



Using self-determination theory to promote adolescent girls' physical activity: Exploring the theoretical fidelity of the Bristol Girls Dance Project



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ABSTRACT

Objectives: To report the theory-based process evaluation of the Bristol Girls' Dance Project, a cluster-randomised controlled trial to increase adolescent girls' physical activity.

Design: A mixed-method process evaluation of the intervention's self-determination theory components comprising lesson observations, post-intervention interviews and focus groups.

Method: Four intervention dance lessons per dance instructor were observed, audio recorded and rated to estimate the use of need-supportive teaching strategies. Intervention participants (n = 281) reported their dance instructors' provision of autonomy-support. Semi-structured interviews with the dance instructors (n = 10) explored fidelity to the theory and focus groups were conducted with participants (n = 59) in each school to explore their receipt of the intervention and views on the dance instructors' motivating style.

Results: Although instructors accepted the theory-based approach, intervention fidelity was variable. Relatedness support was the most commonly observed need-supportive teaching behaviour, provision of structure was moderate and autonomy-support was comparatively low. The qualitative findings identified how instructors supported competence and developed trusting relationships with participants. Fidelity was challenged where autonomy provision was limited to option choices rather than input into the pace or direction of lessons and where controlling teaching styles were adopted, often to manage disruptive behaviour.

Conclusion: The successes and challenges to achieving theoretical fidelity in the Bristol Girls' Dance Project may help explain the intervention effects and can more broadly inform the design of theory-based complex interventions aimed at increasing young people's physical activity in after-school settings.

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1. Introduction

Young people become less active during the transition from childhood to adolescence (Nader, Bradley, Houts, McRitchie, &

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O'Brien, 2008). Girls are less active and experience a steeper decline in activity than boys (Nader et al., 2008). In England, the majority of adolescent girls do not meet the government's recommendations of a minimum of 60 min of moderate-to-vigorous physical activity (MVPA) per day (Joint Health Surveys Unit, 2013). As physical activity is associated with physical and mental health (Janssen & Leblanc, 2010), identifying ways to encourage more girls to be active more often is a national (Department of Health, 2011) and global (World Health Organisation, 2004) health promotion priority. A recent meta-analysis has shown that physical activity interventions for girls are more effective if they

exclude boys, are delivered at school and are based on an underlying theory of behaviour change (Pearson, Braithwaite, & Biddle, 2015).

Dance is a popular activity amongst girls (O'Donovan & Kay, 2005) and proliferates contemporary culture and media consumed by young people such as music TV, talent shows and singing contests. Dance can be an enjoyable form of cardiovascular exercise in which girls develop their co-ordination, acquire new skills, work independently and in groups and develop friendships and self-expression (Australian Women Sport and Recreation Association, 2010). Dance is an alternative to traditional/competitive sports offered to girls and we have previously highlighted the potential of a dance-based physical activity intervention for adolescent girls: the Bristol Girls Dance Project (BGDP) (Jago et al., 2013, 2012, 2011; Powell, Carroll, Sebire, Haase, & Jago, 2013). The BGDP was a cluster-randomised controlled trial designed to examine the effectiveness and cost-effectiveness of an after-school dance-based intervention in increasing the MVPA of Year 7 girls (aged 11–12 years).

1.1. Theoretical foundations of BGDP

Underpinning interventions with behavioural theory is hypothesised to increase their effectiveness (Baranowski, Anderson, & Carmack, 1998; Craig et al., 2008). In addition, theories allow intervention developers to target activities at theoretically-derived mediators (Baranowski et al., 1998). The BGDP intervention was based on self-determination theory (SDT) (Deci & Ryan, 2000; Ryan & Deci, 2007) because its theoretical foundations are concerned with how the psychological and socio-environmental conditions (e.g., created by a dance teacher) can support individuals' motivation (Fortier, Duda, Guerin, & Teixeira, 2012).

1.2. Motivation quality

According to SDT, an individual's motivation for a behaviour such as dance, can be more or less self-determined and six different types of motivation are hypothesised to be differently associated with behaviours such as physical activity and related cognitive and affective outcomes (Ryan & Deci, 2007). The more self-determined types of motivation (i.e., intrinsic motivation, integrated & identified behavioural regulation) are broadly grouped as *autonomous*. Intrinsic motivation is based on the inherent satisfaction or enjoyment that accompanies a given behaviour. The other forms of autonomous motivation are extrinsic in nature and involve undertaking a behaviour for a reason other than its inherent satisfaction. Integrated regulation is where a person aligns their engagement in a behaviour with their broader self (e.g., seeing being active as part of one's identity) and identified regulation represents motivation which is driven by a valued outcome such as health benefits or making new friends. The less self-determined types of motivation (i.e., introjected & external regulation) are broadly grouped as *controlled* motivations. Introjected regulation refers to motivation based on internalised pressures such as avoiding feelings of guilt, whereas external regulation is characterised by prods and pushes which are external to the person such as complying with demands or avoiding punishments. Previous research suggests that more autonomous physical activity motivation is positively associated with child and adolescent physical activity (Owen, Smith, Lubans, Ng, & Lonsdale, 2014; Sebire, Jago, Fox, Edwards, & Thompson, 2013) and positive psychological outcomes such as quality of life and physical self-concept (Standage, Gillison, Ntoumanis, & Treasure, 2012). On the other hand, adolescents' controlled motivation for exercise has been shown to

correlate negatively with health-related quality of life and functioning within physical, social, school and emotional domains (Standage et al., 2012).

1.3. Fostering high quality motivation

A cornerstone of SDT is that autonomous motivation is developed when people feel that their psychological needs for autonomy (i.e., feelings of volition and free will), competence (i.e., feeling capable to perform challenging tasks) and relatedness (i.e., perceptions of belonging & meaningful connections with others) are fulfilled (Deci & Ryan, 2000). This hypothesis is supported by empirical research among children (Sebire et al., 2013), adolescents (Van den Berghe, Vansteenkiste, Cardon, Kirk, & Haerens, 2014) and adult dancers (Quested & Duda, 2010). Within SDT, people's psychological needs can be supported or undermined by the motivational climate that an authority figure (e.g., dance instructor) creates through their motivating or teaching style (Deci & Ryan, 2008; Su & Reeve, 2011). Need supportive styles are underpinned by the provision of autonomy support, structure and involvement which is reflected in how teachers' (or dance instructors) conduct their classes and interact with pupils (Haerens et al., 2013; Su & Reeve, 2011). When teachers provide autonomy support they give meaningful rationales (especially for tasks which are important but not as enjoyable as others), offer choices which pupils value, seek and acknowledge pupils' perspectives or ideas and nurture pupils' internal motivation, interest and enjoyment. In contrast, controlling teachers aim to motivate pupils by either inducing internal pressures such as guilt, or external pressure such as a deadline and feedback given and language is used to manipulate rather than be informative. Such strategies are likely to frustrate rather than support pupils' psychological needs (Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2009). Teacher's provision of structure is primarily related to supporting pupil's competence. A well-structured class is where clear expectations are set out before tasks and during tasks, guidance, direction and positive effect-based feedback is given. Without structure, a learning environment can be described as chaotic where students do not know what they should do or what is expected of them (Vansteenkiste et al., 2012). Pupils' relatedness is supported when teachers' are involved by showing the pupils empathy and genuine interest in them (Aelterman, Vansteenkiste, & Van Keer, 2013; Haerens et al., 2013; Su & Reeve, 2011). In contrast, a lack of involvement by teachers will frustrate relatedness. Amongst children, Physical Education (PE) teachers' use of need-supportive styles has been shown to be associated with their pupils' psychological need satisfaction and autonomous motivation for PE (Ntoumanis & Standage, 2009; Van den Berghe et al., 2014).

1.4. Design of the BGDP

We have previously reported the study protocol (Jago et al., 2013) and outcome paper (Jago et al., 2015). The study involved 571 Year 7 girls (aged 11–12 years) from 18 schools from the greater Bristol area allocated at the school-level to intervention ($n = 9$) and control ($n = 9$) arms. The intervention consisted of 40, 75-min after-school lessons that took place, twice per week for 20 weeks at school and were led by 10 professional dance instructors between January and July 2014. Girls were provided with a dance diary which they could complete and hand in to the dance instructor at the end of each lesson, in which they could record what they had learnt, their feelings and thoughts. Instructors were provided with a manual which provided plans for all 40 lessons in addition to training outlined below. One instructor was unable to complete the full intervention and was replaced at the intervention

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