

This is a pre-publication version of the following article: Cross, A., Sheffield, D., Elander, J. (2017) Forget cancer, let's MOVE: a behaviour change support model for physical activity for young people during and after cancer. *Health Psychology Update*, 26(2), 17-25

Forget cancer, let's MOVE: a behaviour change support model for physical activity for young people during and after cancer

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Abstract: This paper describes a model of behaviour change support for a referral physical activity cancer service for young people. The service is underpinned by the self-determination (Deci & Ryan, 2008) principles of autonomy, competence, and relatedness. A range of tailored physical activity programmes are provided in community, in-patient and online settings. Each young person receives behaviour change support from motivational interviewing, which incorporates mental contrasting and implementation intentions. This paper seeks to share practice on how health psychology theory and techniques have been applied in order to support young people to be more physically active, both during and after their cancer treatment. Additionally, we share our experiences of providing consultancy to shape service development and planning.

The role of physical activity for young people following cancer

Survival rates for teenagers' and young adults' cancers are improving and have increased in the last 40 years in the UK (Cancer Research U.K., 2017). Providing behaviour change support for physical activity is not only an important priority for secondary cancer prevention

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for young people, but it can also play a role in their recovery from cancer. Young people with cancer often experience muscle weakness a decreased functional capacity, decreased flexibility, reduced mobility, and diminished health-related quality of life (HRQoL) (Hartman et al., 2008; Schneider et al., 2007).

Beneficial effects of physical activity during or shortly after cancer treatment include both physical benefits (in terms of an increase in muscle mass and plasma volume, improved lung ventilation and lung perfusion, and an increased cardiac reserve) and psychological (including reduced depression, anxiety, improved quality of life). Furthermore, a recent meta-analysis recommended exercise as a first line treatment for cancer-related fatigue (Mustian, et al., 2017).

Providing tailored physical activity programmes and behaviour change support to young people during and after their cancer treatment presents several challenges; the young people may vary in terms of their stage of recovery from cancer, their levels of self-efficacy for physical activity and in their preferences for different variants of physical activity. Furthermore, decreased psychosocial functioning and health-related quality of life as a result of cancer have been found to be associated with poorer self-efficacy to perform physical activity or exercise (Warner, 2008). Accordingly, there are few behaviour change interventions that have been specifically targeted at young people; a Cochrane systematic review highlighted a paucity of research and applied work in physical activity for young people after cancer and recommended that future studies should consider psychosocial outcomes (Braam et al., 2016). The lack of research and applied work in this area presents significant challenges for developing physical activity interventions and services for young people during or after cancer. These challenges are further compounded by issues within health psychology, such as a lack of clear reporting of behaviour change techniques (BCTs) and intervention features, which makes the application of theory-based behaviour change

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techniques difficult. As a response, the Behaviour Change Taxonomy v1 framework has been developed as a means of providing clearer guidance and tools for classifying, identifying and reporting behaviour change techniques and interventions features and functions within services (Michie et al., 2013), with the TIDieR framework for clearer reporting of interventions (Hoffman et al., 2014). There is also a need within health psychology to share practice on the implementation of theory in applied work. The purpose of this paper is to share our experience of applying health psychology theory and brief interventions to support young people to become more physically active during and after cancer. It is also intended as a case study of how health psychology theory, knowledge and skills can be used to shape service development.

MOVE: a tailored physical activity service for young people during and after cancer

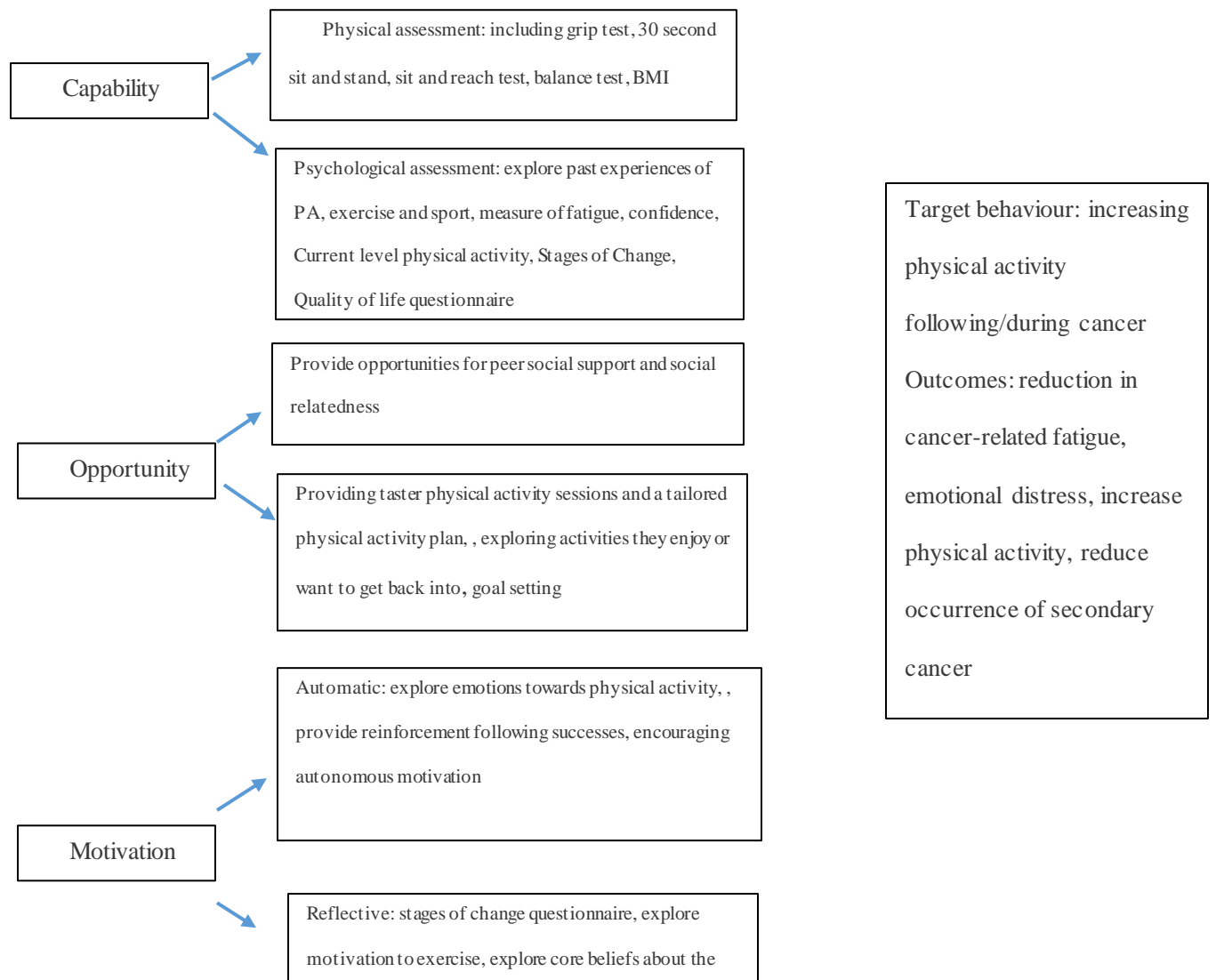
MOVE (www.movecharity.org.uk) aims to provide tailored physical activity or exercise programmes for young people aged 7-24 during and following cancer, along with psychological support. Tailored programmes are delivered in community, inpatient and online settings thus providing personal choice to best suit the needs of the young people. Taster sessions are offered in a variety of activities, including pilates, running, strength and conditioning, climbing, to help young people explore and develop preferences for physical activity and to learn new skills which can be fed into their own tailored physical activity plan. The service is co-ordinated by a level 4 Cancer Exercise Specialist, with input from a multidisciplinary team of a consultant oncologist and physiotherapist to advise on safe physical activity limits, as well as psychologist input to advise on behaviour change support (AC, DS, JE). The service aims to provide bespoke support depending on the young person's needs, but typically involves weekly sessions for 16 weeks, with reviews every four weeks.

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Our service planning meetings began in June 2016 following a consultancy request for advice and techniques to support long term behaviour change that could be used to inform the development of the service, as well as to advise on techniques that could be used within one-to-one and group sessions with the young people. This part of the consultancy was addressed in two stages. Initially, we conducted a scoping review of the relevant literature to identify a range of suitable behaviour change techniques and theoretical approaches that could be adapted and used flexibly for young people with differing goals, levels of motivation and at different stages in their cancer journey. Providing timely, evidence based behaviour change consultancy advice to inform service development poses a challenge. A scoping review allowed for a rapid review of the evidence and provided a short-term solution. As highlighted earlier, there is a paucity of research and applied work to promote physical activity for young people during and after cancer, so we looked more broadly and considered literature in adults with cancer, as well as general physical activity interventions. A systematic review is now underway to determine the effectiveness of behaviour change techniques to promote physical activity for children and young adults during and following cancer (PROSPERO ref CRD42017064591). During a series of consultancy meetings, we used the findings of the scoping search to discuss a range of suitable behaviour change techniques from the scoping review, as well as from the CALORE taxonomy for physical activity (Michie et al., 2011a) with the MOVE lead Cancer Exercise Specialist. This allowed us to co-produce a shortlist of techniques which were compiled within a behaviour change manual, and to advise on an approach for assessment, formulation and evaluation that could be used in consultations with the young people (see figure 1 for a summary). As part of the needs assessment phase of the consultancy, we developed a logic model by compiling a list of determinants of physical activity for during and after cancer (e.g. capability, overcoming barriers), behaviour change techniques (e.g. behavioural instruction, goal setting, coping planning), intervention

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components (e.g. mental contrasting and implementation intentions), process measures (e.g. objective and subjective measures of physical activity), as well as specifying the physical and behavioural outcomes we hoped to achieve. The logic model and proposed mechanisms of action were mapped onto the COM-B framework and are summarised in figure one (Michie et al., 2011b).



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Figure 1: COM-B model summarising the aspects of the assessment of young people's capability, opportunities and motivation for increasing physical activity during or after treatment for cancer

Service planning consultancy meetings are held on a monthly basis to review progress with the service and to consider new developments. Training in the theory and mechanisms of action, as well as guidance in the practical use of these techniques were also provided to the Cancer Exercise Specialist as part of the consultancy. These techniques were piloted in consultations with MOVE's service users and feedback from both the staff and young people was used to review and refine the approach. This is an on-going process and we regularly review feedback and relevant developments in health psychology theory and practice to discuss new approaches. As well as providing behaviour change advice to the lead Cancer Exercise Specialist, the consultancy role also now includes advice on service development. In particular, we have had enquiries from young people requesting an online based service and our consultancy meetings are now focused on developing a format for online consultations, as well as the provision of web-based resources and a text messaging intervention. The results of the systematic review will also be used to review the existing behaviour change support and to inform further developments.

MOVE service philosophy: Self-determination theory

We also used the scoping review to guide discussions about MOVE's service philosophy and its links to psychological theory. MOVE's philosophy and activities are underpinned by the self-determination theory (SDT) (Deci & Ryan, 2008; Ryan & Deci, 2008), which has been used as a framework for understanding motivation for physical activity (Teixeira, et al.,

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2012). SDT posits that motivation varies according to the extent by which it is perceived by the individual as autonomous or controlled (Deci & Ryan, 2008; Ryan & Deci, 2010); activities driven mostly by controlled forms of motivation can create intrapersonal conflict which hinder the availability of volitional resources, such as the capacity to exert sustained effort (Koestner, Otis, Powers, Pelletier, & Gagnon, 2008). Controlled forms of motivation may produce some short term success. However, autonomous motivation for physical activity is associated with positive emotions, high levels of perceived behavioural competence, and reflective self-endorsement. Activities that foster autonomous motivation are more encouraging for individuals to engage in the behaviour for prolonged periods of time (Deci & Ryan, 2008; Markland & Ingledew, 2007; Ryan & Deci, 2000; Teixeira, et al., 2012).

As such, MOVE is underpinned by SDT's position that satisfying three basic psychological needs may lead to autonomous motivation; these needs are: (1) autonomy. Young people given the autonomy to choose their physical activity goal and to play a part in deciding which activities they will pursue in order to achieve their goal, (2) competence; A Cancer Exercise Specialist provides practical guidance on all aspects of performing their physical activity of choice, including how to warm up, perform the activity and cool down, (3) relatedness and companionship; this need relates to feeling connected to and understood by others (Deci & Ryan, 2008; Ryan & Deci, 2000). Opportunities for social relatedness in MOVE come from the option to take part in group physical activity sessions, online chat peer support groups and regular healthy cooking skills classes at a local deli where young people can learn new skills and socialise with other service users.

Motivational interviewing

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Following referral to MOVE, young people attend goal setting and review consultations which uses the motivational interviewing (MI) approach. The aim is to use motivational interviewing to help young people set achievable and realistic physical activity goals, to identify barriers and to support them to develop their own solutions to overcome these barriers. MI is 'a collaborative conversation style for strengthening a person's own motivation and commitment to change' (Miller & Rollnick, 2013). MI's 'spirit' encompasses principles of partnership (i.e. the cancer exercise specialist (CES) and young people are considered equal collaborators in the behaviour change process), acceptance and compassion and evocation, based on the principle that the young person has many of the solutions to become more physically active and the CES's task is to help find it. This is achieved through four overlapping processes: engaging, focusing, evoking and planning. The format involves a goal setting consultation that applies MI principles and processes through asking open questions and adopting a consultation style that incorporates affirmation, reflective listening, summarizing and informing or advising (Miller & Rollnick, 2013). Although SDT and MI were developed independently of one another, they have been used in combination (Markland, et al., 2005; Friederichs et al., 2016; Patrick & Williams, 2012; Vansteenkiste et al., 2009) to support behaviour change. They are complimentary in that MI can be used to support the young person's basic psychological needs for competence (e.g. by focusing on physical activity successes whether before, during or after cancer and by building on these by agreeing challenging but achievable activities for the future), autonomy (e.g. providing choice and minimizing pressure), and relatedness, i.e. receiving support from a Cancer Exercise Specialist who is a cancer survivor, offering opportunities for social peer support and social activities. Theory-based techniques have been embedded within the goal setting motivational interviewing consultations (self-affirmation (Steele, 1988), motivational interview activities, such as the confidence ruler or reviewing a typical day (Hardcastle et al,

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Mental contrasting and implementation intentions (MCII)

Goal setting and planning interventions have been introduced and rapidly grown in popularity to mediate the well documented gap between intentions and the performance of the behaviour (Carraro & Gaudreau, 2013; Sniehotta et al., 2005; Thomson, White, & Hamilton, 2012).

Mental contrasting and implementation intentions (MCII) have been proposed as solutions to increase goal strength and commitment for promoting recall and goal directed behaviour.

Mental contrasting requires an individual to specify a 1) **Wish**: specify a future health goal 2)

Outcome: mentally elaborating a desired outcome from performing or mastering a target health behaviour and 3) **Obstacle**, identified on reflection. More recently mental contrasting has been combined with implementation intentions (MCII, referred to by the young people as its acronym 'WOOP'), which subsequently involves specifying an 'if-then' **Plan** that is theorised to strengthen goal commitment (Golwitzer & Oettingen, 2016). Mental contrasting and implementation intentions have been used across a wide range of health behaviours, including physical activity (Stadler et al., 2009; Sheeran et al., 2015), reducing unhealthy snacking (Adriaanse et al 2010), smoking reduction (Oettingen et al., 2012), dieting (Johanssen et al., 2012) and increasing fruit and vegetable consumption (Stadler et al., 2010). Furthermore, they are easy to disseminate across multiple modes of delivery making them an accessible, low cost brief intervention. Once mastered, the technique is sufficiently flexible to allow the individual can apply them to other domains of their life, such as work, relationships and time management, where their efficacy has also been demonstrated (Duckworth et al

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MOVE consultations with the young people use motivational interviewing processes to lead them to complete a goal setting and planning exercise using MCII, along with an exploration of the barriers and coping planning. They are asked to generate as many ideas that would help them achieve their goal, as well as to discuss suitable activities. They are then asked to choose their preferred solution (referring back to a self-affirmation exercise if needed) and specify a MCII that they hope to achieve over the next month, at which point their progress will be reviewed and another MCII will be set. If necessary, the MCII will be adjusted at review sessions; a more feasible MCII will be selected if the original MCII was too challenging, or made more difficult if it was achieved.

Building long term behaviour change by developing habits

The service aims to provide young people with the knowledge and skills for long term behaviour change. Whereas MI and MCII largely tap into conscious reflective processes, there is recognition that non-conscious, automatic processes are also important in the formation of long term habits for physical activity (Gardner, 2015; Hagger & Chatzisarantis,

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2014; Hollands, Marteau, & Fletcher, 2016). Dual-process theories of behaviour account for both the reflective and automatic systems. The reflective impulsive model (RIM) (Strack and Deutsch, 2004), posits that the two systems of reflective (explicit) and impulsive/automatic (implicit) systems operate in parallel and compete for control of behavioural responses. The reflective explicit system directs behaviour through explicit decision-making process, which uses a high volume of cognitive capacity and may be disrupted by distraction or extreme levels of arousal. The impulsive implicit system, by contrast, operates outside the individual's conscious awareness requiring little cognitive capacity and can control behaviour in suboptimal conditions. Implicit motives have been shown to predict physical activity (Keatley, Clarke, & Hagger, 2012) and as such, automatic processes are important for establishing habitual behaviour through frequent repetition over time. For instance, we know that consistent activation of the association between a specific contextual cue that triggers the behaviour (e.g. time of day or setting a regular time to exercise) will eventually result in the triggering of an automatic impulse for being physically active without the need for conscious control (Fleig, McAllister, Chen et al., 2016). This dual-process approach to physical activity goal setting and pursuit suggests that while physical activity may initially be the product of one's intention (e.g. a young person deciding to start to exercise in order to lose weight following chemotherapy), after repeatedly choosing a behaviour in a stable context (e.g. going for a walk after lunch) the behaviour may become habitual (Fleig, McAllister, Chen et al., 2016; Lally & Gardner, 2013). Whilst measures of automatic strength exist (Gardner, 2015; Verplanken & Melkevik, 2008), these are not intended for therapeutic use within a consultation. Dual processing models show promise in achieving long-term behaviour change and so a challenge for health psychology practice is how to best integrate these approaches. Translating research evidence and theoretical techniques into health psychology clinical practice are a future priority area.

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Implications for future practice and research

This paper aims to share practice of a co-productive consultancy approach for applying health psychology theory and techniques. Our experience is intended to highlight how health psychology knowledge and skills can contribute to the development and planning of a service that values the use of applying health psychology theory and techniques. Our consultancy project provides a case study for how young people during and after their cancer treatment have been supported to become more physically active using a blend of self-determination theory and motivational interviewing principles. Mental contrasting and implementation intentions show promise as a brief intervention in both research and practice. The nature of habit formation, including consideration of the roles of reflective and automatic processing, are also important in the development of long term physical activity behaviour change. Research evidence is an important aspect of service development and a series of research studies are running concurrently.

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