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A Qualitative Examination of Factors Related to the Decrease in Physical Activity Behavior in Adolescent Girls During the Transition From Primary to Secondary School

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Background: Quantitative research has suggested that the decline in physical activity levels for adolescent girls is most marked during the transition from primary school to secondary school yet understanding the contributing factors for this decline may be advanced through qualitative research methods to gain an individual perspective of the girls' school transition experience. ***Methods:*** This study explored factors related to the decrease in physical activity behavior in 14 adolescent girls (mean age = 13.6 ± 0.3 years) during the transition between primary and secondary school through the use of narrative interviews and interpretative phenomenological analysis. ***Results:*** The findings suggested that a change in the environment was central to understanding the decline in physical activity levels since primary school. ***Conclusions:*** During secondary school, a positive environment can be created by ensuring a choice of activities in Physical Education lessons; allowing a girls-only environment, to reduce the focus on competence and competition, and recognizing the importance of social support. These could enhance self-perceptions, reduce self-presentational concerns, increase enjoyment, and subsequently reduce the decrease in physical activity behavior during this key transitional period.

Keywords: physical education, social support, self-presentational issues

Participation in regular physical activity during childhood and adolescence is associated with a variety of health benefits, including healthy musculoskeletal growth and development, maintenance of energy balance, psychological well-being, and social interaction.[1] Despite this, adolescence has been identified as a key risk period for physical activity attrition, particularly for girls,[2] in whom there is a marked decline in physical activity during this time. Research has also shown that the decline in young people's habitual physical activity coincides with a change in schools[3,4] and recent longitudinal research has highlighted that the decline in physical activity is most apparent during the transition from primary school to secondary school and this is more prevalent in adolescent girls compared with boys.[5]

The substantial decrease in girls' physical activity during this transitional period may be explained by a variety of factors relating to both the individual and the environment they are experiencing. The transition from primary school to secondary school represents a major life-event for many children[6] and is characterized by a shift toward larger class sizes, unfamiliar peer groups, and specialist subject teachers. Subsequently this change in environment can have significant effects on the individual in relation to their self-esteem, confidence, and perceptions of competence when demonstrating both academic and physical ability. There is a wealth of research available examining the school transitional period from an academic perspective[7–9] yet there is relatively limited research focused on the potential impact the school transition can have on physical activity behavior.

The decline in girls' physical activity levels during the school transition period is well documented through quantitative research[5,10] yet physical activity behavior is complex, and there are likely to be a number of factors influencing physical activity in children and adolescents.[11] Researchers[12,13] have identified 5 types of correlates of physical activity behavior: demographic and biological variables, psychological variables, behavioral variables, social and cultural variables, and physical environment variables. Understanding the contributing factors for this decline may be advanced through qualitative research methods to gain an individual perspective of the girls' school transition experience. Interpretative phenomenological analysis (IPA) is a qualitative research approach which aims to explore in detail participants' understanding of a particular topic. IPA can be described as an inductive, idiographic, and hermeneutic approach

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to qualitative research[14] where research questions are usually framed broadly and openly, where there is no attempt to test a predetermined hypothesis. Instead the aim is to explore an area of interest in more detail and in a flexible manner. Therefore, IPA tends to use purposive sampling of participants where a group closely defined by the research question is identified. As such, IPA is considered to be a useful research approach to understand the physical activity experiences of adolescent girls during the transition from primary school to secondary school. Therefore, the aim of this study was to explore factors related to the decrease in physical activity behavior in adolescent girls during the transition between primary and secondary school through the use of narrative interviews and IPA.

Methods

Participants

Overall, 6 public secondary schools in Edinburgh (4 in urban locations and 2 in rural locations) were involved in the study and represented a range of socioeconomic levels, as assessed by the Family Affluence Scale.[15] A purposive sampling technique was used to recruit 48 girls from a previous study[10] whose decrease in physical activity levels (assessed by the Physical Activity Questionnaire for Children[16]) over the 12 months during the school transition period was above the group median. Due to timetabling and room availability constraints within each school and 6 of the girls who declined to take part in the study due to personal reasons, the participant sample was reduced to 14. Overall, 14 girls participated in the study with a mean age of 13.6 ± 0.3 years. All girls and parents or guardians gave written informed consent and ethical approval was obtained for the study from the Institutional Ethics Committee.

Procedures

The researcher met with the girls at least 2 weeks before the interviews to introduce the study and to answer any questions. Each girl received an information sheet and parental and child consent forms and was asked to return the forms to a relevant member of staff at the school. All interviews were conducted by the researcher and were carried out in a private room with a glass-paneled door within the school. At the onset of each interview, the participants were reminded of confidentiality and advised that they could ask to terminate the interview at any time. In addition, a brief outline of the study was given and participants were invited to ask questions about the study. The semistructured interview guide used was developed based upon knowledge of research findings in the area of physical activity behavior in adolescent girls and the researcher's own experiences and findings from previous work. During the interview, the girls were asked to recall their past physical activity experiences at primary school and then reflect on their current physical activity experiences at secondary school. All interviews were tape recorded with the participants' permission and due to the flexible nature of the process and individual responses of the participants, interviews varied in length, ranging from 10 minutes to 29 minutes.

Data Analysis

Interpretative Phenomenological Analysis (IPA) was chosen to maintain the focus of the analysis on the individual and their physical activity story and emerging themes and ideas were built up from each transcript and guided by IPA procedures, as recommended by Smith.[17] Each interview was transcribed verbatim by the researcher and each participant was assigned a pseudonym. For the initial stage of data analysis, each transcript was treated individually and read through several times. The researchers then proceeded to identify and subsequently extract 'meaning units' within each transcript. In line with the main aim of the study, each meaning unit was given a meaning unit label and categorized into positive and negative aspects of the physical activity experience for both the past and present by 2 researchers independently. Following this, the data were organized in a way to best consider the research question which was to explore factors related to the decrease in physical activity in adolescent girls from primary to secondary school. Therefore, data were organized into meaning unit labels of positive aspects of past physical experiences and negative aspects of present physical activity experiences. The meaning unit labels were subsequently categorized into several ordered themes. The final stage of the analysis was to identify overall themes detailing positive aspects of physical activity experiences in the past and negative aspects of physical activity experiences in the present. To ensure quality in the analysis, several methods were employed by the researchers. Credibility was enhanced by independent categorization of meaning units and ordered themes by 2 researchers during the IPA process. Independent categorization was then discussed for each transcript and in instances where disagreements on any of the categorization occurred, discussion continued until full interrater agreement was reached. To demonstrate confirmability the researchers adopted a constant-checking approach whereby at each stage of the analysis, referral back to the original transcripts was employed to ensure all subsequent thematic connections were appropriate. In addition, examples and quotations from the original transcripts are used throughout the presentation of the findings to demonstrate that the findings did emerge from the data and enhance confirmability.[18]

Results and Discussion

In line with the idiographic nature of IPA, analysis of the interview data identified meaning unit labels and subsequent ordered themes relating to positive aspects

of past physical activity and negative aspects of present physical activity for each participant. Overall, 3 themes relating to positive aspects of past physical activity experiences (Used Opportunities to be Active; Supportive Physical Activity Environment; Positive Sense of Self when Active) and 5 themes relating to negative aspects of present physical activity experiences (Lack of Utilizing Opportunities to be Active, Alternative Activities to being Active, Unsupportive Physical Activity Environment, Negative Sense of Self when Active, Alternative Priorities) were identified across the 14 participants (Table 1). A discussion of these overall themes will be presented relating to the 4 following dimensions: Physical Activity Opportunities, The Environment, Sense of Self when Active, and Individual Issues, where an examination of both the positive aspects of the past followed by the negative aspects of the present will be described and related to previous research.

Physical Activity Opportunities

Used Opportunities to Be Active. First-order themes identified relating to the overall theme of Used Opportunities to be Active at primary school included active travel to/from school, active at break and lunch times and during extracurricular activities. Break and lunch time in primary school was often used as an opportunity to be active. The types of activities the girls participated in ranged from unstructured play through active games, such as tag and hide and seek to more structured forms of physical activity such as playing football. Research has shown that the time available at break and lunch recess provides an opportunity to increase physical activity while at school,[19] which was taken advantage of by all of the girls during their time in primary school, as highlighted in the interviews. The opportunity to participate in extracurricular activities at primary school was used by all of the girls and similar to activities in PE, these ranged from more traditional activities, for example basketball and swimming, to more game-related activities, for example dodgeball and rounders.

Lack of Utilizing Opportunities to Be Active. An examination of the negative aspects of present physical activity experiences of the girls resulted in several themes relating to the overall theme of Lack of Utilizing Opportunities to be Active, where despite recognizing the opportunities for physical activity, the girls did not use these available opportunities both in school and out of school. For all of the girls, the opportunity to be active at break and lunch times in secondary school was not used. When recalling the types of activity participated in at break and lunch, a common response of the girls was

> Erm, well I don't do that much because I stay inside and I hang about like upstairs so we just kind of sit about talking so I don't do that much.

This finding supports longitudinal research[20] which examined physical activity levels in young children at recess and found that as children progress through the school system, there is a trend toward less active free time at break and lunch recess. During the interviews, 3 of the girls also commented on their lack of extracurricular and out of school activities in secondary school both during the week and at weekends.

Alternative Activities to Being Active. During the interviews, 4 of the girls stated a clear preference for alternative activities to being active at secondary school.

> I don't do stuff like that, activity, at the weekends, I just go out with my friends, we go to the Gyle (*shopping center*) and we go up town just we hang about at each others' houses, watch movies, computer, food . . . just not, we don't do any exercise.

Similar findings were evident in a study of adolescent girls aged 14 to 16 years,[21] where the authors suggest that "the personal importance attached to physical activity upon entering adolescence is a determining factor in whether girls will continue to be active or will, instead, choose to conform to the more common norms attached to being a teenage girl whereby physical activity is not considered to be important" (p. 251).

Table 1 Overall Emergent Themes and Related Dimensions

Overall Themes	Dimension
Used opportunities to be active	Physical Activity Opportunities
Lack of utilizing opportunities to be active	
Alternative activities to being active	
Supportive physical activity environment	The Environment
Unsupportive physical activity environment	
Positive sense of self when active	Sense of Self when Active
Negative sense of self when active	
Alternative priorities	Individual Issues

Environment

Supportive Physical Activity Environment. Social support was an important contributor to having an overall supportive physical activity environment in primary school. Social support was predominantly provided by peers and family; however there were 4 girls who recalled having the support of others, for example activity leaders and specialist teachers. Peer support was in the form of the involvement of friends in the same physical activity. This supports research[22] suggesting that social support from peers is an important correlate of physical activity, most notably in school and leisure time physical activity. More recent research[23] has highlighted that a number of diverse friendship groups (eg, at school, in the neighborhood, during extracurricular activities) could mediate higher levels of physical activity due to an increase in the number of peer physical activity resources available to draw upon. Family support consisted of family involvement in physical activity, physical activity competence shown by family members and overall support for the girls' physical activity participation. For 2 of the girls, there was evidence of both family involvement and family support in their physical activity participation:

> My dad would take me swimming on Sundays, we'd go swimming together . . . and I used to go to play tennis with Megan and mum would take us up to (*tennis*).

This echoes longitudinal research[24] examining parental influences on physical activity, which found parental engagement, parent-child communication and family cohesion were all significant predictors of physical activity participation. In addition to social support, there were a number of themes which illustrated how the girls felt comfortable in their physical activity environment at primary school, for example having a sense of familiarity with each other when participating in physical activity in primary school and working with peers of a similar ability in PE, was an important aspect to the girls being comfortable in their physical activity environment:

> So we just sort of, well there was people in primary school that I just used to sort of like stay with when we were doing PE because they were like the same as me.

These findings support previous research which has demonstrated that in primary school, Physical Education (PE) is usually taught by the classroom teacher where pupils are in a relatively small and familiar environment[25] and have known their peers, both boys and girls, for 7 years. Furthermore, the PE curriculum in primary school tends to focus on the development of core movement skills through simple activity forms,[26,27] therefore differences in physical abilities may not be as apparent in primary school as in secondary school.

Unsupportive Physical Activity Environment. A lack of social support was a significant contributor to an overall unsupportive physical activity environment in secondary school, consisting of a lack of peer support, a lack of family support and an unsupportive social environment for physical activity. Twelve of the girls mentioned the lack of friend/peer involvement in their physical activity participation, for example, when recalling the reasons for giving up netball in secondary school, Cherith stated that

> Like none of my friends wanted to do netball.

Similarly, having a friend to do physical activity with was important to 11 of the girls, as illustrated by Judith's comment:

> I went and said do you want to go to dance on, on a Friday after school and she said no I don't wanna do it so then I don't wanna do it if no one else is going. I like dancing if like all the rest of my friends went. . . . I would never go by myself.

Comparable findings[20] also found that for adolescent girls, having friends with them when participating in physical activity was crucial and the thought of being active without them was threatening and could result in a complete lack of physical activity participation. Lack of peer interest in physical activity was also a contributor to a feeling of lack of peer support for a couple of the girls. In addition, a change in social influence through the transition into a new social environment in secondary school possibly contributed to a lack of peer support for physical activity:

> Like I used to really enjoy doing it and then when I got to high school I just, sort of changed and I just didn't enjoy it any more . . . but I don't know whether that's because we met new people, different people in our class that, I don't know I just stopped liking it.

For 7 of the girls, an unsupportive social environment contributed to a feeling of lack of social support when being active. For Sam, being in a large social group when doing physical activity resulted in her not feeling as confident:

> Because I was around not as much people as I am at high school like, don't feel as confident at high school 'cause I'm around more people.

Evidence of an unsupportive physical activity environment in the form of feeling uncomfortable in a competent physical activity environment at secondary school was apparent for 3 of the girls:

> But, erm, when you do it in front of other people who are obviously like really good at sport, it's a bit embarrassing if you don't do it right especially if they're like, you're in a team with them because if you do something wrong they'll like go mad at you for it.

The girls also articulated feelings of being uncomfortable in a physical activity environment in the presence

of boys. In particular, a dislike of swimming in front of boys and a preference for an all-girls environment when swimming was apparent, as articulated by a couple of the girls:

> It used to be all boys and we used to swim and I used to hate it.

> I'm not too keen on the swimming though but I still do it 'cause there are some people who don't do it at all but I'd prefer if it was all girls though.

This is in line with previous research[28] which demonstrated that participation in swimming for a sample of Australian adolescent girls was adversely affected by derogatory remarks made by boys. Therefore, it is possible that the physical presence of boys while participating in such activities enhances the girls' existing feelings of discomfort when having to reveal parts of their bodies.

In addition, the creation of a competitive environment with boys also contributed to an unsupportive environment for physical activity for 8 of the girls. There were also examples where the girls were uncomfortable participating in other activities as well as swimming in the presence of boys; for instance, Sophie, when talking about her dancing shows, commented

> But when, if I was in front of, like the boys, doing one of my dancing shows in front of like the boys in my class I'd probably freeze and not be able to do it and forget everything.

Earlier findings in the current study highlighted how a lack of utilizing the opportunities to be active at break time and lunch time at secondary school was an issue for all of the girls. In addition, 5 of the girls recollected how being active at break and lunch times was not part of their school culture, which created an unsupportive physical activity environment. This theme is reflected in the following extracts taken from Sarah and Gemma:

> 'Cause we used to play like, erm, hide and seek or but like more older games than that and you don't really see much people like playing that here and I think we've grown out of that a bit now.

> 'Cause no-one really does it like 'cause all the boys and that they used to play football but now none of them do so no one really runs about or anything. More people just sit there and talk.

Sense of Self When Active

Positive Sense of Self When Active. Enjoyment of physical activity was a key contributor to having a positive sense of self when active at primary school for 13 of the girls which included enjoying the social aspect of being active at primary school. This is in line with previous research which has consistently shown a positive, significant relationship between enjoyment and physical activity in adolescent girls,[29–31] with data from Scottish adolescent girls[32] highlighting enjoyment as the main reason for participating in physical activity for the majority (73%) of girls aged 11 to 16 years. Feelings of perceived competence and ability when active were apparent in 5 of the girls' interviews, with perceptions of competence being developed through mastery of skills and playing a role in team sports. Throughout their interviews, over half of the girls recounted positive feelings when doing physical activity. In the context of the comments made, feeling positive when doing physical activity was seen as a different concept to enjoyment in that, positive feelings when active suggests feeling a positive physical response to physical activity. This is illustrated in the following extract from Judith:

> I just enjoyed them, I don't know, I just liked the feeling of it when I was doing it, I just enjoyed like . . . like when we played basketball and like you scored it just felt good and then when you were just swimming you finished your lengths first it just felt good doing it . . . . I just enjoyed it.

Similar comments were made by Rebecca when she recalled physical activity participation in her PE lessons in primary school:

> So you kind of felt kind of free and relaxed about it.

There was also an absence of self-presentational concerns when active, therefore contributing to a positive sense of self. It was evident that 10 of the girls were comfortable with themselves when active in primary school, as reflected in the following extract from Judith:

> I didn't care what anyone thought when I was in primary when I done sport.

Negative Sense of Self When Active. In 13 of the girls' interviews there was a distinct lack of enjoyment or enthusiasm about being active at secondary school. The following extract from Judith typifies the theme of a lack of enthusiasm or desire to be active, contributing to a negative sense of self:

> I don't know if it's just 'cause I'm lazy and I can't be bothered doing it anymore but like, I say to myself like I want to lose weight, I want to get toned up but when it comes to it I can't be bothered going up to Drumbrae (*leisure centre*) or going swimming or taking part in PE classes, I just can't be bothered with it.

Evidence of self-presentational concerns was apparent for 7 of the girls. For some of the girls, general self-presentational concerns about doing physical activity in front of others was commented on, with feelings of embarrassment and nervousness being reported:

> Erm, well there was another friend I've got and we were in that class and when we were with them like, I didn't feel that comfortable like around, running about and that and I don't know why but I felt like everyone was looking at me and I just didn't really like it.

> I don't really like showing (*doing physical activity*) in front of people. I just get a wee bit, a wee bit nervous like showing in front of other people.

The significant increase in self-presentational concerns reported by the girls in secondary school compared with primary school supports previous findings[32] where feelings of self-consciousness when participating in physical activity in front of others were prominent in focus group interviews and reflected in survey findings. Our findings reinforce earlier research[33] which suggested that concerns about revealing one's physique to others in an exercise setting could be a potential barrier to exercise and physical activity and, as a result, a contributor to having a negative sense of self when active at secondary school. Feelings of a perceived lack of competence at physical activity were apparent in 3 of the girls' interviews, with Claire comparing her ability in gymnastics at secondary school to her peers:

> When we're doing it I feel like other people, like I feel like I can't do what everyone else is doing. '*Given name*,' she's really good at gymnastics, she done like a somersault thing in the air and I tried it and I ended up falling on my bum and it was so embarrassing and I couldn't do it.

Finally, a lack of confidence and a dislike for doing physical activity alone in secondary school were also emerging themes which appeared to contribute to a negative sense of self when active:

> Like, I don't feel as confident (*doing physical activity*) at high school 'cause I'm around more people.

> It's just embarrassing being there by yourself; people would look at you being on your norman (*on your own*). . . . I don't have the courage to do that.

Individual Issues

Alternative Priorities. In the context of the comments made, the concept of alternative priorities to physical activity was seen as a different concept to alternative activities to physical activity discussed earlier in that alternative priorities were generally compulsory activities the girls gave priority to over physical activity, for example homework. The emergence of alternative priorities in secondary school was vocalized in 4 of the interviews. An indication that homework was an alternative priority to participating in physical activity in secondary school was suggested by 2 of the girls:

> Like I've sometimes got homework. I never had that in primary so I don't do as much sport as I did.

This is also illustrated in the following extract from Sophie for whom spending time with friends and a part-time job took priority:

> But I'm always out with my friends so I don't have a lot of time to do it (*physical activity*) and I'm doing paper-rounds and stuff so I never really have time to do anything else.

Homework obligations in adolescent girls aged 12 to 14 years have previously been negatively related to physical activity behavior.[34] The present findings are also comparable to qualitative research[35] where perceived time pressure from homework emerged as a barrier to being active during the time of transition to secondary school.

General Discussion and Conclusion

Use of a qualitative approach, based on IPA, has allowed an in-depth examination of the factors related to the decrease in physical activity behavior in adolescent girls during the transition between primary and secondary school. The thematic findings suggest that a change in the environment is central to understanding the decline in physical activity levels since primary school. A positive environment can be created by ensuring a choice of activities in PE; allowing a girls-only environment, which may reduce the focus on competence and competition, and recognizing the importance of social support in the form of friends involvement in physical activity. Similar conclusions relating to the PE environment have been drawn by researchers[36] who suggested that strategies worthy of further exploration include girl-only classes, noncompetitive environments, providing different types of activities that are fun for girls with different skill levels and interests and skill-enhancing programs to increase self-efficacy. Creating a more positive environment for the girls when participating in physical activity in secondary school may have a beneficial effect on improving their sense of self when active. This could be achieved through the development of competence and task mastery in a supportive environment, coupled with positive reinforcement from significant others, as suggested in Harter's competence motivation theory.[37]

An identifiable limitation of this study is the focus on the positive aspects of past physical activity behavior and negative aspects of present physical activity behavior during the IPA analysis of the interviews. The researcher acknowledges that this does provide the reader with a biased positive view of past physical activity experiences and a biased negative view of present physical activity experiences of the girls yet it was deemed the most appropriate method available to handle the large volume of data collected during the interviews and to

focus on the study research question. In addition, there was potential for recall bias in the girls' past physical activity experiences at primary school during the interviews. The findings can also be used to suggest practical recommendations and inform the development of more effective intervention programs to minimize the decrease in physical activity as girls move from primary school to secondary school. The findings suggest that for young girls at this stage of their lives, personal feelings such as a lack of competence and self-presentational issues make commonly accepted environments for physical activity (eg, PE lessons with boys) more of a perceived barrier to participation. Therefore, interventions adopting a social-cognitive approach, reflecting how the environment can interrelate with personal feelings of the girls and may deter them from physical activity participation, may be effective in changing physical activity behavior during the school transition. This would require a multidimensional approach within the school, by combining strategies at the individual level, the environment level, and the policy level. This contention supports findings in a recent review of the effectiveness of interventions to promote physical activity in children and adolescents[37] where there was strong evidence supporting the effect of multicomponent interventions in adolescents, which includes an educational component, an environmental component, and a policy component. However, additional intervention-based research focused on reducing the impact of the change in environment during the transition between primary school and secondary school is an area which seems to have been neglected in past intervention studies and is therefore worthy of future research attention.

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