



I.CAN: health coaching provides tailored nutrition and physical activity guidance to people diagnosed with cancer in a rural region in West Gippsland, Australia

E. Ristevsk¹ · T. Trinh² · N. Vo² · A. Byrne² · P. Jamieson² · A. Greenall² · G. Barber² · A. Roman² · U. Schmidt²

Received: 18 July 2019 / Accepted: 9 October 2019 / Published online: 8 November 2019
© Springer Science+Business Media, LLC, part of Springer Nature 2019

Abstract

Purpose I.CAN is a program which uses health coaching to provide tailored nutrition and physical activity guidance to people diagnosed with cancer in a rural region in eastern Victoria, Australia. I.CAN builds patients' nutritional knowledge, attitudes and health literacy to healthy eating and weight maintenance and incorporates sustainable and affordable dietary changes into everyday eating patterns. While oncology care identifies patients at risk of malnutrition and weight loss, less attention has been placed on building patient's capacity for healthy lifestyles and behaviours after cancer treatment.

Methods I.CAN is delivered by a dietitian and exercise physiologist and is offered in three streams, one-on-one consultation, one-one-one and group and group. Paired *t* tests and chi-square analysis were used to analyse data.

Results At 3-month review, I.CAN participants (1) significantly increased exercise activity from 51 to 86% ($p < 0.001$) and (2) showed increased trends in positive food choices from 62 to 66%. Importantly, positive food choices for alcohol and processed snacks were maintained, and there were increases in positive food choices for fresh fruit and vegetables, low fat dairy and processed meats.

Conclusion I.CAN is an example of a program which can be delivered within a rural setting, with minimal resources, and achieve positive impact for patients.

Implications for Cancer Survivors Key to the success of the program is promoting wellness early in the cancer trajectory and providing patients with practical tools, a person-centred and multidisciplinary team approach and a program which is adaptable to the changing needs of the patient and the health service.

Keywords Nutrition · Exercise · Health coaching · Rural · Cancer · Survivorship

Introduction

It is widely recognised that obesity in cancer survivors is strongly associated with chronic diseases such as cardiovascular disease and type 2 diabetes [1]. Obesity may also increase the risk of cancer recurrence and disease progression [2]. Obesity also impacts on the functional, psychosocial and quality of life of cancer survivors, especially on fatigue, pain, sleep disturbance, depression and participation in work [3, 4]. Oncology care has focussed on identifying patients at risk of

malnutrition and weight loss with less attention on how to build patient's capacity for healthy lifestyles and behaviours after cancer treatment. Patients may receive nutrition education at chemotherapy or radiotherapy education sessions, with little review or follow-up. Oncologists are limited in time for further education and are less familiar with strategies for health-promoting practices [5]. While there is growing recognition for physical activity during cancer treatment, incorporating healthy eating practices early in the cancer trajectory has received less attention.

Tailored dietetic interventions and health coaching have significant benefits in promoting weight loss, increasing physical activity and improving health-related quality of life [6–8]. Such programs have also shown positive outcomes in rural populations, groups with low health literacy, low income and ethnically diverse communities [9]. Health behaviours are underpinned by a complex range of social, economic, educational and environmental factors, and interventions also need to target these social determinants of health [10].

✉ E. Ristevsk
eli.ristevski@monash.edu

¹ Monash University, Monash Rural Health, Warragul, Victoria, Australia

² West Gippsland HealthCare Group, Warragul, Victoria, Australia

I.CAN

The I.CAN program was developed in 2017 through a collaboration with community organisations (leisure centres, community recreational groups), allied health (dietitians, exercise physiologists) and oncology specialists (nurses, medical oncology).

I.CAN uses a health coaching model to provide tailored nutrition and physical activity guidance to people diagnosed with cancer in a rural area in Victoria (West Gippsland), Australia. Nearly 50% of the population in West Gippsland are overweight or obese and the wider Gippsland region has the lowest cancer survivorship outcomes across Victoria. The West Gippsland region has a population of 52,105 distributed over 4025 km². The region is serviced by one public acute hospital, chemotherapy one day a week and a visiting medical oncologist and haematologist on clinic days. On average, 18 patients can receive chemotherapy per week.

I.CAN is promoted as ‘part of routine cancer care’ to all new and existing cancer patients with any cancer type admitted to the chemotherapy day unit. Patients with acute malnutrition are excluded due to their urgent and complex care needs. All patients complete a supportive care screening assessment, as required by state government policy, and this is sent to the I.CAN program. At the initial consultation, the patient and clinician develop a personalised tailored nutrition and exercise guidance plan. The plan includes patient’s goals, actions, outcomes, person responsible, timeframes and specified schedule for reviews. Outcomes are measured by the Godin Leisure Questionnaire, Food Frequency Questionnaire and FACT-G7 (Fig. 1). Supportive care needs are discussed and incorporated into the plan. The aim of the consultation is to (a) build patients’ nutritional knowledge, attitudes and health literacy to healthy eating and weight maintenance and (b) incorporate sustainable and affordable healthy dietary changes into everyday eating patterns.

A patient usability test at 6 weeks post implementation found patients wanted group sessions along with one-on-one consultations to help integrate their learning with social connectedness. In response, the program was revised and restructured to incorporate multiple streams (Fig. 1). Group sessions were 2 h each week, conducted in a community meeting room and include a combined exercise program with nutrition education and discussion. The group has a 6-week cycle and there is no cost for patients to attend. Patients have the opportunity to move in and out of streams, depending on any situation (e.g. due to energy and stress levels, treatment type and duration, symptoms and appointments). The revised I.CAN model is fluid in nature, responsive to changes that may occur for any patient, and enables patients to enter or cease the program at any stage based on their readiness to change or level of comfort and confidence to self-manage in the community.

The program also aims to transition patients to community activities/programs to maintain their physical activity within a community setting and promotes shared care with primary health practitioners (e.g. general practitioners) to support health-promoting discussions and chronic disease self-management. Ethical approval from the West Gippsland HealthCare Group Human Research Ethics Committee was obtained to collect patient outcome and experience data.

Results

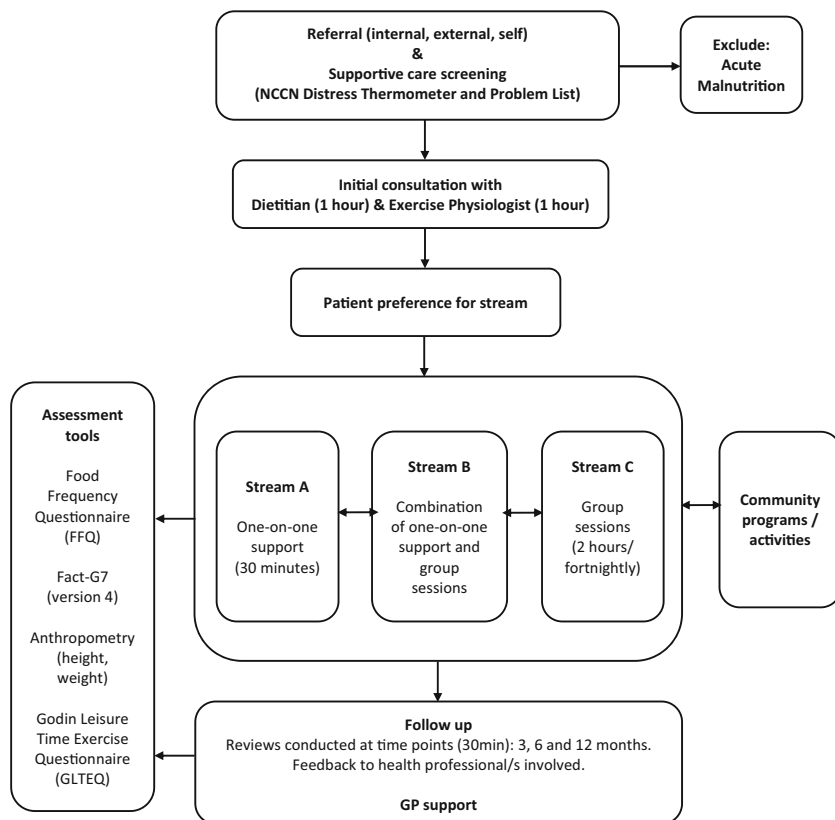
Participants were on average 65.9 ± 2 (44–90) years of age, female (71%), diagnosed with either breast (38%), colorectal (27%), lymphoma (9%) or other (25%) cancers. Years since diagnosis included < 2 (38%), 2–10 (52%) and > 10 (8%). Between September 2017 and April 2018, 48/53 patients participated in the program (90% response rate). Paired *t* tests (with data transferred to appropriate normal distribution) showed a statistically significant change in exercise activity across all participants ($p < 0.001$). Further chi-square analysis showed there was a statistically significant increase in exercise activity from 51% at baseline to 86% at 3 months ($p < 0.001$); while there was no statistically significant difference in food choices at baseline and at 3 months, there was an increase in positive food choices from 62% at baseline to 66% at 3 months. A more detailed examination of the food choices on the Food Frequency Questionnaire (FFQ) showed trends towards meeting the Australian Guide to Health Eating (AGTHE). In particular, positive food choices for alcohol and processed snacks were high at baseline and maintained at 3 months. There were also increases in positive food choices for food categories significant in oncology patients such as fresh fruit and vegetables, low fat dairy and processed meats (Fig. 2). These results are of clinical significance. Preliminary data at 6 month follow-up indicates patients are maintaining positive behavioural practices.

Discussion

The I.CAN program demonstrates the following elements are important for promoting and sustaining positive survivorship practices around nutrition and exercise:

Promoting wellness early Survivorship activities have often focussed on the end of cancer treatment and nutrition advice is often reactive to a problem. I.CAN however uses a health promotion and wellness model to build patients’ skills and capacity for good nutrition and exercise practices early in the patient journey. Early intervention is supported by the American Cancer Society guidelines for nutrition and physical activity for cancer survivors. A preventative approach can decrease the burden of

Fig. 1 I.CAN model of care



disease for the onset of new conditions or worsening of the current condition [10]. The high response rate to I.CAN illustrates that cancer patients want wellness programs which include diet, exercise, social support and personalised goals.

Practical tools Patient education is often didactic in delivery, with limited follow-up or review. I.CAN provides practical sessions, with clinician education and peer learning to build patients’ knowledge, skills, attitudes and capacity for self-management. The use of a health coaching model helps tailor the information and tools to the individual’s needs. As the

patient can complete the program at their own pace, they can tailor the learning as needed. Tools such as the FACT-G7, FFQ and GLTEQ provide objective measures back to patients on their progress and helps patients and clinicians benchmark progress and adapt goals and/or strategies as required. In a systematic review by Hoedjes [7], ‘instruction on how to perform the behaviour’, ‘goal setting’ and ‘action planning’ were in the top 5 strategies to promote effective diet and physical activity interventions for cancer survivors. Health coaching is an effective mechanism for promoting healthy behaviours and motivating patients [8].

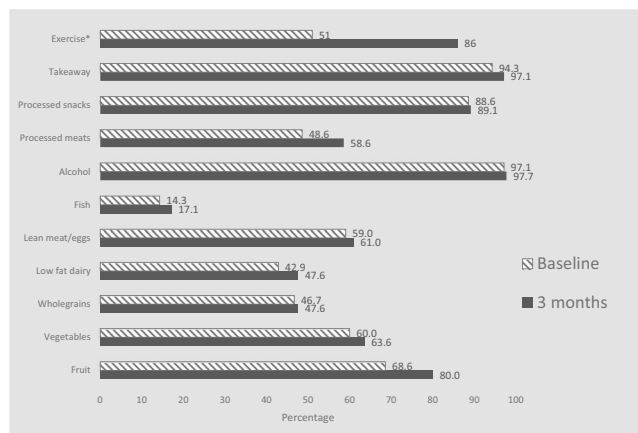


Fig. 2 Meeting nutrition and exercise guidelines at baseline and 3 months. Statistically significant $p < 0.001$ (asterisk)

Person-centred and drive No matter what stream patients choose, patients have individualised goals which reflect their personal preferences, socio-economic status and health needs at that point in their cancer journey. Similar work by Hoedjes et al. [7], Rock et al. [10] and Gans et al. [9] found individualised and tailored interventions to be more effective in achieving patient goals and health outcomes.

Multi-disciplinary team approach The promotion of I.CAN by oncology staff as ‘part of routine care’ embeds the message of *wellness* from the beginning of the survivorship journey. The focus on medical treatment can disempower patients to feel they do not have control of their body. Often at the end of treatment, patients have difficulty transitioning back to their lives prior to treatment or creating a ‘new normal’ as they have

become institutionalised by the cancer treatment journey and lack the support or tools for this transition. The I.CAN model provides a gradual and supported stepped approach to survivorship by guiding patients from the oncology setting to an allied health, primary health and community-based environment. Programs which are delivered by multidisciplinary teams are more effective at maintaining weight loss and subsequent benefits [5, 6].

Peer support I.CAN demonstrates that peer support is still important to cancer patients. While the attendance for general cancer support groups is reducing, I.CAN demonstrates that people want to come together for sessions that gave them practical tools. The shared activities and learnings created incidental opportunities for social and emotional support, encouraging positive discussions and experiences without the need to ‘explain’ their situation. Systematic review by Hoedjes et al. [7] found social support to be a key component of increasing the success of diet and physical activity interventions.

Adaptable and sustainable The program does not require a specialist facility, for example, gym or a hospital facility, and can be offered by community health services. Once the program procedures are established, one dietitian and one EP are required 2 h a week for group sessions. Initial and follow-up assessments are scheduled into routine patient appointments at the health service. For rural health services, with limited workforce and resources, the I.CAN model is well suited to the connection between tertiary care, community health and primary care services (e.g. GPs). These connections also create better communication and continuity of care between health providers, often where patients fall through the service gaps in survivorship care. Finally, as the program promotes transition to community-based programs/activities, I.CAN provides advice to community-based providers and facilities on how to support cancer survivors, thereby minimising their dependence on health professionals in the long term.

Limitations Low participant numbers, the fluid nature of the program and the long timeframe needed to achieve behaviour change limit statistical results. However, at the clinical practice level, I.CAN demonstrates positive increases to recommended dietary guidelines and significant increases in exercise activity.

Implications for cancer survivors

For people in rural areas, access to programs which promote and support cancer survivorship is often limited and usually

requires people to travel great distances. I.CAN is an example of a program which can be delivered within a rural setting, with minimal resources, and achieve positive impact for patients. The tailored, flexible and patient-centred nature of the program has shown to achieve positive results for a diverse group of cancer patients with varied needs.

Compliance with ethical standards

Ethical approval from the West Gippsland HealthCare Group Human Research Ethics Committee was obtained to collect patient outcome and experience data.

Conflict of interest The authors declare that they have no conflict of interest.

References

1. Garcia-Jimenez C, Gutierrez-Salmeron M, Chocarro-Calvo A, Garcia-Martinez JM, Castano A, De la Vieja A. From obesity to diabetes and cancer: epidemiological links and role of therapies. *Br J Cancer*. 2016;114(7):716–22. <https://doi.org/10.1038/bjc.2016.37>.
2. Kohler LN, Garcia DO, Harris RB, Oren E, Roe DJ, Jacobs ET. Adherence to Diet and Physical Activity Cancer Prevention Guidelines and Cancer Outcomes: a systematic review. *Cancer Epidemiol Biomarkers Prev*. 2016;25(7):1018–28. <https://doi.org/10.1158/1055-9965.Epi-16-0121>.
3. Arnold M, Pandeya N, Byrnes G, Renehan PAG, Stevens GA, Ezzati PM, et al. Global burden of cancer attributable to high body-mass index in 2012: a population-based study. *Lancet Oncol*. 2015;16(1):36–46. [https://doi.org/10.1016/s1470-2045\(14\)71123-4](https://doi.org/10.1016/s1470-2045(14)71123-4).
4. Flegal KM, Kit BK, Orpana H, Graubard BI. Association of all-cause mortality with overweight and obesity using standard body mass index categories: a systematic review and meta-analysis. *JAMA*. 2013;309(1):71–82. <https://doi.org/10.1001/jama.2012.113905>.
5. Rauh S, Antonuzzo A, Bossi P, Eckert R, Fallon M, Fröbe A, et al. Nutrition in patients with cancer: a new area for medical oncologists? A practising oncologist’s interdisciplinary position paper. *ESMO Open*. 2018;3(4):e000345. <https://doi.org/10.1136/esmoopen-2018-000345>.
6. Demark-Wahnefried W, Rogers LQ, Alfano CM, Thomson CA, Coumeya KS, Meyerhardt JA, et al. Practical clinical interventions for diet, physical activity, and weight control in cancer survivors. *CA Cancer J Clin*. 2015;65(3):167–89. <https://doi.org/10.3322/caac.21265>.
7. Hoedjes M, van Stralen MM, Joe STA, Rookus M, van Leeuwen F, Michie S, et al. Toward the optimal strategy for sustained weight loss in overweight cancer survivors: a systematic review of the literature. *J Cancer Surviv*. 2017;11(3):360–85. <https://doi.org/10.1007/s11764-016-0594-8>.
8. Kivela K, Elo S, Kyngas H, Kaariainen M. The effects of health coaching on adult patients with chronic diseases: a systematic review. *Patient Educ Couns*. 2014;97(2):147–57. <https://doi.org/10.1016/j.pec.2014.07.026>.
9. Gans KM, Risica PM, Strolla LO, Fournier L, Kirtania U, Upegui D, et al. Effectiveness of different methods for delivering tailored

- nutrition education to low income, ethnically diverse adults. *Int J Behav Nutr Phys Act.* 2009;6:24. <https://doi.org/10.1186/1479-5868-6-24>.
10. Rock CL, Doyle C, Demark-Wahnefried W, Meyerhardt J, Courneya KS, Schwartz AL, et al. Nutrition and physical activity guidelines for cancer survivors. *CA Cancer J Clin.* 2012;62(4):243–74. <https://doi.org/10.3322/caac.21142>.

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.