



Fostering health behaviour change in overweight male football fans through the European Fans in Training (EuroFIT) program: A Self-Determination Theory perspective

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A B S T R A C T

The European Fans in Training (EuroFIT) program integrated need-supportive motivational strategies from Self-Determination Theory (SDT) in the design of a healthy lifestyle program delivered to overweight or obese male football fans ($n = 1113$; mean age of 45.9 [SD = 9.0] years old and BMI of 33.2 kg/m² [SD = 4.6]) in professional football club settings in the UK, Portugal, Norway and the Netherlands. With a critical realist approach, we developed a structured thematic framework analysis based on Self-Determination Theory (SDT) to investigate the process of change in men who participated in the EuroFIT randomized controlled trial (RCT). We examined whether men's experiences of the social context of EuroFIT, and whether their engagement with the program's motivational strategies supported or frustrated their basic psychological needs while attempting to change their lifestyle behaviours. We found that men in all countries perceived the social contexts of the EuroFIT program as mostly needs-supportive, and that they found engagement with most of the program components helpful in supporting their psychological needs when initiating health behaviour changes. However, some of the program elements in the EuroFIT program were perceived as needs-frustrating by some participants and need-supportive by others. Implications for the use of need-supportive motivational strategies in designing future lifestyle interventions in sport settings to promote health behaviour change among male football fans are discussed.

1. Introduction

Understanding people's motivation to change their health-related lifestyle behaviours and what helps them sustain changes are key challenges in exercise psychology. Strong, accumulating evidence demonstrates how gender-sensitized, men-only health interventions delivered through professional sports settings (such as football, ice hockey, rugby and Australian football) generate positive and sustained improvements to at-risk men's physical activity, weight management and other health behaviours long-term (Gray et al., 2018; Hunt et al., 2014; Kwasnicka et al., 2020; Maddison et al., 2019; Petrella et al., 2017; Pietsch et al.,

2019; Wyke et al., 2019). Building on the Scottish Football Fans in Training (FFIT) program (Gray et al., 2013), we developed the European Fans in Training (EuroFIT) program. EuroFIT is a 12-week, healthy lifestyle program incorporating contemporary motivational theories in the design of a healthy lifestyle program delivered in professional football club settings across the UK, Norway, Portugal and the Netherlands (van Nassau et al., 2016). Specifically, we integrated need-supportive motivational strategies based on Self-Determination Theory (SDT: Ryan & Deci, 2000; Ryan & Deci, 2017), which assumes that the fulfilment of three basic psychological needs (autonomy, competence and relatedness) drive autonomous motivation and

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self-regulation of behaviour. We also used motivational constructs from Achievement Goal Theory (AGT: Roberts, 2012; Roberts & Nerstad, 2020), which assumes that individuals strive to demonstrate competence within a social cognitive framework, as core components in the EuroFIT program. However, with this paper, we focus only on the contribution of SDT to men's process of change in EuroFIT.

SDT is a general meta-theory of motivation proposing that human behaviour is influenced by contextual and personal factors, as well as the quality of motivation (Deci et al., 1985; Deci & Ryan, 2000; Ryan & Deci, 2017). Two of the sub-theories of SDT are the Basic Psychological Needs Theory (BPNT) and Organismic Integration Theory (OIT). These sub-theories emphasize that the extent to which people's psychological needs are supported on a contextual level and satisfied on an individual level will determine the quality of motivation underpinning their self-regulation of behaviours (autonomous or controlled motivation) (Ryan & Deci, 2017). BPNT identifies three psychological needs that require satisfaction (need satisfaction) to enhance behaviour change: autonomy, competence and relatedness (Deci & Ryan, 2000). The need for autonomy is associated with the perception of volition, self-governance, and freedom of choice in being the agent of one's own actions. The need for competence is associated with the perception of experiencing mastery or a sense of achievement, a perception of skill or having an impact on one's social environment, whereas the need for relatedness is about experiencing belonging by connecting with others, establishing meaningful relations, and loving and caring for and by others (Hagger et al., 2020; Ryan & Deci, 2017). The accumulative fulfilment of the three psychological needs can promote autonomous motivation and self-regulation that foster continued psychological growth and well-being (Ryan & Deci, 2000; Ryan & Deci, 2017). Autonomous motivation refers to how people self-regulate behaviours for personal reasons that are perceived to originate from within, are consistent with an individual's genuine sense of self, and where actions are viewed as voluntary, meaningful, and internally driven (Ryan & Deci, 2017). On the other hand, controlled forms of motivation involve engaging in behaviours due to external factors or pressures, such as obligations, rewards, or expectations set by others, rather than acting based on their own values or interests.

According to SDT, the social context (e.g., at home, workplace) with which people surround themselves can act as an antecedent to an individual's experience of need satisfaction and self-regulation (Bhavsar et al., 2020; Ryan & Deci, 2017). Most SDT interventions in the health and exercise domain target increasing participants' perception of need satisfaction, which is usually accomplished by training exercise professionals, coaches, or significant others (such as group members) to promote strategies that foster need-supportive environments (Hancox et al., 2018; Ntoumanis et al., 2021). In need-supportive social contexts, individuals are encouraged to take responsibility for and initiate self-directed actions that align with their personal goals and values (Silva et al., 2017). This allows them to act with a sense of volition, making personal choices or feeling endorsed by others. People are also met with clear expectations and optimal challenges and receive informative feedback, which will support their need for competence, and experience involvement, unconditional acceptance, belonging, and understanding by others, which is considered to support their need for relatedness (Hancox et al., 2018; Silva et al., 2017; Su & Reeve, 2011). Conversely, a controlling social environment entails compliance with externally imposed demands, intimidation, criticism, and external pressures. This can result in withdrawal or a lack of care from others (Bartholomew et al., 2009; Hancox et al., 2018; Silva et al., 2017).

Meta-analyses and systematic reviews of SDT-based observational and experimental studies have supported the role of psychological needs satisfaction and autonomous motivation in fostering the adoption of physical activity (PA) (Ng et al., 2012; Ntoumanis et al., 2021; Sheeran et al., 2020; Teixeira et al., 2012) and sustaining it long-term (Ntoumanis et al., 2021). There is, however, considerable variability in how need supportive motivational strategies derived from SDT have

been applied in the design of health behaviour interventions (Silva et al., 2014; Teixeira et al., 2020). A classification system was recently developed to illustrate how motivational strategies or behaviour change techniques (BCTs) align with one or more of the psychological needs, along with descriptions of how these techniques (hereafter referred to as motivational and behaviour change techniques - MBCTs¹) can create optimal conditions for need support within the social contexts of health interventions (for detailed overview of MBCTs please see Teixeira et al., 2020). Although other studies have investigated participants' process of change in health or exercise settings using SDT (e.g., Eassey et al., 2020), very few of these studies report on gender-sensitized interventions delivered to groups of at-risk men in sport settings. Although EuroFIT pre-dated Aussie-FIT, a process evaluation of the Aussie-FIT pilot study showed promise in use of autonomous motives to drive behaviour change in a men-only, weight-management intervention (Kwasnicka et al., 2022). As such, we undertook a qualitative investigation of how the motivational strategies were integrated and experienced by a male-only group in supporting their health behaviour change as part of a multi-site, randomized controlled trial delivered in professional football club settings across four European countries. Considering how sport settings have succeeded in recruiting overweight or obese, hard-to-reach men to healthy lifestyle programs (George et al., 2022), the integration of need-supportive motivational strategies into the EuroFIT program provides an opportunity to explore men's experiences and engagement with these program components across four countries, as they made changes to existing behaviours or adopted new health behaviours during the program. These motivational strategies have been shown to work in conjunction with other BCTs to support needs satisfaction in interventions, rather than operating individually (Gillison et al., 2019). Gaining a deeper understanding of participants' motivational processes and the strategies they found helpful within the social context of a men-only, football-based health intervention is important for the design of future SDT interventions (Sheeran et al., 2020).

This paper explores the experiences of overweight male football fans who participated in the EuroFIT RCT using Self-Determination Theory. Specifically, this study reports a qualitative investigation of whether men's experiences of the social context of EuroFIT and their engagement with program components supported or frustrated their basic psychological needs while attempting to make changes to lifestyle behaviours during the program.

1.1. Integration of SDT in the EuroFIT program

Figure 1 outlines an adapted process model of SDT underpinning sustained behaviour change in the EuroFIT program. Full details of the overall theory of change in the EuroFIT intervention is described elsewhere (Bunn et al., 2023; van de Glind et al., 2017). Table 1 and Table 2 illustrate the integration of need-supportive strategies derived from SDT in the EuroFIT program sessions using the MBCT classification system (Table 1) (Teixeira et al., 2020) and content of sessions and the mode of delivery promoted by the coaches in the program (Table 2).

In EuroFIT, participants' strong affiliation and loyalty with their club, alongside their aspirations to (re)gain or improve their fitness or adopt a healthier lifestyle, was leveraged to recruit men into a football-based program with likeminded fans and increase their sense of connection as a group and engagement towards health behaviour change (Bunn et al., 2023; van Nassau et al., 2016). Men were invited to join the program at their football club and were given access to the behind-the-scenes areas of the club. Group sessions were held in club

¹ We use the classification developed by Teixeira et al. (2020) when reporting this study as it is SDT-based thereby illustrating how each MBCT aligns with one or more of the psychological needs, as well as how to promote conditions for need satisfying experiences to emerge among the participants in a social context

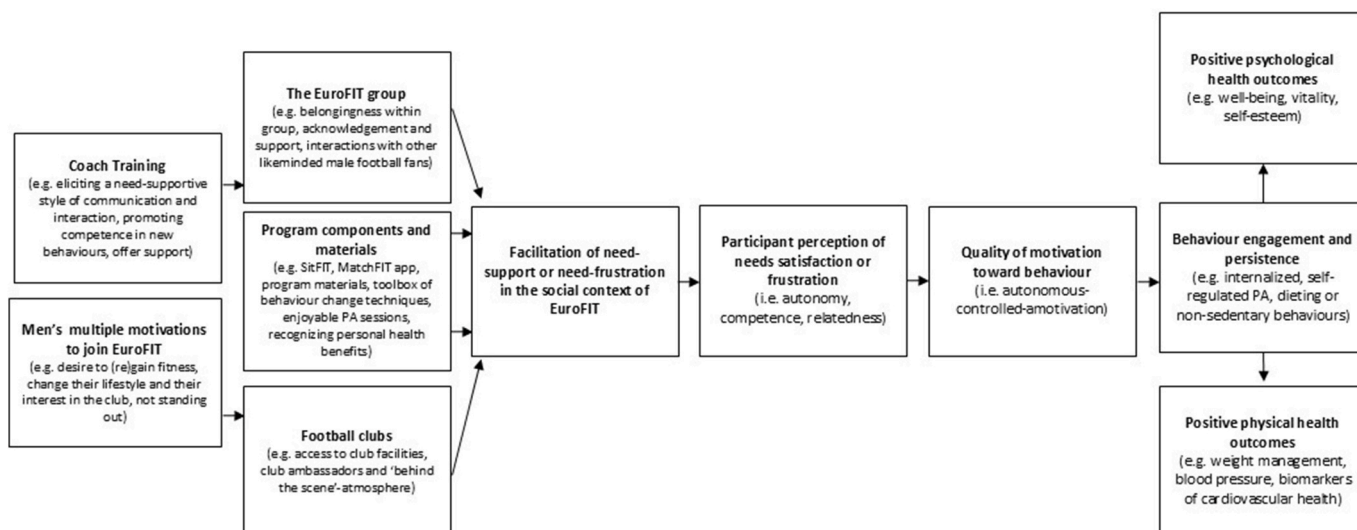


Fig. 1. An adapted process model of SDT in the EuroFIT program.

stadia or premium club facilities, led by club or community coaches, with visits from recruited club ambassadors, such as former or current first team players, that intended to support men’s feeling of being a ‘team’ within the club. The purpose was to enhance the participants’ sense of belonging and identification towards the football club, and to foster social bonds between men with a shared interest in the club.

The program components were designed to help men develop and review autonomous and personally meaningful goals related to health behaviours. They also aimed to build confidence and competence through optimally challenging physical activities, changes in sedentary behaviour, and dietary adjustments through eating diaries. Technological advancements were utilized to provide real-time, self-referenced feedback of self-monitored sedentary time and physical activity (the SitFIT), establish connections with other participants (through the MatchFIT app and social media groups) and coaches (through social media groups) to sustain engagement through competence, relatedness, and autonomous self-regulation. The SitFIT device and the MatchFIT app were technologies specifically developed for EuroFIT. Participants could upload their steps from the SitFIT onto the MatchFIT app to walk ‘against’ other fictitious EuroFIT teams using an algorithm that generated an incremental step target based on the team’s step count the previous week. Program materials were provided to participants and coaches, and each weekly session’s physical activities (e.g., walking football) were tailored to men’s individual needs to support autonomy and competence. The group-based discussions were designed to help participants incorporate the new behaviours into their daily lives and relate them to personal values for long-term maintenance. Simple, practical, and relevant messages were employed to help participants understand how they could improve their physical activity, sedentary behaviour, and diet. Men were encouraged to identify and engage in behaviours that personally fit into their lifestyle, develop a clear rationale for why they valued these new behaviours, and acknowledge the personal benefits of the lifestyle changes they made to internalize the new behaviours. Participants were supported in experimenting with and practicing a set of MBCTs, including strategies for avoiding or overcoming behavioural setbacks to prevent feelings of incompetence.

Football club or community coaches were trained to facilitate need-supportive environments through their style of interaction and communication, to promote competence in adopting and performing new behaviours, as well as to strengthen relatedness through connections between group members (fellow fans) and the club. They were trained to provide autonomy support by listening empathically to the men’s experiences, acknowledging their perspectives and feelings, and

offer support throughout the program. Coaches encouraged collaborative acknowledgement of the challenges faced by other participants and supported the men’s personal efforts to address them through initiated changes. The sessions were highly interactive to facilitate reflection, peer feedback and mutual learning, and to establish new group norms related to health behaviours. The aim was to promote a sense of relatedness and connection by minimizing individual differences and fostering a sense of unity. Collectively, these components were anticipated to support the development of new, self-endorsed, healthy lifestyle behaviours that the participants enjoyed and valued.

2. Methods

2.1. Study design

We used an exploratory qualitative research design informed by a critical realist ontology, where we relate causal explanations of events to the lived experiences of participants, while recognizing that reality is always mediated by participants’ and researchers’ interpretations and the context (i.e. RCT evaluation of the EuroFIT program) in which participants surround themselves (Fletcher, 2017; Fryer, 2022). A secondary analysis was undertaken of focus group discussions (FGDs) in England, Portugal, Norway and the Netherlands conducted as part of the embedded process evaluation of the EuroFIT RCT with participants who participated post-program (three months after baseline) and at follow-up (twelve months after baseline) using an SDT-based, structured thematic framework analysis (Pope et al., 2000; van de Glind et al., 2017).

Ethical approvals for the RCT and the process evaluation were obtained from appropriate country-specific ethics committees (Ethics committee of the VU University Medical Center [2015.184]; regional committees for medical and health research ethics, Norway [2015/1862]; Ethics Council of the Faculty of Human Kinetics, University of Lisbon [CEFMH 36/2015]; and Ethics Committee at the University of Glasgow College of Medicine, Veterinary and Life Sciences [200140174]). All participants consented in writing before participating in the study.

2.2. The EuroFIT RCT and process evaluation

We undertook a two-arm, pragmatic randomized controlled trial (RCT) (van Nassau et al., 2016) and conducted a mixed-methods process evaluation to understand how the intervention worked (van de Glind

Table 1
Operationalization of motivational processes in SDT within EuroFIT program and the related motivational and behavioural techniques (MBCTs).

Facilitation of a need-supportive social context in EuroFIT	Key motivational processes	Operationalization of the motivational and behaviour change techniques (MBCTs) in EuroFIT
Autonomy support	Support men in raising self-awareness towards motives or reasons for changing and/or sustaining health behaviours	Identify reasons to engage in the program (session 1) and to keep attending (session 6) (MBCT 1 : Elicit perspectives on condition or behaviour; MBCT 16 : Clarify expectations) and help men explore whether men's locus of causality is internal or external and how their motives relate to desired goals and outcomes (MBCT 2 : Prompt identification of sources of pressure for behaviour change). Prompt the identification of important life aspirations/values or goals within participants that underpin their attempted health behaviour change (e.g. playing with kids) (MBCT 4 : Explore life aspirations and values). Support men in their reflections on potential sources of internal or external pressures to act in certain ways (e.g., to eat, drink) (MBCT 2 : Prompt identification of sources of pressure for behaviour change) and to develop plans to cope with these pressures or incidents (MBCT 19 : Help develop a clear and concrete plan of action; MBCT 21 : Explore ways of dealing with pressure) Assist men in developing a rationale for making each behaviour change (e.g., being more physically active is important to me) to form the basis for autonomously driven motives (MBCT 5 : Provide a meaningful rationale)
	Foster autonomous motivation towards changes or adoption of health behaviours and to reduce perceived importance of controlling motives	Support men in setting and experimenting with their own goals/health changes based on their individual preferences for PA, sedentary behaviour or diet (MBCT 7 : Encourage the person to experiment and self-initiate the behaviour) that is attainable in current life situation or with current lifestyle (MBCT 4 : Explore life aspirations and values). Provide menu of options within a set of behaviours in which men choose to target with their changes (e.g. increase PA, reduce sugar intake, weight reduction) (MBCT 6 : Provide choice) to promote self-endorsement and individual responsibility
	Support and encourage participants to set goals that were meaningful, self-relevant and held personal value for each man	Support men in setting and experimenting with their own goals/health changes based on their individual preferences for PA, sedentary behaviour or diet (MBCT 7 : Encourage the person to experiment and self-initiate the behaviour) that is attainable in current life situation or with current lifestyle (MBCT 4 : Explore life aspirations and values). Provide menu of options within a set of behaviours in which men choose to target with their changes (e.g. increase PA, reduce sugar intake, weight reduction) (MBCT 6 : Provide choice) to promote self-endorsement and individual responsibility
	Provide participants with choice relating to how participants make changes	

Table 1 (continued)

Facilitation of a need-supportive social context in EuroFIT	Key motivational processes	Operationalization of the motivational and behaviour change techniques (MBCTs) in EuroFIT
Competence support	Set optimal challenges for participants related to health behaviours	Assist participants in identifying what health behaviour changes they want to do and to set goals or make challenges that are realistic and attainable for each man. Ensure all PA sessions are tailored to the group or the individual's skill-level and physical form to promote confidence and reduce perceived incompetence (MBCT 10 : Show unconditional regard, MBCT 16 : Clarify expectations; MBCT 17 : Assist in setting optimal challenge; MBCT 18 : Offer constructive, clear, and relevant feedback) Prompt the use of self-monitoring devices (SitFIT, weight scale) to focus on men's process and the progress they make with their behaviour changes to reinforce success and self-awareness (MBCT 20 : Promote self-monitoring). Give men relevant and non-evaluative feedback relating to their goal/behavioural progress to provide encouragement (MBCT 18 : Offer constructive, clear, and relevant feedback). Offer the men to engage with a toolkit of self-regulatory techniques, such as action planning, problem-solving, coping with lapses/relapses, strategies to deal with high-risk situations (MBCT 6 : Provide choice), that help men identify and address obstacles for change and how deal with the situations (MBCT 15 : Address obstacles for change; MBCT 19 : Help develop a clear and concrete plan of action)
	Encourage the use of self-monitoring	Assist men in identifying people or other sources that can provide social support for men's behaviour changes outside the program (e.g., help with cooking, walk together to work) (MBCT 14 : Prompt identification and seek available social support; MBCT 21 : Explore ways of dealing with pressure) Facilitate discussions between men in the groups on new experiences or barriers related to behaviour change and to share their perspectives on how to overcome these to promote self-confidence and trust (MBCT 1 : Elicit perspectives on condition or behaviour; MBCT 8 : Acknowledge and respect perspectives and
	Prompt the use of self-regulatory skills	
	Identify sources of social support	
	Facilitate mutual and experiential learning through reflection and group discussions	

(continued on next page)

Table 1 (continued)

Facilitation of a need-supportive social context in EuroFIT	Key motivational processes	Operationalization of the motivational and behaviour change techniques (MBCTs) in EuroFIT
Relatedness support	Facilitate sense of connection and acceptance within the group	feelings; MBCT 9: Encourage asking of questions; MBCT 15: Address obstacles for change). Making activities within the group are interactive and fun using humour and jokes while ensuring participant's perspectives on changes are acknowledged and accepted in group discussions (e.g., sharing their ideas, perceived barriers or experiences related to PA, sedentary behaviour or healthy eating) to promote open, collaborative and trustful relations (MBCT 8: Acknowledge and respect perspectives and feelings; MBCT 9: Encourage asking of questions; MBCT 10: Show unconditional regard; MBCT 11: Demonstrate/show interest in the person; MBCT 12: Use empathic listening) Offer the men a way to talk to you individually during the sessions, or contact you outside of the session if they have difficulties or questions relating to their behaviour change/SitFIT devices or MatchFIT (MBCT 9: Encourage asking of questions; MBCT 13: Providing opportunities for ongoing support) Create genuine, warm, and non-threatening environment in which it is emphasized that men are part of a program with other men-like-me who want to improve their lifestyle (same gender, overweight/obese, who like football and support the same football club), where coaches care about and are interested in them, and supported them regardless of success or failure (MBCT 1: Elicit perspectives on condition or behaviour; MBCT 3: Use non-controlling, informational language; MBCT 8: Acknowledge and respect perspectives and feelings; MBCT 10: Show unconditional regard; MBCT 11: Demonstrate/show interest in the person) Deepen men's sense of belonging to the club through being fans by becoming a team within club (includes giving men special EuroFIT t-shirts with club logo) and being representatives of the club (e.g. promoted on club website or on allowed on the pitch on match days)
	Foster a sense of belongingness within group and the football club	

Table 1 (continued)

Facilitation of a need-supportive social context in EuroFIT	Key motivational processes	Operationalization of the motivational and behaviour change techniques (MBCTs) in EuroFIT
		Give men a special access to club resources and facilities (behind-the-scenes of training facilities, sharing club stories or club information, meeting club 'celebrities') not normally available to fans. Facilitate testimonials of EuroFIT club ambassador (a former player/legend in the club) through visits to sessions in which they express their support for what the men want to achieve during the program (MBCT 11: Demonstrate/show interest in the person)

et al., 2017). The EuroFIT program was delivered to groups of overweight or obese male football fans with a mean age of 45.9 (SD = 9.0) years old and a mean BMI of 33.2 kg/m² (SD = 4.6) at fifteen professional football clubs across four countries by football club or community coaches. Each of the 12 weekly sessions lasted 90 min and included interactive and experiential group-based discussions on how to increase physical activity, reduce sedentary time, and eat more healthily and a physical activity session using a detailed standardized delivery manual (van Nassau et al., 2016). All coaches underwent a two-day training programme held by local research teams prior to program implementation that focused on why and how to create a positive and welcoming group environment, where men felt competent and confident in setting meaningful goals and supported in choosing relevant motivational strategies or techniques for change.

The RCT evaluation showed significant improvements in step counts, with an increase of 678 steps per day (97.5 % CI, 309–1.048; p < 0.001), as well as improvements in diet, weight, well-being, self-esteem, vitality, and biomarkers of cardiometabolic health in favour of the intervention group at 12 months follow-up (Wyke et al., 2019). Process evaluation findings, including intervention fidelity and details on coach training, participant and club recruitment for the RCT, and findings on the implementation of the program are published elsewhere (Bunn et al., 2023; Røynesdal et al., 2021; van Nassau et al., 2016; Van Nassau et al., 2023).

2.3. Participants and data generation

We conducted 30 focus group discussions (FGDs) at club facilities or club stadia with RCT participants (4–8 per group). 15 FGDs were held post-program (hereafter referred to as PP-FGD; n = 106) and another 15 FGDs were held twelve months after baseline (12M-FGD; n = 107) in all 15 participating clubs across all countries. All FGD participants were men who had attended six or more EuroFIT sessions, and the majority were native to their study country, full-time employed and lived with a partner/married. Men were purposively selected to represent different age ranges between 30 and 65 equally in all countries (i.e. 30–40; 41–50; 51–65).

Following guidelines for multi-site qualitative studies in research consortia (Johnson et al., 2012), we developed standard operating procedures for the FGDs to ensure consistency in data collection across all countries. A semi-structured interview guide was used by researchers to prompt discussions on what the men thought of the EuroFIT program, which program components they believed were helpful or unhelpful, and whether it had impacted on their lives. Focus groups were led by one

Table 2

Overview of sessions, session aims and content of the EuroFIT program and the motivation and behaviour techniques (MBCT) that were integrated into each session.

General notes on sessions delivery in EuroFIT			
#	Name of session	Aims of session	Content of session
Club coaches received general notes on session delivery in the EuroFIT program manual to help them prepare a warm, positive and autonomy-supportive environment before each session (e.g. plan and prepare well to deliver in a professional manner, adjusting the plan to circumstances, set up the room to facilitate interaction, be early so you can greet all men welcome), as well as need-supportive communication style and interaction with men and between men during sessions (e.g. ensuring men work with different men during the groups; walking with the men to show support and feedback if needed; include men's preferences of PA in planning; promote habit of self-monitoring; provide individual, positive feedback on effort, progress and commitment; setting realistic, short-term, personally relevant goals and review them regularly; encourage men to reflect on what's important to them in terms of values and aspirations; give men time to interact with each other and listen to what they say; refer back to men's previous experiences; encourage men to stay in touch) and after each session (e.g. ask men what they take away to increase likelihood of men using techniques to initiate and maintain changes; briefly look ahead the next week to prepare the men, make yourself available for follow-up, feedback or discuss any issues privately)			
1	Kick off	Encourage men to feel at home in the club; get to know other men; understand reasons for making changes; increase confidence in using the SitFIT monitor; enjoy themselves	<u>Classroom:</u> EuroFIT t-shirts; overview of programme toolkit, getting to know each other, reasons for making changes <u>PA:</u> Introduction to SitFIT, tour of stadium
2	How active and sedentary are we?	Ensure men understand expert advice on PA and sedentary behaviour (SED) so they can plan long-term targets; build supporting team spirit by encouraging peer learning from experiences of low PA; practice SMART goal setting to increase walking and upright time	<u>Classroom:</u> Staying in touch; step count and upright time baselines; personal benefits of being more active/sitting less; personal long-term PA an upright time targets; SMART goal setting <u>PA:</u> Walking pitch side (stadium or club facilities), working at own pace to achieve moderate intensity PA
3	What are we eating?	Building men's confidence that they can succeed in making positive lifestyle change; help men understand the idea of balancing food intake and physical exercise; promote role of weight management; set out key healthy eating principles of EuroFIT	<u>Classroom:</u> SMART goal setting review; energy balance and weight targets; healthy eating principles; SMART goal setting for healthy eating <u>PA:</u> Pitch side walking (stadium or club facilities)
4	Becoming more active	Help men practice SMART goal setting; recognize benefits of increased PA and sitting less; promote problem-solving around barriers to PA and sitting less; help men understand that sitting is bad for you no matter how active you are; support development of strategies to overcome non-conscious negative influences; promote other activities than walking; help men exercise safely	<u>Classroom:</u> Review of step count, upright time and healthy eating SMART goals, benefits of being more active/sitting less, overcoming barriers to PA/sitting less, health benefits of sitting less; overcoming non-conscious influences <u>PA:</u> local activities; exercising safely (RPE [rate of perceived exertion] scale and FIFA 11+; circuit of cardiovascular [CV] activities (including football training drills) at individual pace; warm down exercises
5	What are we drinking?	Encourage men to support each other in working out how to overcome problems around eating a healthy diet; help men understand role of alcoholic/non-alcoholic drinks in healthy lifestyle; recognize and overcome social pressure to drink too much alcohol; understand role of drinking water in healthy lifestyle	<u>Classroom:</u> activities other than walking; problem-solving around healthy eating; role of drinking in healthy lifestyle; problem-solving around drinking; healthy eating and drinking SMART goals <u>PA:</u> review of SitFIT SMART goals; FIFA 11+; EuroFIT Challenge; warm down exercises
6	Half-time	Help men understand importance of feeling competent in leading a healthy lifestyle, having support from other people, and enjoying and valuing changes to sustain behaviours long-term; alert men to likelihood of setbacks and how to minimize effect on long term targets; provide individual feedback on progress; demonstrate club's support for men and their efforts	<u>Classroom:</u> Maintaining change; overcoming setbacks; EuroFIT ambassador role model; objective measures; individual feedback on progress <u>PA:</u> review of SitFIT SMART goals; FIFA 11+, walking football; warm down exercises
7	Taking stock	Build ongoing motivation through tangible feedback of group progress; reflecting on experienced benefits and big life goals to promote successful long-term maintenance; encourage planning to avoid setbacks	<u>Classroom:</u> evidence and reflection on progress; benefits of leading a healthy lifestyle; long-term targets; problem-solving and avoiding setbacks; SMART goal review for step count, upright time, healthy eating and drinking <u>PA:</u> FIFA 11+, strength exercises (that can be done at home with no equipment), CV circuit; warm-down exercises
8	Support from others	Help men recognize the powerful role that other people may have their PA, sitting and eating; understand how other people can help in maintaining changes long-term; encourage men to think about who supports them in being more active, sitting less and eating healthier; introduce the MatchFIT app and encourage use	<u>Classroom:</u> positive and negative influences on lifestyle; help from others in maintaining changes; introduction to MatchFIT app <u>PA:</u> review of SitFIT SMART goals; FIFA 11+; CV circuit of aerobic and strength exercises; warm down exercises
9	Making educated food choices	Ensure men can use food packaging to make healthier food choices; encourage men to use their new knowledge when buying food in supermarkets, restaurants and other food outlets; promote and support continued use of MatchFIT; encourage a flexible approach to being physically active	<u>Classroom:</u> review of the MatchFIT app; experience of social influences; understanding food labels; healthier eating out and takeaways <u>PA:</u> review of SitFIT SMART goals; FIFA 11+; 'sofa' workout – with CV, strength and flexibility exercises; activity of men's choice
10	Maintaining change	Help men to anticipate and plan for stressful situations that might trigger setbacks; provide a practical toolkit for overcoming setbacks; encourage men to plan for program ending	<u>Classroom:</u> review of SitFIT and healthy eating/drinking SMART goals; planning for stressful situations; game plan for overcoming setbacks; strategies for program ending <u>PA:</u> FIFA 11+; outside guest to lead novel PA session; warm down exercises
11	How have we done?	Encourage men to make detailed plans for sustaining behaviours when program ends; recognize how well men have done during the program and to give each other feedback and support over this; help men understand how doing something they enjoy and value will increase likelihood of maintenance long term; help men understand how they have personally succeeded in finding things they value	<u>Classroom:</u> ongoing support; reflection on progress; SMART goal setting, objective measures and individual feedback; valuing and enjoying a healthy lifestyle <u>PA:</u> FIFA 11+; EuroFIT Challenge; warm-down exercises
12	Final whistle	Build team spirit by demonstrating what they group have achieved; helping men recognize the personal benefits and importance of the changes they have made; illustrate that the club values each man's effort and achievements	<u>Classroom:</u> tangible evidence of progress; personal benefits of change; ongoing SitFIT SMART goals; tips for maintaining change; graduation and EuroFIT team photo <u>PA:</u> FIFA 11+; 5-a-side football or other special PA session; warm-down exercises
13	Reunion session	Catch up with the men 6–9 months after EuroFIT started; boost the men's motivation to succeed in maintaining changes they have made long-term; give men something that aim for once the initial 12-weeks program ends; provide information for club evaluation	<u>Classroom:</u> objective measures and individual feedback <u>PA:</u> A PA of similar intensity as they were working a the end of the programme

or two trained experienced qualitative researchers who were fluent in the local language, assisted by note takers. Regular team debriefing meetings with feedback were organized to ensure consistency in data collection and to facilitate reflexive discussion of how we collected data. All FGDs were audio recorded with participants' permission and transcribed verbatim by a professional transcription service in the local language.

2.4. Analysis

We adapted the structured thematic framework analysis procedure outlined in our protocol (van de Glind et al., 2017), in which we utilized a deductive approach based on Self-Determination Theory (SDT). With a critical-realist approach to analysis, we understand the men's reality of making lifestyle changes as something accessible that is mediated by their and the researcher's interpretation, as well as the social-cultural context in which participants find themselves (Fryer, 2022). To ensure a socio-contextual understanding of the EuroFIT program using SDT, researchers who participated in program implementation and data collection read the FGD transcripts in their native language. For this study, the first author developed a draft codebook of need-supportive and need-thwarting motivational strategies integrated in the program and in existing literature (e.g. Bartholomew et al., 2009; Hancox et al., 2018; Teixeira et al., 2020) in collaboration with two senior researchers in motivation. Qualitative researchers from the Netherlands and Portugal used this codebook to do initial coding of two FGD transcripts. Through collaborative online meetings via Teams/Zoom, the research team then revised the codebook extensively and developed a coding framework that aligned men's experiences of the needs-supportive motivational strategies and program components with the MBCTs. Each MBCT was then linked to one of the three basic psychological needs as main themes (e.g. experiences supporting or thwarting the need for relatedness) in line with the SDT process model underpinning the EuroFIT program (see Figure 1) and the critical-realistic approach to analysis (Fletcher, 2017). We merged codes that described specific MBCTs into broader codes where practically relevant or conceptually related (e.g. 'acknowledging perspectives and feelings', 'use emphatic listening', 'encourage asking questions' were merged into the broader code named 'coach interaction with men') (Malterud, 2012).

All focus group discussion transcripts were coded/re-coded according to the revised codebook by researchers in all countries (see Appendix 1). Throughout the coding process, any requested changes or new codes were discussed and reflected upon within the research team through online meetings or email exchanges, facilitating reflexivity to researcher interpretation (Milford et al., 2017). With our approach to analysis, we contend that multidisciplinary researcher triangulation helps contextualize the interpretation of data (Gough & Madill, 2012; Tracy, 2010), which in this paper comprised researchers with knowledge of SDT from public health, psychology, and sociology. Coding decisions were consensus-based and informed theoretically by SDT; however, we also included open, inductive codes to accommodate other relatable findings to SDT (e.g. whether feeling part of club could increase relatedness) and contextual differences across all four countries in this phase. During the coding process, two experienced motivation researchers who did not participate in the initial coding reviewed the structure of the codebook, codes, and code descriptions as 'critical friends' (Smith & McGannon, 2018). The first author documented meeting notes to track decisions and changes, ensuring transparency throughout the coding process.

After coding all transcripts, each local researcher provided a descriptive summary of the coded data and included illustrative quotations in translated text using a reporting template. The core analysis team engaged in further discussions to highlight and compare the main findings from the country-specific data, adjusting interpretations as necessary. The first author then compiled the coding reports into a draft of overall findings, which was circulated among the analysis team for a critical review. As others have demonstrated (Gillison et al., 2019),

SDT-based motivational strategies can support more than one need at the same time, so it is likely that the men's descriptions also relate to other needs in the data extracts. The analysis team's discussions in this phase included selecting quotes to illustrate the support or thwarting of one of the three psychological needs, whilst also highlighting which quotes that pertained to multiple needs, to ensure consistency in researcher's interpretations of the participant narratives.

3. Results

The results are presented as three broad themes reflecting how men's experiences of the social context and their engagement with the program components of EuroFIT either supported or frustrated their psychological needs during the EuroFIT program. Each theme represents one of the three psychological needs: relatedness, autonomy, and competence. Throughout this section, we make references to need-supportive motivational strategies integrated in the program using the MBCT classification (e.g., MBCT1: see Table 1). We make references to other MBCTs if the data extract describes experiences or views that supported or thwarted a different need than the one illustrated. Supplementary data extracts are provided in the codebook (Appendix 1).

Each quote denotes participant ID (P (participant: PX if unidentified); club (UK101-105, NL206-209 NOR310-312, POR413-415) and data source (PPFGD [post-program focus group], 12MFGD [12-month focus group]).

3.1. Experiences supporting or thwarting the need for relatedness

Most men in all countries described receiving unconditional support from football club or community coaches during the program (MBCT 10), and how they valued coaches' involvement and enthusiasm towards group members during program sessions (MBCT 11). Although there were slight variations in what the men emphasized in the different countries, general descriptions included coaches being positive and sympathetic, whilst also being available to the men in offering support through social media platforms or by telephone between sessions (MBCT 13), and creating an acknowledging, warm and caring atmosphere through facilitating open forms of communication (MBCT 8, also supporting need for autonomy by eliciting participant perspectives: MBCT 1):

P3: They (the coaches) have always had an attitude towards us in the sense of humility ...

PX: ... very open

P3: ... very much, always listening [PX: always listening] [...] I think they were very, very receptive even to the participation of the group, and, I think, and above all a very humble attitude, [a] humility that put us at ease (PT413_PP-FGD)

At one club in Norway, however, the men commented on relatedness-frustrating experiences where the coaches' poor preparation before the sessions, and a lack of individual support in setting goals seemed to affect their sense of being appreciated negatively during the program (see quotes coded as 'Coach is not interested in us' in appendix 1).

In all countries, men described how being part of an all-male group consisting of likeminded football fans with shared interests and similar body shapes, who were all 'in the same boat' (wanting to make changes) made initiating lifestyle changes easier because they related to each other, which also strengthened their sense of belongingness within the group:

P5: Well, what I didn't want was to come on this and have loads of skinny blokes looking at us, like you go to a gym and there are loads of skinny blokes or muscular blokes standing in front of the mirrors going ...

P1: I couldn't do that.

P5: (...) What I wanted, and it wasn't about football, and it wasn't about [the club name], what I wanted to do was go and meet guys who had the same problem as me, they weren't going to judge us, maybe I'd make a few mates out of it because I don't have a lot of mates, and maybe somehow I'll lose some weight and look a bit better, and it all worked (UK104_12M-FGD)

Across all countries, some men also discussed how creating a 'team within the club' made some feel like representatives or as part of their football club, and some reported that the special access to the club grounds/training facilities strengthened their sense of belongingness and made them feel more welcome and committed towards changing:

P7: ... as for the club, they let us in. [Club's] got a long history here, and they told us about stories and players and stuff [...] so when you've been a fan and have come here for many years, so, you know all the players, like ... yeah, that was important, no doubt about that.

I: How does the rest of you feel about this?

P3: You do feel like you get an insight that others don't, you know, so it's like an exclusive little group. Getting to see things like day-to-day stuff at the club and the stadium [...]

P4: I saw them (other EuroFIT men) at [club] being welcomed onto to pitch against [club] at the last match before summer [...] those things were great! (NOR310_PP-FGD).

Within the groups and through social media (i.e. WhatsApp, Facebook), many of the men emphasized sharing their perspectives and feelings and relating to the challenges that other participants discussed (MBCT 8). A core feature of EuroFIT was making the program fun and enjoyable, where coaches were encouraged to facilitate the use of humour and jokes to support interaction and camaraderie and foster meaningful social relationships and mutual learning. This approach helped make men feel acknowledged, 'at home' and appreciated from the outset:

P2: I never forget the first evening, we made that round [of introduction]. There was one man in the corner saying that he snacked one evening until his fridge was empty. Another man indicated that he did this every evening [P5: yes, laughter]. I said that I had the exact same [problem]. There was so much recognition from everybody regarding their behaviour [P3: yes] (NED207_12MFGD)

Some men in Norway and the Netherlands commented on relatedness-thwarting experiences where some group members prioritized other things (e.g., working overtime or cup matches) instead of EuroFIT, which made some feel unappreciated by those group members:

P3: And they (the coaches) should have been clear on how everyone has to make choices and to do it because ... when someone didn't show up, it was all kinds of excuses like I had to work overtime, so I couldn't make it ... then you haven't made it your priority

P2: ... and everything is priorities.

P3: Yeah, it is, so you've kind of send a message to the rest of us that this (EuroFIT) is not an important thing (NOR312_PP-FGD)

Additionally, there were mentions in the same countries of how some men were allowed to dominate discussions, which affected the social relations in a negative way, as other participants felt restricted in their attempts to share their own experiences (see quotes under 'Not part of group' in [appendix 1](#)). There were also a couple of men in Norway who viewed themselves as 'too fit' to be part of the EuroFIT group, which seemed to affect their connection to the group during the program:

P2: So we kind of, not that I'm fit, but I am in better shape than some of the others. [I: Mhm] ... so when my mate and I, when we started to

like, walk back and forth for 10 minutes, 5 minutes or whatever, that's a bit silly (NOR312_PP-FGD)

Although men in all countries expressed the importance of coaches and participants, men also discussed the significance of receiving and seeking social support from significant others outside the EuroFIT context when changing lifestyle behaviours. Men regularly described sharing their experiences and discussing their challenges with significant others (e.g., partners/wives/friends) (MBCT 14). Both tangible and intangible support from significant others was said to be helpful in initiating changes (see quotes under 'Support from significant others' in [appendix 1](#)).

3.2. Experiences supporting or thwarting the need for autonomy

Men in all countries discussed how they were given individual responsibility and choices in their process of change. This included coaches offering a toolkit of behaviour change techniques for the men to choose from, promoting shared decision-making and encouraging men to choose how the techniques or strategies to adopt new or change their PA, sedentary and dietary behaviours relevant for them (MBCT 6). It also included coaches providing rationales for what they said or what they encouraged the men to do during the program using a clear and informational language (MBCT 5 and MBCT 3):

P4: I felt it was encouragement, rather than, sort of, lecturing, as well. You were never told, you're doing wrong. It was just, try and improve, and if you do this, you should see results.

I1: Okay.

P4: ... rather than being told, you've got to do this, or you're doing that wrong. But there was never anything too negative, it was all, sort of encouragement (UK102_PP-FGD)

Men in the UK, Netherlands, Norway, and to a lesser extent Portugal, also talked about being prompted to identify and overcome difficult situations, perceived challenges, and sources of stress (MBCT 2) and that they felt supported in their efforts by the coaches (also related to competence by addressing obstacles for change and developing plans of action: MBCT 15 and MBCT 19). Through these endeavours, some of the men also described receiving support and acknowledgement from others group members or coaches in experimenting with new self-initiated health behaviours (MBCT 7), whilst also being given the opportunity to learn from and help each other (also need for relatedness by demonstrating interest in person while acknowledging opinions of other group members: MBCT 11 and MBCT 8).

P1: In those weeks, it was hardly [ever]: 'do this, do that'. It was informative and stimulating, not on a pedantic tone such as 'this is good, this is bad, and you have to do this and not that'.

P5: I think this [making changes] is different for everybody. For me, this will help, and for you: it helps to go running, and for you: to go for a walk. This is different for everybody.

P1: I liked that. Options were offered.

P5: This is all that is available and choose those things that work for you. (NED208_12MFGD)

P2: Yeah, there's discussions after the session, they've been invaluable, you know. I mean, it's kind of stuff you knew already ...

I1: Yeah.

P2: ... but it was at the back of your mind. But it's kind of rubber stamped by, you know, staff, and people, and colleagues that you're doing it with, that you respect. And it's amazing, the amount of information we were passing amongst ourselves, never mind listening to [the coach names], telling us what was what (UK101_PP-FGD)

Men in all countries discussed how the self-referenced, incremental, ‘small steps’ approach to making lifestyle change was helpful (also provided competence in setting achievable goals: MBCT17), and that the coaches accepted ‘room’ for experimentation when setting personal and meaningful goals (e.g. only focusing on diet and not PA) (MBCT 7). This allowed men to ‘do their own thing’ and to explore different approaches to improving their lifestyle during the program:

P5: Exercise did not result in weight loss for me. From the moment we started discussing nutrition and I made some changes, I started to lose weight. I noticed that for me it is my nutritional behaviour [that has effect]. I believe this is different for everyone (NED208_12M-FGD).

Some men in Norway and the Netherlands, however, reflected on how the competition-induced elements of MatchFIT (walking ‘against’ other teams in EuroFIT using a computer-generated algorithm) were needs-frustrating as it became a source of pressure that prompted participants into walking more than their intended weekly step target. While some enjoyed competing against themselves and other teams on MatchFIT because it fostered team spirit, others did not because they felt that the team step target was imposed on them, which caused them to stop using the MatchFIT app:

P8: And as you say that fact that some did not want to connect to that MatchFIT app or upload [their steps] could be because they struggled to get over the line [in terms of steps], simply cause they don’t have the time. If you have a job where they walk 18 000 steps a day, right – like your wife, right?

P1: Yeah

P8: And then, clearly, getting to 20 is not a problem [general agreement from others]. On my end though, my baseline (step count), a full day of working; one full day from waking up in the morning till going to bed at night – it’s 3000 steps. So, then I need to have 17 000 steps to feel like I contributed [to my team on MatchFIT] without reducing the [team] average (NOR310_12M-FGD)

It is, however, unclear whether coaches across the different countries pointed out that the team step goals were calculated by a computer-based algorithm or whether they said the men competed in real-time against the other groups in EuroFIT. Men from two clubs in Norway further discussed how some coaches did not take their outset into consideration when encouraging small-step, weekly increases to walking but rather promoted fixed, weekly step increases that felt considered, which seemed to frustrate their sense of autonomy:

P3: I thought it was a bit silly with that goal of 1500 more steps, 2000 steps, because ... okay, if you start at 4000, then I get it. But if you start at 10 000 [steps] and you’re supposed to increase by 2000 steps a week, then that is sort of a limitation in itself (NOR312_PP-FGD)

3.3. Experiences supporting or thwarting the need for competence

Men in all countries indicated that the EuroFIT program components made them feel competent in their personal efforts to change lifestyle behaviours as they felt they were provided the information (e.g. delivery of key, simple health messages) and the tools (e.g. motivational strategies and BCTs) required:

P5: I feel like I’ve cracked the code because ... it is exactly what I did not do for like 20 years, [and I’m] not exaggerating. This project has cracked the code. And then ... It is not difficult anymore.

P6: No.

P5: Because it was difficult. I could not go to Sats (training facility), [‘cause] it’s not for me. I could not go to Grete Roede (diet program).

It’s not for me. But I have cracked the code. Only need to keep moving and think about what I am doing and eating, So is the code ...

I: Many are nodding their heads around the table here.

P7: Yes, he is right.

P6: It is a good way of expressing it, that we’ve somehow cracked the code (NOR311_PP-FGD)

These feelings of competence were further strengthened by noticing or perceiving the impact of the changes they made to their health behaviours. One of the program components that helped in this regard was the SitFIT (MBCT 20). Men in all countries emphasized how they mostly engaged with the SitFIT to self-monitor their PA, but to a lesser extent their sedentary behaviour (SitFIT). Few men discussed using diaries to self-monitor their eating behaviours. Men described how they liked the SitFIT device because it helped monitoring their step count and it provided reminders of low PA or high sedentary time, as well as affirmations of step goal completion throughout the program:

P4: But now I’m just walking all the time. But the SitFIT, I’ve never got it out of my hand. It’s always stuck in my pocket from one day to the next. But it’s a healthy thing as well. When I go to training I have it in my pocket, and when you come out you always look at it and think Jesus, have I done that much? (UK103_12M-FGD)

P8: It [SitFIT] did help, normally I would have taken the elevator and now I take the stairs. You get more steps. And that is motivating. It is interesting to see that on some days I just do 15 000 steps (NED209_12M-FGD)

Other motivational strategies which men in all countries emphasized as promoting competence included engaging in personalized and optimally challenging tasks using the small-step approach to progress (MBCT 17). This included helping men to develop clear plans of action by setting self-referenced, realistic goals related to a health behaviour (MBCT 19), as well as providing individualized physical activities adapted to reflect the men’s skills and fitness levels (e.g., focusing on walking and not running, walking football rather than recreational football):

PX: It [the PA] was adjusted, I felt there was a concern on the coaches’ part to adjust to, my [physical] capabilities, isn’t it. That, for me, was, it was good, because, of course, the person is more comfortable, and it wasn’t just that, when I looked to the side, there is someone next to him, isn’t it? (PT414_PP-FGD)

There were, however, different preferences among the men in terms of what type of exercise, organisation, and the level of intensity that they preferred. Some men in Norway, Netherlands and UK reported competence-thwarting experiences related to the PA. For example, men thought some coaches ran chaotic and disorganised PA sessions and others believed that the approach to PA in EuroFIT was either too ‘soft’, making them feel like the PA had no value for them, or conversely, too hard or too competitive:

P7: I think the walking football was too competitive. I wasn’t there to compete; I was there to get fit.

P2: I think, I think it was, yes.

I: Okay.

P7: There was a natural, there was a natural male thing ...

P2: Yeah.

P7: ... where if you play any sport, you’re competitive. But I don’t really want to be competitive, I just wanted to get fitter (UK104_PP-FGD)

Men in all countries also described receiving broad forms of encouragement and support from other participants and coaches that

supported their competence through personalized feedback during the PA and the group-based discussions (MBCT 18: also relatedness by showing regard for and interest in other group members) or in social media:

P3: ... you know that you can go out and start walking, and like, if you get 20 000, then you can post it on the [Facebook] group like 'Look here, I've walked 20 000 steps'. You get thumb up and nice feedback, which is nice to get [...] and if you don't reach your goal, then you posted that you didn't reach it and then it is only positive feedback like 'You'll get it next week, no problem' (NOR310_PP-FGD)

Men in all countries also described how they also felt supported by coaches or other participants in their efforts to plan for difficult situations to explore and to overcome obstacles related to health behaviours during the group discussions (MBCT 15, 21):

P1: I think overcoming setbacks is a good lesson that was learned (in the program), well, for me because in the past, if I'd given up or couldn't do anything for a week or two, I tended ... really needed to motivate myself to get back into it and probably didn't, but now I ... when I've hit a setback, I've actually, you know, passed it and carried on, so that was a good lesson (UK105_PP-FGD)

4. Discussion

This is one of the first qualitative investigations of a gender-sensitized healthy lifestyle program delivered to overweight male football fans through a football club setting that incorporated need-supportive motivational strategies into the program design. With this paper, we have used the SDT-based classification of MBCTs (Teixeira et al., 2020) to illustrate how we integrated need-supportive motivational strategies into the 12-week EuroFIT program and used focus group data from the four participating countries to examine men's experiences of the social context and their engagement with the program components in EuroFIT. A key finding of this study is that the men who participated in the EuroFIT RCT across all countries experienced the social context as mostly needs-supportive and that their engagement with most of the program components were perceived as helpful in supporting their psychological needs satisfaction when initiating health behaviour changes. These similarities between the social contexts of EuroFIT could be explained by the use of standardized coach manuals to facilitate a need-supportive program delivery (van Nassau et al., 2023) but also the high intervention fidelity reported across all countries (Bunn et al., 2023). This also suggests that program implementation succeeded in training football club or community coaches in facilitating a need-supportive style of delivery across the participating clubs, an approach which has later been adopted to other programs in sport settings (e.g. Kwasnicka et al., 2020).

Throughout all countries, the social context of EuroFIT, in which participants were grouped with likeminded men who had similar body shapes and sizes and a shared interest in football, was key in supporting men's perception of relatedness. These findings support those reported in other evaluations of all-male lifestyle programs in sport settings (Donnachie et al., 2017; Kwasnicka et al., 2022). The social context of EuroFIT seemed to drive a collective 'team' spirit that fostered meaningful, interpersonal relationships for most men, in which they also experienced competence and autonomy through their relations with the group members (Deci & Ryan, 2014). Through hearing of the relatable challenges of other men and receiving support and acknowledgement from group members and coaches in EuroFIT within sessions and through social media platforms, this provided a warm and safe context in which men chose to share their challenges, ideas and experiences. There were, however, variations to how some men experienced the style of communication within the groups (e.g., socially dominating men) and between men and coaches (e.g., lack of individual support), especially in

Norway and the Netherlands. As coaches in all countries received the same training, these differences could potentially be attributed to some coaches lacking experience or relevant background in delivering health interventions to groups of men in Norway and the Netherlands (Van Nassau et al., 2023). It could also be explained by the difficulty some coaches experience in adopting a need-supportive style of communication, as reported elsewhere (Hancox et al., 2018; Ntoumanis et al., 2017). Considering how most SDT-based health interventions emphasize supporting participants' perception of autonomy and competence over relatedness (Ntoumanis et al., 2021), our study provides further evidence underlining the importance of interpersonal relationships through relatedness in all-male health interventions delivered in sport settings, and how this impacted men's initiation of change. Furthermore, we found evidence suggesting that these processes were underpinned by men's social identities as football fans across all countries, as reported elsewhere with FFIT (Bunn et al., 2016), but also the welcoming context of the football clubs (acknowledging the EuroFIT 'team' within the club) who participated in EuroFIT. Together, the connections to football club seemed to strengthen men's sense of belonging and commitment towards health behaviour change. Although relatedness in SDT contributes to understanding the role of interpersonal relationships in supporting behaviour change, and how social contexts affect thoughts, feelings and behaviours, further studies should combine social identity theory and SDT constructs to provide a more nuanced understanding of the potential ways in which men's social identities as sports or football fans and club identification impact their interpersonal relationships and the group functioning in fan-based health interventions.

As we reported recently in the process evaluation of the EuroFIT RCT (Bunn et al., 2023), men who participated in the focus groups were generally very positive towards the coaches' (need-supportive) style of delivery and the competence-based, intrinsic goal setting approach to changing lifestyle behaviour across all countries. A key aspect supporting the men's autonomous changes was the use of personalized goal-setting and self-monitoring of steps through the SitFIT. Use of the SitFIT device seemed to increase men's perception of competence in personal efforts, elicited individual responsibility and allowed men to experiment with health behaviour changes (steps and standing more) across all countries. These components also supported the men's perceptions of autonomy thereby providing further empirical support for using self-monitoring to increase the physical activity level of middle-aged, all-male groups. Within EuroFIT, men were also encouraged to register their steps from the SitFIT device onto to the MatchFIT app, where the group's accumulative steps as a team was compared against a computer-generated algorithm. The MatchFIT app then calculated an opposing step number based on the group's results the last week. Although coaches were instructed to emphasize this to the men in all countries, we cannot conclude that most men perceived MatchFIT to function this way, which could explain why the competitive elements of MatchFIT were perceived as needs-frustrating (imposing steps goals on men) by some but need-supportive (fostering team spirit) by others. Ultimately, the needs-frustrating experiences caused some men to stop using MatchFIT. As the intention of MatchFIT was to provide social support between sessions, this finding demonstrates that the use of competition can, if not managed appropriately, contribute to foster controlling motives (e.g. experiencing external pressures to walk more than you want to or your personal goal) of PA adoption, which is counterproductive to internalizing self-regulation of PA (Ryan & Deci, 2017). Use of competitive elements could also enhance ego-involvement where men compare themselves to others rather than focus on self-improvement (Roberts & Nerstad, 2020; Ryan & Deci, 2017). As Kwasnicka et al. (2022) also advise, using such elements to drive or initiate health behaviour change could potentially work for some if managed properly by coaches or other health professionals. However, until we understand how different forms of competition (e.g. competing against other fictitious groups, as in MatchFIT) impact the social

contexts in men-only health intervention, and importantly, how men's social identities as football fans influences autonomous or controlling motives driving the process of change (e.g. 'us' against them), the inclusion of competition as a program component in future SDT-based lifestyle interventions should be carefully considered.

One of the strengths of this study includes using a theory-driven, structured approach to analysing qualitative data in local languages across four countries with a multidisciplinary research team. Another strength is the use of the SDT-based classification system to illustrate how we used and integrated needs-supportive motivational strategies into the program design to analyse men's experiences using focus group data. As we integrated motivational principles from both SDT and AGT into the program design, which also sometimes overlap, a limitation of our analytical approach is that we do not know the relative impact of SDT and AGT when men discuss their process of change. We also acknowledge that organizing the codebook around the three basic psychological needs may have limited our ability to analyse how the different needs-supportive motivational strategies contributed to multiple psychological needs in the focus group data. However, by referencing how strategies related to different psychological needs in the data segments, we illustrated that men's perceptions of the social context and their engagement with program components could have impacted more than one psychological need at the same time. Other limitations to our approach include that we did a secondary analysis of FGD transcripts in which interview guide was not designed based on motivational constructs in SDT and that we only recruited men with a high engagement towards the program to participate in the FGDs, and not those who dropped out or had a low engagement. Lastly, first author was sometimes unable to check the accuracy of translated interpretations in the descriptive reports provided by the local researchers. However, this was mitigated by other researchers from the same countries critically reviewing translations and interpretations of data in the local languages throughout the analysis and drafting of the article.

5. Concluding remarks

EuroFIT was successful in changing health behaviours of the participants. With this paper, we found that men who participated in the EuroFIT RCT experienced the social context of EuroFIT as need-supportive and that their engagement with most program components supported their needs satisfaction when initiating their process of change. We also found that men's autonomous changes were supported using need-supportive motivational strategies, such as setting personalized and meaningful goals and self-monitoring of steps (through autonomy and competence), but also through interpersonal relationships (relatedness) that were established with fellow fans and coaches in the context of football clubs across all four participating countries. We also found evidence suggesting that the use of competition fostered controlling motives of PA adoption for some of the men in EuroFIT, which is counterproductive to internalizing self-regulation of health behaviours. These findings provide further evidence for the use of SDT in supporting health behaviour change among groups of at-risk overweight male football fans in sport settings across European countries.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Interview transcripts cannot be shared publicly as participants did not consent to this; however, all relevant qualitative data is included in the paper, tables, and supplementary information files.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.psychsport.2024.102742>.

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