Chapter 3
Promoting Self-Determined Motivation for Physical Activity: From Theory to Intervention Work

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Chapter Overview

Why did I get up at 5:00 am to go to yoga this morning? Why does my 72-year-old father attend his local early morning parkrun event every Saturday, come rain or shine? Every behavior we undertake in life (working, exercising, travelling etc.), is underpinned by motivation. Motivation is one of the most important concepts to understand for those interested in promoting health and well-being via participation in physical activity.

In this chapter, we will explore how motivation has been defined, and focus on self-determination theory (SDT; Deci & Ryan, 1985, 2000, 2017) as one of the most popular and useful theories that has been applied to the study of motivation to be active. We also illustrate how SDT can be applied in real life settings, using two recent projects as examples to explain how significant others in physical activity settings (e.g., exercise instructors, walk leaders) can say and do things to support the development of adaptive motivation among those they work with. Finally, we provide recommendations for future research and practice.

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Introducing Motivation: "What Do I Do, and Why?"

Motivation is a central concept to all human behaviors. Fundamentally, it represents the impetus or urge to move, and is often thought of as a quantifiable entity (Ntoumanis et al., 2018). Definitions of motivation have focused on the direction (i.e., "where do I invest my effort?"), origin ("what caused me to do this?"), intensity (i.e., "how hard do I try?"), and persistence ("when or why will I give up?") of behaviors. In recent decades, research in this field has shifted focus from quantity to the quality of motivation. Whereas the quantity of motivation refers to *how much* motivation one has, quality of motivation refers to the reason *why* an individual is motivated to engage in the target behavior. Understanding the reasons for motivation tells us more about what is regulating the behavior than simply knowing how much there is; hence motivational reasons are sometimes referred to as motivation regulations or behavior regulations. The concept of motivation quality has gained popularity in physical activity research, as a large body of evidence has shown that motivation regulations are critical determinants of cognitive (e.g., attention, reasoning), emotional (e.g., enjoyment, anxiety), and behavioral (e.g., effort, persistence) outcomes. SDT (Deci & Ryan, 1985, 2000, 2017) is a popular approach that has been the basis of much of this work and will be the focus of this chapter. The phrase physical activity is an umbrella term used to refer to an array of bodily movements that expends energy. Exercise is a sub-type of physical activity that is intentional, structured and repetitive, usually associated with fitness maintenance or improvement goals (Caspersen et al., 1985). SDT-based physical activity research has focused on motivation for intentional, structured or planned behaviors such as that undertaken for the purpose of fitness goals (e.g., exercise classes), and the theory has also been applied to less structured but intentional activity such as leisure walking (Teixeira et al., 2012). For the purposes of this chapter, we will use the term physical activity, unless we are specifically referring to exercise undertaken in an exercise context (e.g., structured exercise classes).

An Overview of Self-Determination Theory (SDT)

SDT recognizes that being motivated by lower quality reasons can be detrimental for the individual's health and well-being, even if the person engages in the behavior. Decades of SDT research has generally found that the same factors that can stimulate more autonomous interest in an activity are also those that promote health and wellness (Deci & Ryan, 2017). In this section, we will provide a detailed overview of the key constructs in SDT to explore how we can capitalize on those to promote physical activity engagement and health and well-being. We will also discuss the risks that may be present from utilizing ill-informed approaches to motivate others. When motivation is optimized, individuals are likely to take part in physical activities because they value, benefit from, and enjoy the activity.

Autonomous and Controlled Motives to Be Physically Active

Like the majority of health behaviors, engagement in physical activity is a choice. Therefore, an important consideration for motivation researchers is to identify how to support people to move towards healthy behavior choices and thrive when engaging in those behaviors. SDT proposes that healthy choices are more likely to be made and sustained when behavior is autonomous. Examples of autonomous behavior regulations would be doing an activity willingly because you want to engage in the behavior for its own sake (e.g., "I run because I enjoy the experience of running") or because it is part of your identity (e.g., "being an exerciser is part of who I am"). The former example describes *intrinsic* motivation and the latter *integrated* motivation. Identified motives include being active because you recognize the value and worth of the activity (e.g., "I go to the gym because I value fitness and health") and are also autonomous. On the other hand, individuals will sometimes engage in behaviors for non-volitional reasons. *Introjected* motivation is underpinned by internal pressures or contingencies,

such as fear (e.g., "I'm scared of the consequences of being inactive"), guilt (e.g., "I would feel guilty if I let my instructor down") or contingent self-worth (e.g., "I have to stay in shape to feel good about myself"). *External* regulations have no internal driver, and reflect force, pressure or coercion from someone else (e.g., "I have been told by my doctor that I must exercise to avoid dying young"). Sometimes people's engagement in physical activity is *amotivated*. Amotivation describes a state in which the individual lacks intention or reason to continue (e.g., "I don't see the point"). If amotivation becomes more prominent than controlled or autonomous regulations then it is likely that the individual will disengage from the behavior, or not start at all. SDT describes these motivations as falling on a continuum (see Figure 3.1). It is often the case that multiple motivation regulations underpin behavior. However, people will experience most benefit when the motivations are all, or predominantly, autonomous (Ntoumanis et al., 2018).

Figure 3.1
Examples of the Motivation Regulations and Where They Place on a Continuum of Self-Determination
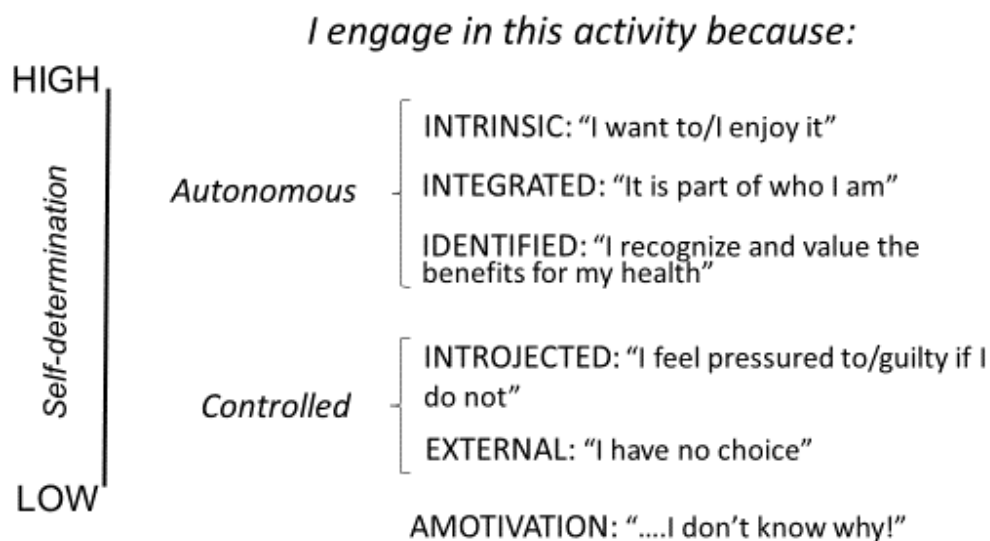
According to SDT, the degree of self-determination one feels about their engagement in an activity is critically important. When behavioral engagement is regulated by autonomous reasons (i.e., more self-determined), individuals are likely to persist longer, try harder, enjoy the experience more, and feel better about themselves. Indices of physical and psychological health have also been positively linked to autonomous motives. On the contrary, controlled regulations and amotivation tend to predict boredom, disengagement, indices of compromised physical and psychological health, and dropout (Ntoumanis et al., 2020; Ryan & Deci, 2017).

Basic Psychological Need Satisfaction and Frustration
SDT proposes that the degree to which autonomous and controlled motivations are supported or undermined depends on the extent to which three basic psychological needs are satisfied or frustrated (Deci & Ryan, 2017, Bhavsar et al., 2020). *Basic need satisfaction* is considered fundamental for people to thrive, not merely survive. The three needs highlighted by SDT are 1) *competence* (i.e., to feel capable, can meet challenges, efficacious), 2) *autonomy* (i.e., volitional and willingness to take part

in the behavior) and 3) *relatedness* (i.e., feel respected, cared for and connected to others). Originally, SDT differentiated only between high and low need satisfaction. However, recent advances have pointed to the potential for needs to be frustrated, reflective of a feeling that one's needs are actively undermined by significant others (Bartholomew et al., 2011, Bhavsar et al., 2020). *Autonomy need frustration* refers to the feeling that one has been pushed or forced to behave in a certain way. *Competence need frustration* reflects feeling useless and hopeless. *Relatedness need frustration* refers to feeling disliked, excluded, or deliberately ignored. When needs are frustrated, behavioral engagement is likely to be controlled by introjected or external regulations, which subsequently leads to an array of negative consequences, as previously outlined.

Photo by Monstera from Pexels

The Role of the Social Environment

SDT has particular utility as an approach to understanding motivation in exercise and other forms of structured physical activity, as the theory identifies how the social environment can be optimized to create the most appropriate conditions for adaptive motivation to ensue. The basic psychological needs can be considered inner motivational resources that mediate the relation between the experiences one has in their social environment (e.g., what their instructor says and does in an exercise class) and the motivation regulations that underpin engagement in the target behavior (Deci & Ryan, 2000; Bhavsar, et al., 2019). If the social environment is characterized by *need supportive* strategies, the individual will be more likely to experience need satisfaction, which leads to more autonomous motivation for the activity, and in turn, adaptive outcomes. However, when the social environment is characterized by *need thwarting* strategies, needs are likely to be frustrated, motivation is likely to be controlled, and maladaptive consequences are predicted to ensue. Need supportive social environments are those in which the social agents (e.g., instructors, coaches) use autonomy supportive, competence supportive, and relatedness supportive strategies. In need thwarting environments however, autonomy, competence and relatedness thwarting approaches are evident. Table 3.1 presents descriptions of what constitutes need supportive and need thwarting strategies. The third column in the table describes a third category of *need relevant* behaviors, namely *need indifferent* behaviors. This relatively new addition to the SDT picture of the social environment describes those things others in the social environment may do that overlook or neglect another person's needs (Bhavsar et al., 2019; Cheon et al., 2019). Such an approach is hypothesized to lead to unfulfilled needs; however, as yet, there is no

empirical support for this relatively new proposition. Bhavsar and colleagues (2019) recently developed a scale to assess the social environment created by sport coaches, using the tripartite perspective we describe in Table 3.1. Research utilizing this scale in a range of physical activity contexts will help to identify the role need indifferent behaviors may play in predicting motivation to be active and physical activity behaviors.

Table 3.1
*Descriptions of Need Supportive, Thwarting, and Indifferent Behaviors in Physical Activity Settings*

Supportive	Thwarting	Indifferent
Autonomy	**Autonomy**	**Autonomy**
- Acknowledge, recognize and nurture the inner motivational resources of others - Offer meaningful choices - Attempt to understand others' perspective - Give personally meaningful rationales - Encourage input into decision-making - Give opportunities for self-initiated behavior	- Pressure others to think, feel, and behave in certain ways - Dismiss or devalue others' perspectives - Apply excessive personal control in situations - Use coercive strategies to control how tasks are performed - Dismiss or devalue others' perspectives	- Negligence or inattention towards individuals' perspectives and their inner motivational resources
Competence	**Competence**	**Competence**
- Guide individuals to feel capable of tackling challenges or experiencing meaningful success - Convey clear expectations and information to help others reach desired goals and outcomes - Provide constructive, thorough feedback - Encourage skill development and learning - Support setting of realistic goals	- Emphasize mistakes - Be overly critical - Highlight failures and faults - Repeatedly give negative feedback - Communicate perceptions of participants' ineffectiveness and doubt improvements	- Negligence or inattention towards providing adequate guidance, feedback, and organization to help participants' feel capable of facing challenges and/or experiencing success
Relatedness	**Relatedness**	**Relatedness**
- Demonstrate affection, care, and emotional stability - Demonstrate warmth and empathy - Show interest and support	- Demonstrate aversion or dislike of others - Being critical - Being hostile - Exhibit active dislike	- Negligence or inattention towards promoting a sense of connectedness with the participants

Overview of SDT as Applied in Exercise and Other Physical Activity Contexts

SDT lends itself well to intervention work, as the theory is explicit about the circumstances under which motivation can be optimized. A number of researchers have capitalized on the opportunity to test the theory in exercise settings, by exploring whether improving the levels of need support in the social environment positively impacts basic need satisfaction, motivation quality, and the targeted outcomes. Such studies will often use a train the trainer style design, in which those in positions of authority or leadership are trained in how they can create more need supportive environments for those with whom they interact. There are many challenges with regard to the design and delivery of such interventions, and many of those are caused by a need to balance the ideal scenario with what is realistic or feasible (for a discussion of challenges and solutions, see Ntoumanis et al., 2018). For example, those professionals and volunteers who are willing to take part in research have to fit in training amidst their other day-to-day professional and personal commitments, and they often have no background in SDT, motivation or psychology. Therefore, training duration, content, and timing needs to be realistic for them. Once training is complete, there is no guarantee that the trained individuals will adhere to the principles of effective motivation, and it can be difficult to determine whether interventions have been delivered as intended (Quested et al., 2017). Ensuring that the most important key concepts are conveyed in a way that is accessible and relevant to those delivering the intervention can help to address both of these issues. For example, understanding of motivation as an entity that can range in quality can be helpful for instructors and leaders to understand how their words and behavior can have an impact on the motivation of those they work with.

Figure 3.2

The Motivation Barometer, Used to Support Teaching of Motivation Regulations
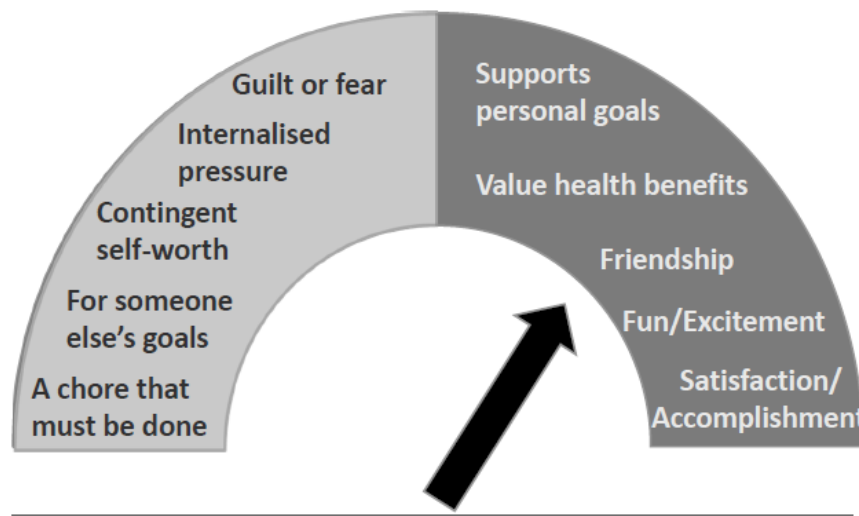
Note. Light grey shaded area presents controlled motivation, referred to as red motivation. Dark grey shading presents autonomous (green) motives.

Figure 3.2 presents a simple graphical representation of the range of motivation regulations that we have created and adapted for use in several intervention studies. It is intended to be easily understood by the lay public. The motivational barometer offers a visual depiction of autonomous (green) and controlled (red) motivation regulations and can be used in a variety of learning activities to help to convey how the social environment can influence whether motivational reasons are red or

green, as well as how motivation may fluctuate day to day, or moment to moment. The green and red labelling provides the instructors/leaders with a simple terminology for thinking about or discussing motivation regulations without needing to remember or fully comprehend theoretical terms. The figure may appear simplified; however, we consider it fit for purpose. That is, it is very useful for helping instructors/leaders to understand how motivations to be physically active can differ in quality, and it can be used as a visual aid when exploring how the provision of need support can shift the type of motivation and individual experiences.

Effective SDT-based interventions usually help individuals to learn how to appropriately support the basic needs of others, and how to respond in a way that is appropriate for the circumstances faced. Essentially, the goal is to up-skill the instructor/leader in using the need supportive strategies described in Table 3.1. In order to make the information accessible to lay audiences, it is important to adapt these strategies by using regular language and making the examples context specific. In the next section, we provide an example of how this can be done.

Practical Application #1: An Application of Self-Determination Theory in the Context of Group Cycling Exercise Classes

Rationale for the Project

Despite the widespread popularity of group exercise classes, turnover of attendees is high, with approximately 50% of new attendees dropping out within the first six months (Berger et al., 2002). It is relatively common for exercise instructors to be heard to be adopting a no pain, no gain mentality using phrases such as "I need you to push harder; it's got to hurt if it's going to make you fitter". This approach is often driven by the assumption that more controlling, pressurizing environments will make fitness class attendees exert more effort. Despite the evidence that suggests that this approach undermines rather than fosters quality motivation, fitness instructors typically do not receive training in how to motivate exercisers in a more adaptive way. The aim of this study was to develop and test a training program for group exercise instructors on how to adopt a motivationally supportive communication style based on the principles of SDT.

More specifically the study explored:
- Whether the training program resulted in instructors and exercisers perceiving instructors to adopt a more motivationally adaptive communication style
- Whether the training program led to increases in instructor and exerciser need satisfaction and self-determined motivation
- Whether the training program was feasible and acceptable to instructors
- The barriers and facilitators experienced by instructors when putting the motivational strategies into practice

How the Study was Conducted

After ethical approval was granted by the University ethics board, an opportunistic sample of Les Mills International (LMI) certified RPM™ indoor cycling instructors and their exercisers were recruited. LMI is a multi-national fitness company offering a variety of exercise training programs. Forty-three instructors (29 intervention, 14 control group, mean age = 39.88 years, standard deviation [SD] = 13.12) and 321 exercisers (246 intervention, 75 control group, mean age = 37.28 years; SD = 7.65) participated in the study.

The study used a two-arm quasi-experimental design. Exercisers were asked to rate their perceptions of their instructors' motivational style, including the extent to which they provided

autonomy support (Williams et al., 1996), control (i.e., autonomy thwarting; Ntoumanis et al., 2017), structure and involvement (i.e., competence and relatedness support; Markland & Tobin, 2010). Exercisers also rated the extent to which they felt that their basic psychological needs were satisfied in the exercise class (Vlachopoulos et al., 2010) and their motivation for attending the class (Markland & Tobin, 2004). Finally, questionnaires assessed exercisers' feelings of subjective vitality (Ryan & Frederick, 1997), attention during class, and intentions to continue participation (Ntoumanis et al., 2017).

Instructors' perceptions of their own motivational style were measured using the same items and rating scales as those employed for exercisers, but with minor amendments to the wording. Instructors were also asked to rate the extent to which they felt that their basic needs were satisfied (Chen et al., 2015) when delivering their workouts, and their quality of motivation for their job role (Tremblay et al., 2009).

After participants completed baseline questionnaires, the training program was delivered. Follow-up measures were taken three months after baseline, following completion of the training program. A sub-sample of instructors (n = 10) also took part in semi-structured interviews to explore their views on the feasibility and acceptability of the training program.

Intervention Format and Content

The training aimed to teach instructors how to maximize their use of motivationally adaptive strategies and minimize their use of motivationally maladaptive strategies during group exercise classes. To simplify the presentation of the strategies to the instructors, we grouped the need supportive strategies using the acronym LARS (a popular Scandinavian first name!):

- **L**istening to your participants
- **A**dvising your participants
- **R**elating to your participants
- **S**tructuring your class

Strategies to Incorporate

We offered 10 specific examples of how these LARS strategies can be operationalized, in consultation with experienced cycling instructors (who were not participants in the study). These instructors were key stakeholders and so were able to give critical insight to ensure that our examples were relevant to the indoor group cycling context. The participant instructors were encouraged to try out a couple of the following specific strategies each week:

1. Taking time to listen and be responsive to your participants' needs
2. Encouraging questions and feedback from your participants about their goals, problems or preferences
3. Giving meaningful and appropriate explanations
4. Giving specific and constructive feedback
5. Using an inclusive language (e.g., "we could try…")
6. Acknowledging the participants' feelings and responding appropriately
7. Offering meaningful praise which is unconditional
8. Create opportunities for participants to have input and make decisions about the workout
9. Offering choice and variety which are realistic and relevant to your participants' needs
10. Find opportunities to interact with all participants

Strategies to Avoid

We also explored with the instructors how to avoid using strategies that would be likely to neglect or thwart the basic needs; these strategies were grouped under the acronym PEAS:

- **P**ressuring language
- **E**mpty communication
- **A**ppearing cold
- **S**tructuring your class

The PEAS strategies were exemplified with 10 specific strategies; instructors were encouraged to focus on *avoiding* two to three of these strategies each week:

1. Using commands and directives ("must", "should", "need you to") or inducing guilt and shame
2. Criticizing, belittling, devaluing or dismissing participants
3. Imposing goals and rules with no explanations, or explanations which are confusing, inappropriate or pressuring
4. Offering no specific feedback/praise, or talking in ways that are motivationally "empty" (e.g., "keep going")
5. Appearing cold and indifferent to your participants' positive and negative feelings; appearing to talk to a "camera"
6. Appearing unresponsive to or discouraging your participants' preferences, opinions and feedback
7. Using "no pain-no gain" language
8. Offering little variety and/or choices that are not meaningful
9. Not mixing with your participants
10. Comparing participants against each other or being overly competitive

The intervention was developed and customized for the group cycling context using information gathered from observation of classes, and ongoing consultation and feedback from experienced LMI group cycling instructors.

The training consisted of three face-to-face workshops, each lasting three hours. The sessions included information about SDT and the proposed motivation/communication strategies, exemplar video clips of instructors demonstrating both adaptive and maladaptive approaches to motivating exercisers, group discussions and activities, brainstorming, individual planning, and practice using the strategies in the cycling studio. In between each workshop, instructors were encouraged to practice using the motivation strategies in their regular exercise classes and in the following workshops discussed any challenges experienced.

Instructors were provided with a training resource pack that included copies of the PowerPoint slides and educational materials covered in the workshops, rich narrative descriptions of each of the motivation strategies, personal action planning sheets, and self-reflection diaries. Instructors were also invited to join a private Facebook page and discussion forum which was used to share additional resources (e.g., video clips), information (e.g., further ideas regarding how the strategies could be implemented), support (e.g., responses to questions and feedback on how to manage difficulties faced by the instructors), and discussion (e.g., regarding their experiences of putting the strategies into practice). Additional phone and email support from the research team was also available.

Contemporary behavior change techniques were embedded within the training program (e.g., barrier identification, prompt practice, performance feedback, self-monitoring, and action planning) to aid instructors in effectively integrating the training with their own instruction style. Instructors who were unable to attend any of the workshops in person were offered the opportunity to watch a

recording of the missed session online. For further details on the intervention protocol, see Hancox et al. (2015).

Major Findings (see Hancox, Quested, et al., 2018, and Ntoumanis et al., 2017, for more details)
1. *The training led to increases in perceived use of a more motivationally adaptive communication style by instructors*
   - Exercisers reported increases in perceptions of adaptive instructor behaviours (more autonomy support and interpersonal involvement) and a decrease in instructors controlling behaviours.
   - Instructors' reports of their own motivational communication style suggested changes in the right direction (e.g., increase in autonomy support and decrease in control), however, these differences were not statistically significant.

2. *The training led to increases in instructor and exerciser need satisfaction but no statistically significant changes in self-determined motivation*
   - Instructors reported higher levels of psychological need satisfaction (increased autonomy and relatedness) when delivering group exercise classes after receiving SDT-based training.
   - Exercisers also reported higher levels of psychological need satisfaction (increased autonomy and relatedness) and stronger intentions to continue participation.
   - No statistically significant changes in self-determined motivation were observed in instructors or exercisers.

3. *The training program was considered feasible and acceptable to instructors*
   Recruitment and retention to the training program was good with 51% of the instructors who were approached agreeing to take part and a 96% retention rate (see Hancox, Thøgersen-Ntoumani, et al., 2018 for further details). The training was positively received by the instructors, as represented in the quotes that follow (note, pseudonyms have been used throughout). They reported that the training was relevant and that it challenged their current conceptions of motivationally adaptive teaching practices: "through the training, I was sort of learning how the supportive strategies work. It sort of puts the workout into the participant, rather than just being like the drill sergeant. Um … so definitely understanding that component made a big difference" (Natasha, cycling class instructor). Instructors described key strengths of the training program to include the multiple workshops that enabled instructors to practice putting the strategies into action between workshops, social support from the trainers and other instructors, a mix of theory and practical strategies and helpful resources (e.g., videos, handouts, and Facebook group). Instructors also expressed their belief in the value and transferability of the training for other group exercise settings: "I think it translates really well. I teach other programs and I've thought about how I could alter those teaching methods, you know, because the strategies are quite broad, so could easily be implemented across other programs" (Janine, cycling class instructor).

4. *Barriers and facilitators to implementing adaptive motivational exercise instruction*
   Instructors described barriers and facilitators that they experienced when putting the motivational strategies into practice. Facilitators included features of the training and of their experiences when instructing that made it easier for them to use more adaptive motivational strategies. These included:
   - Establishing a connection with exercisers: Instructors felt that by making themselves more available to talk to exercisers and proactively engaging in more meaningful conversations, other strategies (e.g., encouraging questions and feedback from exercisers about their goals, problems

or preferences) were more effective. For example, they reported that exercisers became more willing to ask questions and provide input and feedback.
- Understanding SDT: Instructors reported that understanding how and why the strategies worked helped them to implement the strategies in a motivationally supportive way.

The instructors also raised several issues that they felt acted as barriers to their effective behavior change. These included:
- The structured nature of the group exercise class: The strict format for LMI group cycling classes (i.e., delivering a set routine to a continuous soundtrack, whilst demonstrating the exercises on a bike at the front of the class) limited instructors' ability to listen, advise and relate with exercisers on an individual basis during class. Most instructors reported overcoming this challenge by spending more time interacting one-to-one with exercisers before and after classes.
- Initiating meaningful one-to-one conversations: Some instructors were apprehensive at first about initiating one-to-one conversations but reported that it became easier with practice.
- Phrasing instructions in a need supportive way: To deliver the strategies in a need supportive way, instructors had to change what they said and how they said it but reported finding it difficult to come up with phrases that worked for them. For example, instructors were worried that providing choice might lead to exercisers taking the easier options and not being sufficiently challenged. Group discussions within the training sessions helped instructors identify phrases that encompassed choice but still promoted challenge (e.g., if you want more of a challenge, accelerate to find the beat).
- Breaking old habits: Instructors reflected that they had been in the habit of using certain phrases when instructing, such as commands and directives:

> We have been very much taught to use that type of language– "It should feel like this, this next gear is a must do". It took me a long time to get out of, because it just slipped out. It's just habit. (Wendy, cycling class instructor).

Instructors explained that with time and practice they were able to break old habits. One instructor described that planning when and how they were going to incorporate the strategies into their classes helped, "I think scripting what I was going to say in my action plan was key." (Wendy, cycling class instructor)

Strengths of the Project

The findings contribute to the existing evidence with regard to the benefits of implementing SDT-based interventions (e.g., Edmunds et al., 2008; Fortier et al., 2007) in exercise settings with non-clinical populations. This is the first study in the group exercise domain which shows that SDT-based communication training can lead to both increases in perceptions of adaptive instructor behaviors and decreases in instructors' use of controlling motivation strategies. Furthermore, the findings suggest that SDT-based training programs can positively impact exercise instructors' satisfaction at work, with instructors reporting higher levels of autonomy (e.g., a sense of freedom and choice in how they deliver workouts) and relatedness (e.g., feeling valued and connected with their exercisers) satisfaction. The training was considered feasible and acceptable despite that fact that it challenged instructors' current motivational practices. The training was viewed as valuable and relevant both within group cycling classes and within other group exercise settings. Thus, the development of instructor training programs that pull from contemporary theories of motivation, such as SDT, could be an important step to address the current gap in instructor training provision.

Limitations of the Study

A number of methodological challenges were identified. Firstly, with regard to instructors' and exercisers' motivational regulations, baseline scores were high (autonomous motivation) or low (controlled motivation and amotivation), leaving little room for improvement, which may explain the lack of significant changes in self-determined motivation. Future work should consider recruiting exercisers and instructors with less adaptive motivation profiles. A further limitation of the study was that, although instructors were able to catch-up on missed training sessions online, there was no objective measure of usage of training material; we had to rely on self-reports from instructors as to whether they had watched the video or not. Future research should address this issue by developing or using tools to monitor engagement in online training activities.

Practical Application #2: Application of Self-Determination Theory in the Context of Group Walking in Retirement Villages

Rationale for the Project

It has been predicted that by the year 2050, approximately 20% of the global population will be aged 60 years or older (United Nations, 2019). Aging is linked to a higher risk of physical decline and chronic illness, but regular physical activity can reduce such risks (Holme & Anderssen, 2015; Windle et al., 2010). To obtain health benefits, it has been recommended that older adults engage in at least 150 minutes of physical activity a week, which is equivalent to walking for 30 minutes, five times a week (United Nations, 2019; WHO, 2020). However, the majority of older adults are insufficiently physically active to obtain health benefits and are putting themselves at an increased risk for premature mortality, chronic illness and reliance on health care systems (Guthold et al., 2018; Kalisch, 2019).

Retirement villages offer independent housing for retirees aged 55 and over and provide facilities that promote active and healthy aging with others. However, many residents lack the motivation or confidence to take part in physical activity opportunities offered in the retirement villages (Thøgersen-Ntoumani et al., 2017). Research suggests that older adults benefit from social support and prefer exercising with similar-aged peers (Beauchamp et al., 2018; Smith et al., 2017). Peers, that is individuals who share similar characteristics such as age and health, have been found to be just as effective as professionals at leading physical activity programs in the general population (Martin Ginis et al., 2013; Hulteen et al., 2019). Due to sharing similar experiences, older peers may find it easier to show empathy for age-related barriers, as compared to an outsider (Burton et al., 2017).

Peer-led walking groups can offer a cost-effective and attractive way of promoting physical activity in retirement villages (Thøgersen-Ntoumani et al., 2017; Thøgersen-Ntoumani et al., 2019). Walking with a group is an effective way of increasing physical activity and has been linked to improved health outcomes in older adults (Hanson & Jones, 2015; Meads & Exley, 2018; Kritz et al., 2020c). Physically inactive older adults perceive it important for a walk leader to be motivating (Kritz et al., 2020a). From the perspective of SDT, a walk leader who is need supportive may promote autonomous motivation for walking in group members (Ryan et al., 2017).

As demonstrated in Practical Application 1, authority figures (e.g., fitness instructors) can be trained in providing need support to others and thereby promote autonomous motivation, psychological well-being and physical activity in others (Hancox et al., 2018; Ntoumanis et al., 2020; Ntoumanis et al., 2018). However, it is unknown whether it is *feasible* and *effective* to train non-experts, such as older peer walk leaders, in providing need support to others. The aim of the Residents in Action Trial (RiAT) study was, therefore, to examine the acceptability, feasibility, and implementation of a 16-week peer-led walking intervention that is led by older peer walk leaders, who were trained in need supportive communication strategies. The intervention was designed to promote autonomous motivation to be

physically active, as a means to increase walking, reduce sitting and improve health and well-being in physically inactive older adults residing in retirement villages in Western Australia.

More specifically the RiAT study explored:
- Whether the program led to walkers perceiving peer walk leaders to adopt a motivationally adaptive communication style, and whether such strategies were perceived as useful by leaders.
- Whether the program led to increases in physical activity, reductions in sitting, and health and well-being outcomes in walkers.
- Whether the RIAT intervention program was feasible and acceptable to older peer walk leaders.
- Factors that fostered motivation to persist as an older peer walk leader and their effectiveness as a walk leader.

How the Study was Conducted

Purposive sampling was used to recruit 116 insufficiently physically active retirement village residents (92% female) who took part as walkers (mean age = 78.37 years, *SD* = 8.30, 92% female), 12 physically active residents who volunteered as walk leaders and three retirement village managers. The trial lasted 16 weeks and was conducted in 14 retirement villages in Western Australia. Each village was allocated to one of four different treatment conditions, which are illustrated in Figure 3.3.

Figure 3.3
An Overview of the Different Treatment Conditions as Part of the Clustered Quasi-Experimental Design
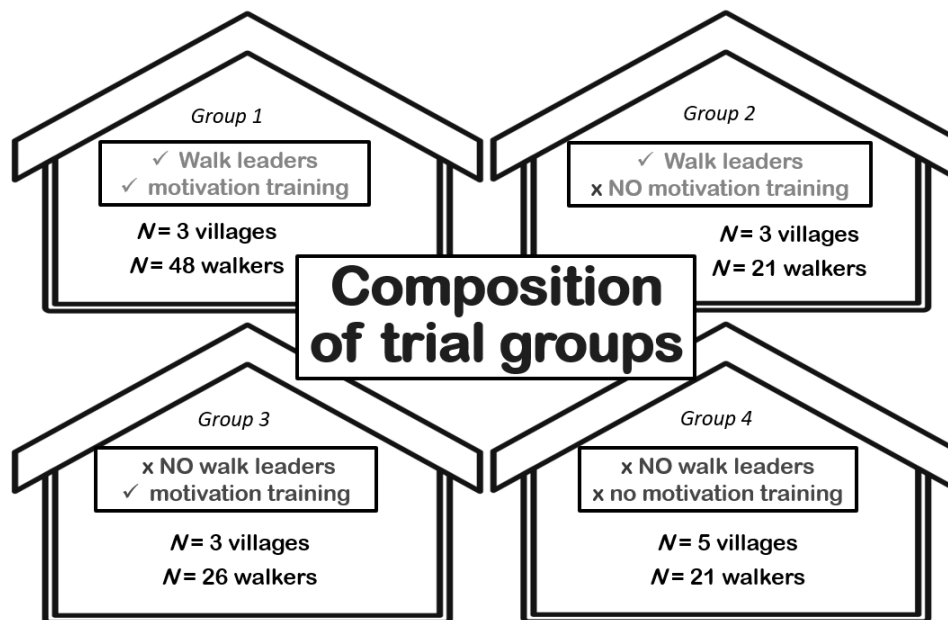
Note. Walk leaders in groups 1 and 2 also received walk leader training

Mixed-methods (i.e., a combination of quantitative and qualitative methods) were used to examine the acceptability, implementation, and efficacy of the 16-week walking intervention and factors affecting the effectiveness and persistence as a volunteer walk leader. Data were obtained from accelerometers (ActivPals worn for seven days), questionnaires, semi-structured interviews, and

participant logbooks. Data were collected at pre-intervention, post-intervention (i.e., immediately after the 16-week intervention) and at a 6-months follow up.

Intervention Format and Content

During an initial 2-hour workshop, walk leaders in Groups 1 and 2 (see Figure 3.3) received general information about the volunteering role (e.g., the benefits of walking, of reducing sitting, physical activity and sedentary behavior recommendations, how to lead group walks in a safe manner, key tasks of the walk leader, and what to do in case of emergencies), to prepare them for their role as a peer walk leader. The walk leader role entailed leading a group of new walkers (i.e., physically inactive residents), three times a week for 10 of the 16 weeks. All prospective walk leaders were provided with a training folder that included all educational materials covered in the workshop, self-reflection diaries and maps with details on walkable walking routes around their villages.

Walk leaders in Group 1 (see Figure 3.3) additionally received motivation skills training informed by SDT, delivered across two workshops. The motivation skills training aimed to teach walk leaders how to use motivationally adaptive strategies and avoid motivationally maladaptive strategies in their role as a walk leader. The training was developed and adapted to a walking context and was informed by previous research and interviews (Thøgersen-Ntoumani et al., 2017). In the first session, walk leaders were introduced to the basic principles of SDT and asked to engage in practical exercises to help them understand how to support other residents' autonomous motivation for walking and for reducing sitting behaviors. Examples of strategies included encouraging participant involvement and opinions in making choices (e.g., walking routes), the use of open-ended questions, and providing competence building feedback. To support walk leaders with implementing the motivational principles during their walks, their training included ten need supportive themes. Two themes were about providing relatedness-support: Getting to know the walkers and helping each walker feel like an important member of the group. Five themes related to providing autonomy support (e.g., helping to make walking more enjoyable, providing choice to walkers regarding their walking). Three themes related to providing competence support; For example, helping walkers feel successful at walking, celebrating walker success. Walk leaders were asked to focus on one specific theme each week of the program. In the first workshop, walk leaders were encouraged to apply the learned motivation skills in their walking groups. During a second workshop, which took place in week 2 of the program when they had had some experience of leading the groups, walk leaders were encouraged to reflect on their experiences, discuss any problems they encountered, and how to deal with them.

Walkers in all groups were offered a workshop and received a folder providing them with general information about walking (i.e., physical activity recommendations, the benefits of walking, suitable walking routes). Walkers in the intervention arm (Groups 1 and 3) also received motivation training based on SDT principles (Thøgersen-Ntoumani et al., 2017). Motivation training was delivered as a 2-hour workshop at baseline and included walkers reflecting on the importance of walking and how it aligns with their values and being taught behavior change techniques (e.g., implementation intentions, self-monitoring, and goal setting) to support motivation. For example, implementation intentions were taught by asking walkers to reflect on potential barriers to walking and reducing sitting time and plans on how to overcome them. Walkers were also encouraged to self-monitor their behavior (i.e., using log sheets and tracking step counts), learned goal-setting principles, and were taught about relapse prevention. Walk leaders and walkers who could not attend the face-to-face training received a DVD with a recording of the missed workshop. For further details on the intervention, see Thøgersen et al., (2019).

Major Findings

1. ***Walkers led by a motivation-trained leader increased their physical activity but did not improve mental health and well-being***

   The walkers with motivation-trained walk leaders increased their daily steps by 989 steps per day and they significantly increased by 12 minutes per day the time spent in stepping activities. However, there were no statistically significant changes in mental health and well-being outcomes as a result of the intervention, which was in part attributed to low statistical power (i.e., insufficient number of participants; Thøgersen-Ntoumani et al., 2019).

2. ***Walking with others at least once a week was associated with better outcomes as compared to walking alone***

   Further analyses showed that those who walked with others at least once a week improved their autonomous motivation for walking, confidence to walk, and physical activity levels and reduced their levels of body fat more than those who only walked alone. See Kritz et al., (2020c) for more details**.**

3. ***Supportive interactions were perceived as important***

   Among those who took part, the program was perceived as beneficial in regard to experiencing relatedness with other residents and the benefits of social support were highlighted. Supportive interactions among peers were perceived as important for determining their motivation to walk. For example, two of the walkers stated "I just need encouragement to keep going ... I enjoyed the company. I felt good about it" (Henry, age 69, walker).

   > We were doing it in a team thing. I made sure that I'd be checking up on the others. "Are you going to walk today? Are we going to walk today?" Or if they are not, I'd say "Well I'm still going to walk". (Sally, age 80, walker)

   Similarly, it became apparent that competence-supportive behaviours led to positive psychological and behavioural outcomes. For example, a walk leader explains:

   > I think, [name of walker], when she first started, she sort of lagged behind a bit because she is used to walking at a very slow pace ... but she picked herself up ... I walked with her the other day, and she said "Oh, I'm walking so much faster". So, she felt very good about herself. You know she feels that she really achieved. (Val, 70, walk leader)

   Examples of useful autonomy-supportive strategies pertained to the walk leader providing walkers with choice regarding their walking and opportunities for feedback. See Thøgersen-Ntoumani et al. (2019) for more details.

4. ***Volunteer motivation, volunteer attributes and need satisfaction determined the persistence and effectiveness of volunteer walk leaders***

   Retaining older volunteer walk leaders was challenging. Thirty-six residents expressed interest in taking on the walk leader role and of these, 11 dropped out of the program and 17 became walkers. A total of eight volunteers (n = 7, female) completed the walk leader role, which corresponded to only 22% of those showing initial interest. Volunteers who persisted as a walk leader were physically active residents, aged 70–83 years old, who were satisfied with the training they received (mean satisfaction score 5.74 out of a possible 7, SD = 1.03) and reported moderate perceptions of effectiveness in their role. Most enjoyed the role and were relatively confident as a walk leader.

Further analyses revealed that volunteer motivation, volunteer attributes and need satisfaction of volunteers were important for volunteer persistence (Kritz et al., 2020b). Walk leaders who dropped out before the completion of the program described primarily controlled forms of motivation to volunteer, and they did not receive the motivation training. Other reasons for dropping out as a volunteer included declining health and competing commitments. Autonomous motivation facilitated effective coping strategies and volunteer satisfaction. Psychological need satisfaction, enjoying the role and the desire to help (i.e., altruism) helped walk leaders to remain in their role. Experiencing relatedness with walkers, perceiving autonomy as a leader, and feeling successful at helping walkers was important for persisting as a volunteer. Walk leaders who continued their role after the program indicated strong social confidence, compassion, perceived role flexibility, were optimistic, were effective at helping inexperienced walkers, and had completed motivation training (for further details please see Kritz et al., 2020b). When asked about attributes of an effective walk leader, inexperienced walkers emphasized the importance of an entertaining, optimistic, and compassionate walk leader. For further details please see Kritz et al., 2020a.

5. ***Acceptability: Can older peers be recruited as walk leaders and trained in need supportive strategies?***

Walk leaders who persisted in their role reported using some of the taught motivational strategies. For example, at the post-intervention interview one walk leader noted that the motivational strategies were useful, but not used consistently, "I took a little bit on board, I wouldn't say I used them all the time but when I started, I did" (Anna, age 74, walk leader, Group 1). The interviews with walkers revealed that the walk leaders had used the taught motivational strategies, in particular those pertaining to increasing feelings of autonomy (e.g., providing walkers with choice and eliciting walker feedback) and relatedness (e.g., getting to know walkers and helping them feel at ease). For example, walker Beatrice commented, "I just noticed that she [walk leader] walked with a few people just to socialise" (Beatrice, age 76, walker). One of the walkers whose group leader had received the motivational training explained that, "We had to more or less [walk] partly indoors and then a few times we went around but still in the village, just walking around the streets here where they could sit if they needed to sit" (Anna, age 74). For further details please see Thøgersen-Ntoumani et al. (2019).

Strengths of the Study

The study advances existing walk leader and SDT research by being the first to evaluate the feasibility of training older peer walk leaders in need supportive strategies. An important strength of the study is that it provides comprehensive (qualitative and quantitative) understanding on the acceptability, feasibility, and efficacy of using motivation training to help older volunteers become "motivating" walk leaders (Beauchamp et al., 2007; Kritz et al., 2020a). Further analyses highlight the importance of promoting walking with others as compared to alone. The difficulties of recruiting older volunteers in such settings are emphasized. Additional analyses suggest that the quality of training and volunteer attributes might affect volunteer motivation, persistence, and effectiveness as a walk leader. These findings can inform future peer-led intervention designs and how older walk leaders can be selected, trained and supported.

Limitations of the Study

Limitations include a high number of individuals who self-reported being physically inactive at baseline but who were, in fact, physically active as determined by accelerometer devices. It suggests a need for future researchers to examine additional efficient means of attracting physically inactive older adults to peer-led walking programs. In the future, researchers could also examine what are the most effective strategies to recruit and retain walk leader volunteers. Finally, interventions could examine the feasibility and effects of smaller groups/walking dyads to address the challenge of dealing with diverse abilities within the same group (Carr et al., 2019).

Conclusions and Future Research Directions

There is little doubt that motivation can be highly influential on the degree to which individuals are physically active, as well as the extent to which they stay involved in structured programs and experience physical and mental health benefits. Critically, there is now abundant evidence that significant others can play a role in helping to support autonomous motives to be active, which in turn lead to more sustained and enjoyable exercise and physical activity experiences. The two studies described in this chapter illustrate how innovative approaches to support motivation can be employed to reap the aforementioned benefits. In the project in group cycling settings, it was exercise instructors who were the key social agent. In the work undertaken in retirement villages, physically active peers were able to provide motivationally supportive leadership, once they had received appropriate training. In this chapter we illustrated some of the techniques that can be used to upskill social agents in creating an adaptive motivational atmosphere. These approaches could be employed across a range of settings. This chapter has also outlined some of the challenges in undertaking research to promote more adaptive motivational climates when trying to promote structured and unstructured physical activity, which may also be informative for future research. For example, exercise instructors' comments about the challenges of trying to create a more adaptive motivational atmosphere (e.g., how to break old habits and develop new ones) could be included as key discussion topics within future training workshops, and activities (e.g., brainstorming need supportive phrases, action planning) and resources (e.g., provision of context-specific examples of what to say and how to say it) designed to support behavior change. The instructors also indicated the importance and usefulness of motivation strategies which help establish a connection with exercisers (e.g., finding opportunities to interact with all exercisers and taking time to listen and be responsive to exercisers' needs). As the world continues to battle the pandemic of physical *in*activity, innovative approaches to support motivation, via interventions with peers, instructors and other social agents, will have a critical role to play.

Learning Exercises

1. What is meant by "quality" motivation, and when is someone more likely to experience it?

2. How does self-determination theory distinguish itself (i.e., what sets this theory apart) from other theories of behaviour change covered in the book?

3. Discuss some potential factors, at the personal or contextual level, that might prevent exercise instructors from (fully) using the LARS strategies.

4. Discuss some potential factors, at the personal or contextual level, that might prompt exercise instructors to use the PEAS strategies.

5. How could you adapt the motivational strategies outlined in the chapter to office workers who are insufficiently physically active and living with overweight or obesity, taking into consideration the time constraints they are likely to have?

6. You are being asked to use the motivational strategies outlined in the chapter to lead a walking group of physically inactive, similar aged peers. How could you adapt the strategies to make them relevant to your peer group? What might be challenges when using each of the strategies? What could you do to overcome these challenges?

7. What are some of the challenges that might be faced when doing research to promote more adaptive motivational styles? How might they be overcome?

Further Reading

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