard rehabilitation. The sessions were completed with the same physiotherapist who supervised the rehabilitation program. The physiotherapist completed a 2-day workshop on motivational interviewing and received 11 sessions of

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