Unspoken playground rules discourage adolescent physical activity in school: A focus group study of constructs in the Prototype Willingness Model.

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Abstract

The health benefits of exercise in school are recognised, yet physical activity continues to decline during early adolescence despite numerous interventions. In this study we investigated whether the Prototype Willingness Model, an account of adolescent decision-making that includes both reasoned behavioural choices and unplanned responses to social environments, might improve understanding of physical activity in school. We conducted focus groups with British pupils aged 12-13 and used deductive thematic analysis to search for themes relating to the model. Participants described reasoned decisions about physical activity outside school and unplanned choices to be inactive during break, in response to social contexts described as more 'judgmental' than in primary school. Social contexts appeared characterised by anxiety about competence, negative peer evaluation and inactive playground norms. The Prototype Willingness Model might more fully explain physical activity in school than reasoned behavioural models alone, indicating potential for interventions targeting anxieties about playground social environments.

Introduction

The physical and psychological health benefits of physical activity (PA) in adolescence are widely recognised (Janssen & LeBlanc, 2010; Biddle & Asare, 2011). Informed by research, government guidelines suggest that to obtain these benefits, young people should spend at least 60 minutes per day in moderate-to-vigorous physical activity (MVPA), and that promoting active playgrounds could help increase activity in schools (Strong et al., 2005; Davies, Burns, Jewell & McBride, 2011). The proportion of young people meeting the MVPA target falls sharply through adolescence (Currie et al., 2012), despite the development of numerous interventions to increase activity in this age group (Van Sluijs, McMinn & Griffin, 2007). In Britain and elsewhere, the decline in PA at age 11 coincides with the transition from primary to secondary school, a time of significant social and environmental change (Cotterell, 1982). Physical inactivity is a primary cause of chronic diseases through the life-course (Booth, Roberts & Laye, 2012). Furthermore, negative PA experiences during adolescence can affect adult PA behaviour (Thompson, Humbert & Mirwald, 2003), so it is important to explore theoretical constructs that might make effective targets for interventions (Michie, Johnston, Francis, Hardeman & Eccles, 2008).

The Theory of Planned Behaviour (TPB; Ajzen, 1985, 1991) is a model of reasoned decision-making that has been used to explain and predict a variety of health behaviours with some success (Armitage & Conner, 2000). Attitudes, subjective norms and perceptions of behavioural control are thought to shape intentions, which in turn predict behaviour. In this model, adolescents who think PA is healthy and fun, whose parents are active, and who believe they are competent at sports might be expected to plan exercise and follow their intention to be active. But in fact the model leaves a large proportion of variance in behaviour unexplained when applied to PA (Haggar,

Chatzisarantis & Biddle, 2002). Reasoned PA intentions do not always lead to action (Rhodes & Bruijn, 2013). Furthermore, the relationship between exercise intentions and actual behaviour is significantly weaker in samples under age 25 than among older groups (Hagger et al., 2002; Rhodes & Bruijn, 2013). This limitation is critical because the TPB underpins many adolescent PA interventions (Hardeman et al., 2002).

Research from a cognitive neuroscience perspective indicates that adolescent decision-making is characterised by sensitivity to peer evaluation, heightened self-consciousness and propensity for risk-taking in the presence of other young people (Steinberg, 2005). This evidence suggests that social factors, not accounted for in the TPB, might influence decision-making about PA and other health behaviours – and that dual-process models that propose both a reasoned action and a social reaction path to decision-making might provide a fuller explanation of adolescent health behaviour (Reyna & Farley, 2006).

The Prototype Willingness Model (PWM; Gibbons & Gerrard 1995; Gerrard et al., 2008) is a dual-process model that builds on the TPB by adding a second decision-making pathway to account for unplanned behaviour. It has been used extensively to explore risky health behaviours such as drinking alcohol (Todd, Kothe, Mullan & Monds, 2014). In the 'reasoned action' path, intentions and behaviours are determined by attitudes, descriptive social norms and past behaviour, while the 'social reaction' pathway accounts for unplanned behaviour that takes place in social situations. In this path, decisions are predicted by 'willingness', or openness to engage in behaviour. This in turn is determined by perceptions of prototypes, or images of the type of person who engages in the target activity. To adolescents, these images represent the social consequences of the behaviour (Gibbons & Gerrard, 1997). For example, an adolescent drinker prototype might be considered 'fun' or, alternatively, 'reckless'. Prototypes prompt behaviour through a process of social comparison: the more positively adolescents view these images, and the more they believe

themselves similar to them, the more willing they are to engage in the behaviour (Gibbons & Gerrard, 1995). A meta-analysis of PWM studies across a variety of health-risk and health-promoting behaviours including drinking alcohol, using drugs, using sun protection and engaging in physical activity, found that willingness explained 4.9% of variance in behaviour over and above reasoned intentions, and that the PWM predicted health behaviour among adolescents better than among children or adults (Todd et al., 2014). This percentage compares favourably with the proportion of variance accounted for by other predictor variables that researchers have added into the TPB, such as anticipated regret about non-performance of a behaviour (Sheeran & Orbell, 1999), suggesting that willingness is worthy of further investigation.

Because willingness to engage in behaviour is determined by perceptions of prototypes, it is important to understand whether, and to what extent, adolescents have a positive or negative evaluation of the typical active (and inactive) person of their age. Previous studies suggest that older adolescents and young adults perceive active images positively (Gerrard et al., 2002; Rivis & Sheeran, 2003). When British university students were asked to generate three words to describe an exerciser prototype, most participants said both 'physically fit' and 'motivated'. The only unambiguously negative evaluation, mentioned by a small fraction, was a 'bore' (Rivis & Sheeran, 2003). The authors also showed that prototype similarity was directly associated with exercise behaviour.

But little is known about how young adolescents perceive physically active and inactive prototypes, and whether the PWM might increase our understanding of younger adolescents' PA in school, even though early adolescence is characterised by an increase in unplanned decision-making, stronger social comparison tendencies and a decline in physical exercise. Previous studies show that preliminary qualitative work with adolescents can help establish how a target population thinks about and describes prototypes (Davies, Martin & Foxcroft, 2013). A more thorough

understanding of how this age group thinks about constructs in the PWM could help establish whether the model might increase the effectiveness of multicomponent interventions to boost activity in schools.

The aim of this study was therefore to explore concepts linked with both reasoned and unplanned, social reaction pathways to PA behaviour - particularly in school - among young British adolescents. A secondary aim was to investigate how these concepts might help explain why active and inactive adolescents make different decisions about PA.

Method

Design

Prototypes are defined as widely-accepted social images (Gibbons & Gerrard, 1995), so exploring how young adolescents discuss, describe and agree upon their impressions of typical active and inactive peers can help show the extent to which the PWM might improve understanding of PA in this age group. Focus groups are an appropriate method to explore participants' perceptions about prototypes because they stimulate peer-led responses and reflections (Kitzinger, 1995). During focus groups, participants' responses are prompted by other members and could differ from the answers they might give on a one-to-one basis (van Teijlingen & Pitchforth, 2006). As a consequence, answers might more closely reflect how participants might act in social situations. Previous studies have successfully used focus groups to explore attitudes to prototypes (Davies, Martin & Foxcroft, 2013) and to physical activity (Kinnafick, Thøgersen-Ntoumani & Duda, 2014). University of Oxford Central Research Ethics Committee approved the study.

Participants

Forty-five participants (22 male, aged 12-13) were recruited from four state secondary schools in two English counties. Socio-economic status can affect PA participation (Humbert et al., 2006) so

although all the schools were in urban locations, we selected institutions with different socio-economic characteristics to capture a range of possible activity levels. In each of the 4 schools the percentage of pupils receiving free school meals, an indicator of economic deprivation, was 14%, 12.9%, 8.1% and 4.6%, against the national average of 13.2% (Department of Education, 2016). We chose a purposive sampling technique to identify and select participants who were willing to share, and reflect upon, their knowledge and experience of PA in the school setting (Patton, 2002). We therefore asked PE teachers with knowledge of Year 8 pupils to nominate 6 articulate participants (3 male and 3 female) who were active in PE or school sports teams, and another 6 (3 male and 3 female) who were inactive in these settings, from a range of ethnic backgrounds, to take part in the study. From these, we constructed 8 mixed-gender focus groups organised by school attended and level of PA. This was designed to encourage participants to share their common thoughts about, and experiences of, PA in the school setting. In line with ethical approval, participants' parents completed consent forms and participants gave additional verbal consent that they wished to take part after reading an information sheet. There were no incentives to participate, and participants were unaware that they had been nominated as high- or low-active. Of the 48 students nominated, 1 withdrew and 2 were absent on the day.

Procedure

Wheatley, who has experience of working with adolescents but with no prior knowledge of the participants, conducted the focus groups in a quiet location on school premises. The schedule consisted of three main questions and a number of prompts, prepared after reviewing the PWM literature and discussions with an experienced moderator, Davies. Discussions lasted 30-40 minutes.

As an icebreaker, participants were asked: "The Chief Medical Officer ('Britain's top doctor') advises that young people take part in 60 minutes of physical activity a day – activity that

raises your heart rate, makes you breathe harder and feel warmer. What are your views about that?" (Davies et al., 2011).

The first question probed images participants held of people their own age who meet (and do not meet) these guidelines. This question was grounded in the literature on prototype perception: "I am really interested to know your ideas about typical members of different groups. When we think about the typical person who does something we often get an image in our heads about that person. For example if you were to ask me what the typical grandmother is like I might say that she is sweet. If you asked me about the typical movie star I might say they are pretty or rich. Can you tell me what words you might use to describe the image of the typical person of your age who takes part in physical activity for an hour every day?" (Gibbons, Gerard & McCoy, 1995; p87) Participants were also asked to describe the images of a typical person of their age who does not take part in physical activity for an hour every day.

Next, participants were asked to explore situations or places where they might choose to be active or inactive during school hours and in leisure-time: *"*Can you think of any situations or places where people your age would be have the option to engage in or skip physical activity? I am thinking about times when you travel to and from school, break and lunch time, after school and at the weekend."

Finally, participants could raise any other personal observations about PA: "Is there anything else we have not discussed about taking part in physical activity for an hour a day that you would like to add?"

Data Analysis

The study used thematic analysis, a theoretically flexible yet rigorous and systematic method of qualitative data analysis (Braun & Clarke, 2012) to search for three key themes relating to the PWM: behavioural willingness or unplanned decision-making about PA; active and inactive

prototypes; and attitudes to PA. Discussions were audio-recorded; Wheatley took supplementary notes and transcribed recordings within a week into NVivo10.

The analysis initially took a deductive approach, following the six phases described by Braun & Clarke (2006): familiarization; generating initial codes; searching for themes; reviewing themes; defining and naming themes; and producing a report. In this phase we searched for evidence of three key constructs in the PWM as described above. The transcription and familiarization phase produced initial ideas about these constructs.

We also conducted a second, inductive analysis to search for other themes relating to PA and to provide a richer description of the data overall. This produced an initial set of 42 codes reflecting both PWM constructs and the full content of focus group discussions. Two researchers with experience of thematic analysis each randomly selected and recoded two transcripts. These researchers and Wheatley discussed and revised categories to establish coding precision and coherence. Participants did not review the transcripts or the data. Codes not relevant to the PWM, or with little supporting evidence, were set aside while others were refined with further reference to the data. After additional discussions, all researchers produced a mutually agreed, final set of codes. We developed a thematic map showing main themes and their relationships with sub-themes.

Results

The initial, deductive analysis found evidence supporting 3 main themes relating to the PWM: prototypes, planned and unplanned PA decisions, and attitudes to PA. Further inductive analysis established evidence for 2 sub-themes of social anxiety about peer evaluation and playground norms, (see Table 1, below).

Table 1: Themes and Subthemes Relating to the Prototype Willingness Model

Main Theme	Sub Theme
Theme 1: Prototypes	Active images have positive and negative characteristics Inactive images have negative characteristics There are no prototypes, only individuals.
Theme 2: Planned and Unplanned PA Decisions	Social anxiety about peer evaluation Playground norms Unplanned PA decisions Planned PA Decisions
Theme 3: Attitudes Towards PA	Affective Attitudes Instrumental Attitudes Attitudes to School PE

Theme 1: Prototypes

Most participants could agree on and describe the typical physical and social characteristics of active and inactive young people. A small number were unwilling to define these prototypes, suggesting that all individuals were different.

Subtheme 1: Active images have positive and negative characteristics. Both high and low-active participants had a broadly positive image of active young people. The active prototype was often described as 'fit', 'healthy', 'lean', 'energetic', 'competitive' and, less positively, 'judgmental'. The general perception was that this type of person has a high social profile: inactive groups described them as 'popular'. Participants also appeared to suggest that this prototype might not be interested in academic achievement. Active groups tended to view this prototype particularly positively, stressing characteristics such as leadership, determination and focus. An active female from School 4 said that: **"**I feel like if you're into like a sport, and you really want to do it, then you know your goals and you know what you want to do, so you're more focused on things rather than being, like, kind of happy-go-lucky."

Some inactive groups discussed experiences of being judged negatively by these types of people, describing them as 'bossy', 'image-conscious' and 'show-off'. One inactive male from School 1 observed that: "Sometimes they can be quite arrogant, um, in terms of they think that they are just like unbeatable, and they sometimes – this is the image I get – that they just maybe assume that they are better than the, um, than other people because they are better at certain sports."

Subtheme 2: Inactive images have negative characteristics. Both groups seemed to have a more negative image of the inactive prototype, describing this type of person as 'lazy', 'fat', 'unmotivated' and a 'gamer' who plays with electronic devices. There appeared to be a belief that this type of person lacks physical energy but is, if anything, focused on academic achievement. Among active groups, there was a perception that this type of person does not care about appearance or competing, although some suggested they were 'smart'. An active female from School 3 suggested: "They may use like their intelligence instead of necessarily doing sports and things like that. Like they might be really good at art and not as good at sports."

Conversely, inactive groups talked about how the inactive prototype is very concerned about how physically competent they appear to others. This type of person is "very embarrassed and very self-conscious about their look and their image," according to an inactive female from School 1.

Subtheme 3: There are no prototypes, only individuals. A small number of participants from both groups suggested they had no clear mental picture of PA prototypes, arguing that individuals were active or inactive at different times, and for various reasons:

> Female 1: Everyone has their strengths, everyone has their weaknesses, and everyone is different in their own way. Everyone kind of has their own sort of area of expertise, so like, in like forms and stuff, I think –
>
> Female 2: It's such a range of people –

> Female 1: Yeah, there a load of random people but we've all got our, we've all got similarities and we've all got differences. (Active females, School 4)

Theme 2: Planned and Unplanned PA Decisions

Participants described daily opportunities to be active in contexts including the commute to and from school, activities during recess, PE, after-school sports clubs, weekend leisure activities and competitive sports. There was evidence of both planned and unplanned decision-making. Unplanned activities were often presented as responses to an environmental context characterised by social anxiety about peer evaluation, and playground norms. By contrast, planned activities appeared to be routine and often supported by parents.

Subtheme 1: Social anxiety about peer evaluation. Active and inactive participants discussed how they had become aware of, and concerned about, peer evaluation since starting secondary school.

> Female 1: Yeah, like in primary nobody really cared about judging you and like here everyone like focuses on you and sees what you don't know.
>
> Female 3: Everyone focuses on your looks.
>
> Female 2: If you're popular… it's all about popularity and where you stand in the chain.
>
> Female 1: In primary nothing happened like that. (Inactive females, School 1).

Evidence suggested that peers judged physical appearance and competence in a PA context. Low-actives mentioned concerns about appearing clumsy or incompetent, feeling self-conscious and being laughed at or patronised:

> Female 1: Because like if you're fat, and like don't really want to be running in front of people, because you might be like 'Oh-'
>
> Female 2: 'They're slow-'
>
> Female 1: Yeah, people might think, "Oh you are slow and fat, what are you doing?" (Females, Inactive, School 3).

They suggested that, although these evaluations are a 'natural' feature of adolescence, they can lead to negative feelings including fear, anxiety and self-consciousness. One inactive female from School 1 noted that: "It makes you really uncomfortable and you just don't enjoy sports as much as you used to."

Active participants expressed ego-oriented concerns, describing how they feel pressure to maintain their reputation for competence. They talked about feeling 'worried' if others are better at sport. One active female from School 1 said that: "You kind of want to show everyone that you can do it."

Sporting ability in school seemed linked with social popularity among peers. Both high and low-actives suggested that PA is judged positively and brings social credit, according to an active male from School 3: "If you're good at sport then people know you for being good at sport and so you get a bit more popular."

Some active participants mentioned that although they had a high profile as a consequence of sporting success, they were considered a 'show-off'. Both active and inactive groups suggested that PE lessons explicitly encourage peer appraisal because the main goal is no longer 'having fun' but 'winning.' Students described being streamed by ability and put into overtly competitive situations. Inactive groups talked about how pupils complain when they are allocated team-mates they perceive to be bad at sport. They also discussed how they were evaluated for making mistakes. An inactive male from School 1 commented that: "People are going to judge you if you don't get it right so you make your team lose."

*Subtheme 2: Playground norms***.** An active female from School 2 described how social norms in secondary school playgrounds were less active those in primary school: "It's like a big jump from primary school. Because at primary school like you've got the playg – so you eat in the lunch hall,

and then you go into the playground, and usually you find that you run around and you play games. But at secondary school because you are getting older I find that you don't, like, do as much."

Some active participants described joining a football or basketball game, but inactive participants appeared to prefer fitting in with prevailing playground behaviour, which involves sitting and talking. An inactive male participant from School 4 noted that: "In primary school, like, everyone would run about at break and lunch. At secondary school you are like, if you run around, like, like, round here or something, it would look a bit weird so no one would really do it."

Female participants described how they would be unlikely to join male-dominated playground games, such as football, as this behaviour would be considered 'embarrassing'. One active female from School 4 said: "People might find it weird if you, like, start up your own, like, space where girls are playing football. Or you can't really go and join in because you would probably feel like intimidated or you wouldn't know people, you wouldn't enjoy it."

Subtheme 3: Unplanned PA decisions. Both active and inactive groups discussed unplanned decisions to engage in PA, such as playing with siblings in the garden or going to the park when friends called unexpectedly. These seemed to occur outside the school setting. They also described unplanned decisions to avoid PA during school recess, which appeared driven by a desire for peer acceptance. One inactive female from School 3 noted that: "We kind of just make a group decision on what to do, and we just do it." An inactive male from the same school stressed how choices are influenced by friends' preferences: "I guess it kind of depends on what your friends are doing as well, because if they're not going to do it with you, then you kind of don't want to do it."

Subtheme 4: Planned PA decisions. Both active and inactive participants discussed walking or cycling to school as planned, routine PA, disrupted only by practical issues such as bad weather or the need to carry heavy items. Participants who travelled on public transport or by car mentioned barriers including distance to school and dangerous roads. Both groups talked about attending non-

school sports clubs as planned activities, supported by parents. They discussed how the social environment at these clubs is less judgmental. An active female from School 3 observed: "Like at school it's kind of like, what those things you are expected to do, but outside school you can just do what you want. It's like a different environment."

Active participants seemed particularly aware of competing demands on their time, and of making explicit choices between sports and other activities. Some mentioned how they sacrificed time with friends to pursue sport. An active male from School 1 evoked the clash between studying and PA: **"**I used to do swimming which was around 5 times a week but I decided to stop because it was too much on top of all the, er, school work and I also wanted to do football and I just couldn't balance all three of those.'

Theme 3: Attitudes Towards PA

Subtheme 1: Affective attitudes. Evidence from the transcripts suggested participants hold strong affective attitudes towards PA, although there were clear individual differences in which activities were "fun" and which were "boring". Participants appeared to place emphasis on physical sensations: active adolescents described feeling "adrenaline" and a "happy rush" while inactive participants mentioned feeling "out of breath" and "pain". Adolescents appreciated the freedom to move energetically in the fresh air in contrast with desk-based lessons, according to one inactive male from School 3: "Yeah, I enjoy sports a lot because you are not just stuck in a stuffy classroom". An active female from School 4 commented that: "PE is, like, the best bit of the day because it's, like, outside."

Subtheme 2: Instrumental Attitudes. Participants also discussed feelings of psychological well- or ill-being including pleasure at achieving mastery, enhanced mood, and improved self-esteem. One active male from School 2 said: "I like it when you find something hard, and then you practice at it, and then you become better, and it starts to feel more comfortable, and then you get like new PBs

[personal bests].” By contrast, inactive participants described feelings of performance anxiety. One inactive female from School 1 said: “I get like all quiet and shy and all that - that’s when I don’t take part in lessons.”

Both active and inactive adolescents talked about how PA is ‘healthy’ although the key perceived benefit is that it compensates for poor eating habits. An active female from School 3 commented that: “I like eating junk, but then I do eat fruit and stuff and I try to be healthy, but I know that if I don’t do sport I would get very big.” Most participants appeared to be know they should spend at least 60 minutes per day in MVPA, yet there was a general lack of concern about the long-term health-risks of inactivity, as described by an inactive male from School 1: “I know like all the stuff that they say about, you know, it being really healthy and important, but I just don’t feel like I need to do that.”

Subtheme 3: Attitudes to PE. School PE, and teachers, appeared to provoke strong affective and instrumental evaluations, of which the balance appeared negative. Both active and inactive participants complained that some sports were “boring” and that they disliked being compelled to take part in these activities. Some participants felt that lessons were not active enough, that they lacked “choice” and could be “pointless”; and that the emphasis on rules and technique was frustrating. As one inactive male from School 2 put it: “What I don’t like about sports is when you’re having fun with your friend in PE and then your teacher calls you over to talk to you and stuff like that. I don’t like that. I just want to carry on.”

Discussion

This study is the first qualitative exploration of young adolescents’ PA using the PWM to our knowledge. We found initial evidence that images of the typical active adolescent included several negative social characteristics, which might negatively influence ‘willingness’, or openness to

engage in PA, in school. We also found indications that some decisions about PA in school, and especially about playground activity during break, are unplanned reactions to the social environment rather than reasoned plans. These decisions seem influenced by social anxiety about peer evaluation, and playground norms. Together, these provide a preliminary indication that outcomes of multicomponent interventions to promote PA in school might be improved by targeting constructs in the PWM. Future quantitative research could establish the extent to which prototype evaluation, and behavioural willingness, explain additional variance in objectively-measured PA, over and above constructs in the TPB, among a larger sample of young adolescents (Van Lettow, de Vries, Burdorf & van Empelen, 2016). It could also explore gender and socio-economic status as covariates.

School break offers an important opportunity to exercise. Typically, pupils in British secondary schools have a morning break of 10-15 minutes, and a lunch break of 40-50 minutes. Internationally, physical activity during recess accounts for 5-40% of daily recommended MVPA among 6-12-year-olds, although evidence for adolescents is more limited (Ridgers, Stratton & Fairclough, 2006). Interventions that targeting this period effectively could make a significant contribution to daily PA (Nettlefold et al., 2011). Studies show positive associations between the provision of facilities, including sports fields and equipment, and PA during break (Christiansen et al., 2017; Haapala et al., 2014). But the impact of the social environment on activity during recess is under-researched (Haug et al., 2008; Ridgers et al., 2012). Previous qualitative studies show that peer pressure, and negative experiences at school, affect overall adolescent PA through the whole day (Allender, Cowburn & Foster, 2006). Our results suggest that social anxiety about peer evaluation, particularly in the context of inactive playground norms, could negatively influence unplanned decisions to be active in school. Participants seemed concerned not to appear childish by running in the playground, especially if peers are disinclined to join in. Instead, they adopted the

behaviour of older adolescents by sitting and talking during recess. Inactive participants, and girls, expressed reluctance to join in with established groups playing active games. During school PE, active participants feared being thought a show-off, while their inactive counterparts appeared worried about being judged incompetent. Targeting these concerns could be a useful component of future interventions.

Our evidence indicates that PA prototypes are more nuanced than earlier research has suggested, which could have implications for openness to engage in PA during school. Previous studies have focused exclusively on older adolescents and university students discussing physically-active images (Rivis & Sheeran, 2003; Oullette et al., 2005; Rivis, Sheeran & Armitage, 2006). In line with previous research, we found that physical characteristics of the active image were judged positively (Rivis & Sheeran, 2003), but our participants also described negative social characteristics, including 'judgmental', 'image-conscious' and 'show-off', suggesting that active prototypes do not necessarily represent goal states for young people. At the same time, both the physical and social characteristics of the typical inactive adolescent were also judged negatively. Earlier research has suggested that exerciser prototypes are not only clear, but also more vivid than those of other healthy-behaviour images such as non-smokers (Ouellette et al., 2005). Yet we found suggestions that some young adolescents are unable – or perhaps unwilling – to describe PA images. One possible explanation is that participants, who themselves felt 'judged', were reluctant to label others.

Further research is needed to establish how perceptions of the typical active and inactive adolescent influence willingness to take part in PA. A key question is why participants from inactive groups described the inactive prototype in negative terms. According to the model, adopting inactive behaviour will align their social image, and their self-image, to the negatively-evaluated, inactive prototype (Gibbons & Gerrard, 1997). It would be useful to understand if

inactive adolescents are motivated to avoid perceived negative social characteristics of active prototypes, or whether they have a more positive perception of inactive images than our research suggests.

Here, it is important to note a key limitation of our study: active and inactive participants were selected by their PE teachers rather than using self-reported or objective measures of PA. There was evidence from transcripts that some participants in the inactive groups took regular moderate PA and attended some organised sport activities out of school. It is therefore possible that some participants from inactive groups did not believe they were similar to the inactive prototype they described. A further limitation is that the findings were not validated with participants.

In line with the TPB and the PWM (Gerrard et al., 2008), our evidence indicates that positive attitudes towards PA are linked with active behaviour. Most participants appeared to know that an hour's daily PA delivers health benefits, but there was little evidence that they regarded inactivity as a risky health behaviour. One likely interpretation is that young adolescents are more motivated to gain shorter-term, visible health benefits such as weight control than to avoid to long-term health risks such as heart disease. This is consistent with evidence that adolescents are less influenced than adults by the long-term consequences of their behaviour (Steinberg et al., 2009).

Our study is among the first to indicate that the PWM might more fully explain adolescent PA in school than behavioural models that consider reasoned decision-making alone, and that the social environment may influence young adolescents' unplanned decisions to be active during break and PE. These findings highlight a potential new direction in the development of multicomponent PA interventions in school, incorporating young adolescents' social anxieties in response to a challenging playground environment.

Research materials are available upon application to the authors

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