Original article

Parental social support, perceived competence and enjoyment in school physical activity

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Abstract

Background: Beginning in the elementary school years, there are differences among children on how they perceive their competence in physical activity (PA). Children’s competence perceptions may influence their affective reactions to PA. A crucial question is how to motivate children who hold low competence perceptions to enhance their enjoyment and PA involvement. Because parents play critical roles in children’s development and socialization, social support from parents can be an important factor to complement teachers’ effort to enhance children’s enjoyment and PA involvement. In this research we identified the associations among children’s beliefs about parental social support, perceived competence and enjoyment in school PA.

Methods: Three hundred and twenty children (9–11 years old) participated in a two-wave study. At the first wave, children completed questionnaires measuring their beliefs about parental social support, perceived competence and enjoyment in school PA; they reported their enjoyment again 8 months later at the second wave.

Results: Both concurrent and longitudinal analyses revealed that beliefs about parental social support were important factors associated with children’s enjoyment in school PA, especially among girls with low competence perceptions.

Conclusion: Family socialization factors should be taken into consideration. The efficacy of individual and community-level strategies should be included and evaluated when designing effective intervention strategies that enhance children’s PA in school.

In this research we identified the associations among children’s beliefs about parental social support, perceived competence and enjoyment in school PA.

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Keywords: Elementary children; Motivation; Social context; Social support

1. Introduction

Beginning in the elementary school years, there are differences among children on how they perceive their competence in physical activity (PA). Though some children view themselves as possessing skills to do well in PA, others view themselves as lacking such skills. How children perceive their competence has important implications for their intentions and participation in PA. Children who hold low competence often do much poorer than their objective abilities warrant. Moreover, children’s competence perceptions may influence their affective reactions to PA. Specifically, children who view themselves as lacking skills rarely experience fun and enjoyment during the participation. Thus, a crucial question is how to motivate children who hold low competence perceptions to enhance their PA involvement.

Individuals’ behavior change is associated with their physical and social environment. Researchers have identified many factors that influence children’s behavior, including peers, teachers, and parents. Social support from parents has been identified as an especially important factor related to children’s participation in PA. Given the role that parents play in children’s development and socialization, we propose that parents can facilitate physical education teachers to reduce the negative effects of children’s low competence perceptions. Therefore, this study was designed to examine the possibility that parental social support enhances the enjoyment of children with low competence perceptions in school PA.

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According to Ecological Systems Theory (EST), development or change in individual characteristics cannot be effectively explained without considering the context in which the person is embedded. Although intrapersonal interventions have been effective, behavior change is more likely to occur and be sustained when the socio-cultural and physical environments are supportive of physically active lifestyles. Davison and Birch\(^7\) provided an application of EST to predictors of childhood physical activity. In the case of children, the ecological niche includes the family and the school, which are in turn embedded in larger social contexts including the community and society in general. It is suggested that effective interventions must incorporate the context surrounding the individual/group whose behavior is being targeted.

For elementary children, family constitutes an important initial element of socialization. Several types of parental influence have been suggested in the literature. For example, parents can provide instrumental support (e.g., organizing PAs, providing transportation, paying activity fee), emotional support (e.g., encouraging children), informational support (e.g., giving instruction), companionship support (e.g., playing with children), and validation support (e.g., serving as role models). As a consequence of a variety of interactions with parents, children establish their belief about parental social support in a specific domain. Many researchers have confirmed that children’s beliefs about social agents such as parent support can help shape their attitudes and values toward PA and direct PA involvement. Particularly, with the central role of competence perception in motivation and intention, socialization in PA has often been studied together with perceived competence to understand children’s and adolescents’ PA involvement.\(^11,14\)

For example, Bois et al.\(^13\) examined the influence of parents’ PA involvement and attitudes on children’s competence perceptions and time spent in PA with a sample of 152 French children. Structural equation modeling revealed that parents’ role modeling behavior had a direct effect on children’s time spent in PA and that parents’ beliefs about their child’s competence had an indirect effect on children’s PA by influencing children’s perceived competence. Using 380 American secondary students as participants, Trost et al.\(^5\) investigated a conceptual model linking parental PA orientations, parental support for PA, and children’s perceived competence with PA participation. They found that parental support was an important correlate of youth PA, acting directly or indirectly through its influence on perceived competence. Through observation and social interaction, children can reproduce the behaviors of their parents in PA. More supportive parents tend to have more active children. Other researchers have found similar results.\(^15,16\)

Previous studies have significantly enhanced our understanding of parental social support and children’s PA engagement. Nevertheless, these studies have been limited in the following ways. First, many studies in parental social support are cross-sectional in nature. Consequently, the proposed cause–effect relationships between parental social support, children’s perceived competence and PA involvement lack temporal correspondence. According to MacCallum and Austin, longitudinal designs, including autoregressive influence in which future values are estimated based on a weighted sum of past values, provide stronger support for potential cause and effect postulates. Second, researchers have rarely considered individual differences when investigating the influence of parental social support. Because of a variety of influences ranging from school socialization and prior experience to a history of accomplishment, children might approach their interactions with parents with established competence perceptions in school subjects.\(^18,19\) It is reasonable to assume that those who have low perceived competence may benefit more from parental social support because of their heightened need for the psychological resources provided by the support.\(^18\) In other words, parental social support may protect children from the adverse effects of holding negative beliefs and mitigate poor psychological functioning.\(^20\)

Last, although gender differences in PA are well recognized, few researchers have examined gender invariance within the process of parental social influence. Consequently, theoretical considerations and attendant recommendations are often contingent upon the presence of no gender differences. Sallis et al.,\(^5\) for example, investigated adolescent gender differences in motivational characteristics of PA participation from a multi-ethnic sample. Compared to their male peers, females reported less role modeling by their parents and had lower levels of intrinsic motivation and enjoyment in exercise. In a longitudinal study, Garcia et al.\(^21\) found that females reported a significant decline in perceived benefits of PA and the influences of role models (e.g., parents, teachers, and peers) from elementary to junior high school, whereas males reported a decline in perceived competence and social norms regarding PA. Given these documented differences, it is apparent that identifying gender-specific characteristics in the relationship between parental social support and PA behavior will augment the literature with valuable information about gender-specific factors influencing PA. Such information is critical when developing effective programs to promote children’s in-school PA.

The purpose of this study was to identify the associations among children’s beliefs about parental social support, their perceived competence, and enjoyment in school PA. There were two research questions. First, to what extent was perceived competence associated with enjoyment in school PA? Given the influence of perceived competence on children’s motivation and affective reactions,\(^22\) we hypothesized that children who hold low perceived competence would be less likely to experience enjoyment than their counterparts who hold high perceived competence in school PA. Second, to what extent could parental social support aid children who hold low perceived competence to enjoy PA? Because children who hold low perceived competence are in greater need of the psychological resources provided by parental social support than children who hold high perceptions,\(^18\) we hypothesized that children with low perceived competence would be more likely to benefit from high levels of parental social support. Importantly, given the possible gender influence on the process of parental social support, we hypothesized that gender might be a potential
moderator of the relationships among parental social support, perceived competence, and enjoyment in school PA.

We chose students' enjoyment of their experiences in school PA as an outcome because many motivational theorists\(^{11,14}\) highlight positive affect (e.g., fun, enjoyment) as a proximal motivator of PA. In turn, positive affect is influenced by perceived competence. In the literature on children's PA, perceived competence has been shown to predict PA enjoyment, as well as to reduce negative perceptions, such as boredom.\(^{23}\)

### 2. Methods

#### 2.1. Participants

Students in the study were fourth graders (\(n = 344\); girls = 198) from six elementary schools in a major Midwest metropolitan area in the US. A majority of the students came from low- to lower-middle class socio-economic backgrounds. Over 75% of the participants were composed of minority students, which was reflective of the community. Permission to conduct the study was obtained prior to the investigation from the Wayne State University review board, the school district, the participants, and their parents.

This study was part of a project that was designed to enhance children's PA involvement in urban elementary schools. The project implemented a whole-school approach to PA and nutrition programming designed to reach students, educators, and parents. The fourth grade was selected because it constitutes a critical transition in children development in both physical and cognitive skills. Compared to younger children, fourth graders have demonstrated significantly higher readability and comprehension.\(^{24}\) There were two time points for collecting data. The Time 1 (T1) assessment (i.e., beliefs about parental social support for PA, perceived competence, and T1 in-school PA enjoyment) took place in September, at the beginning of the fall semester. The Time 2 (T2) assessment (i.e., T2 in-school PA enjoyment) occurred in May, at the end of the winter semester (about 8 months after T1). The age of the students at T1 was 9.39 ± 0.44 years (mean ± SD). Of the 344 student participants who participated at T1, 24 did not participate at T2 (8 months later) due to relocation to different schools or classes. Preliminary analyses revealed that mean differences were not present in any of the study variables for completers and non-completers at T1. The final sample consisted of 320 students (185 girls, 135 boys).

#### 2.2. Measures

##### 2.2.1. Beliefs about parental social support

Students' beliefs about parental social support for school PA were measured using the 5-item parental social support scale developed by Duncan et al.\(^{25}\) An example item from the scale is “How much do your parents or the adult who takes care of you encourage you to do physical activity?” Responses were indicated on a 5-point Likert scale anchored by 1 (never) and 5 (often). Cronbach's \(\alpha\) at T1 in this study was 0.79.

##### 2.2.2. Perceived competence

Students' perceived competence was evaluated with the 4-item measure of ability beliefs in Xiang et al.,\(^{26}\) in which ability beliefs were defined as the individual's perception of his or her current competence at a given activity.\(^{14}\) Children rated how good (1 = not at all good; 7 = very good) they were in school PA and then their relative position in their class (1 = at the bottom; 7 = at the top). An example item is “How good are you at the physical activities you play at school?” Cronbach's \(\alpha\) at T1 was 0.81.

#### 2.2.3. PA enjoyment

Students' enjoyment of participation in school PA was measured using the Physical Activity Enjoyment Scale.\(^{27}\) The scale starts with the words “When I'm physically active . . .” and consists of 16 total items, nine positively worded and seven negatively worded. An example item is “When I am physically active in school, it is very exciting.” Responses were indicated on a 5-point Likert scale anchored by 1 (disagree a lot) and 5 (agree a lot). Because of measurement disturbances between the positively and negatively worded items, only positively worded items were selected. Moore et al.\(^{25}\) provided evidence for the suitability of the measure for elementary children. In this study, Cronbach's \(\alpha\) were 0.80 and 0.81 at T1 and T2, respectively.

#### 2.3. Data collection

Data were collected during classroom time at each school. A data collection team, including five graduate students, was trained to administer questionnaires. The team was responsible for distributing pencils and questionnaires at the beginning of a class and for collecting and checking them. They read each item to the children and encouraged questions from the children in order to maximize understanding. Children were asked to complete the measure of beliefs about parental social support first, and then perceived competence and PA enjoyment. The data collection took approximately 12 min in each class. To control for socially desirable responses, participants were encouraged to respond as truthfully as they could. They were ensured that their responses would not affect their grades and their teachers would not have access to their responses.

#### 2.4. Data analyses

The nature of the research design was correlational. In a preliminary analysis, all data were subjected to accuracy screening, descriptive analyses, and a series of statistical assumption tests. Reliability of the questionnaire data was examined using Cronbach's \(\alpha\) approach for internal consistency. To investigate the proposal that parental social support is particularly beneficial to children who had low perceived competence, we conducted two sets of hierarchical multiple regression analyses. First, to examine the joint effects of parental social support and perceived competence on children's feelings about enjoyment in school PA, we conducted a concurrent analysis in which children's enjoyment was predicted at T1 from children's competence perceptions and parental social support at T1 (Step 1), and their interaction (Step 2). Second, to determine whether the relations held over time and manifested themselves in children's ongoing enjoyment, we conducted a longitudinal analysis in which children's enjoyment was predicted at T2, adjusting for the relations held at T1.
for their corresponding score at T1 (Step 1). In Step 2, children’s competence perceptions and parental social support at T1 were entered. The interaction between the two was subsequently entered (Step 3). Following Aiken and West\(^9\) all predictor variables (i.e., children’s competence perceptions and parental social support) and the cross product were mean centered so that values at the mean were equal to zero. Although this does not change the significance of the coefficients, it reduces multicollinearity between predictor variables and interaction terms.

3. Results

As shown in Table 1, children demonstrated positive beliefs about parental social support, perceived competence, and enjoyment in school PA. All variables had mean scores above the mid-point of their respective scales. Weak to moderate correlations were found among students’ perceived competence, beliefs about parental social support, and enjoyment at both T1 and T2 for both girls and boys. Comparing the scores of enjoyment from T1 with those from T2 revealed that children, as a group, gained additional enjoyment. Given that the project was designed to increase school PA, we believe that the small but positive changes would be partially attributable to the instruction and exercise that participants received during the 8-month school PA intervention.

Because gender might be a potential moderator influencing the relationships between perceived competence, beliefs about parental social support, and enjoyment, we analyzed data separately in terms of gender. In the concurrent analyses (Table 2), perceived competence predicted significant variance in T1 enjoyment (\(\beta = 0.41\) and 0.47 for girls and boys, respectively). Across gender, children who held low perceived competence were less likely to experience PA enjoyment than their counterparts who held high competence. Beliefs about parental social support, however, did not predict significant variance. The interactive effect was weak; therefore it was not necessary to separate students for further interactive analyses.

### Table 1
Descriptive and correlational analyses among variables.

| Predictor                   | Mean ± SD | 1  | 2  | 3  | 4  |
|-----------------------------|-----------|----|----|----|----|
| Overall (n = 320)           |           |    |    |    |    |
| 1. Competence (T1)          | 4.27 ± 0.64| 0.28**| 0.44**| 0.36**|    |
| 2. Parental social support (T1) | 3.98 ± 0.88| — | 0.21| 0.23**|    |
| 3. Enjoyment (T1)           | 4.32 ± 0.67| — | — | 0.45**|    |
| 4. Enjoyment (T2)           | 4.42 ± 0.66| — | — | — |    |
| Girl (n = 185)              |           |    |    |    |    |
| 1. Competence (T1)          | 4.19 ± 0.63| 0.25**| 0.44**| 0.41**|    |
| 2. Parental social support (T1) | 4.02 ± 0.84| — | 0.21| 0.21**|    |
| 3. Enjoyment (T1)           | 4.36 ± 0.63| — | — | 0.44**|    |
| 4. Enjoyment (T2)           | 4.47 ± 0.58| — | — | — |    |
| Boy (n = 135)               |           |    |    |    |    |
| 1. Competence (T1)          | 4.39 ± 0.64| 0.34**| 0.47**| 0.36**|    |
| 2. Parental social support (T1) | 3.94 ± 0.94| — | 0.21| 0.25**|    |
| 3. Enjoyment (T1)           | 4.26 ± 0.71| — | — | 0.45**|    |
| 4. Enjoyment (T2)           | 4.36 ± 0.75| — | — | — |    |

\(*p < 0.05; **p < 0.01.\)

Abbreviations: T1 = Time 1; T2 = Time 2.

### Table 2
Children’s perceived competence and perceived parental social support predicting children’s enjoyment in school physical activity: concurrent analyses at Time 1.

| Predictor                                      | B (SE)     | \(\beta\) | \(f^2\) |
|------------------------------------------------|------------|------------|---------|
| Girl (n = 185)                                 |            |            |         |
| **Step 1**                                     |            |            |         |
| Competence (T1)                                | 0.27 (0.05) | 0.41**     | 0.18    |
| Parental social support (T1)                    | 0.07 (0.05) | 0.10       | 0.01    |
| **Step 2**                                     |            |            |         |
| Competence × parental social support (T1)       | −0.05 (0.05)| −0.07      | 0.01    |
| Boy (n = 135)                                  |            |            |         |
| **Step 1**                                     |            |            |         |
| Competence (T1)                                | 0.34 (0.06) | 0.47**     | 0.24    |
| Parental social support (T1)                    | 0.03 (0.06) | 0.05       | 0.00    |
| **Step 2**                                     |            |            |         |
| Competence × parental social support (T1)       | −0.06 (0.05)| −0.11      | 0.01    |

**Note:** Cohen’s\(^{40}\) conventions for \(f^2\) are that 0.02 reflects a small effect size, 0.15 reflects a medium effect size, and 0.35 reflects a large effect size.

**\(*p < 0.05; **p < 0.01.**\)

Abbreviation: T1 = Time 1.

In the longitudinal analysis, girls and boys demonstrated different patterns of the relationship (Table 3). For boys, all \(\beta\) were in the predicted direction and significant. Particularly, while controlling for enjoyment at T1 and perceived competence, beliefs about parental social support positively predicted enjoyment (T2) 8 months later (\(\beta = 0.23, p < 0.05\)). An interactive effect between perceived competence and parental social support was not significant.

However, for girls, beliefs about parental social support at T1 did not predict T2 enjoyment. Nevertheless, after controlling for the main effects, the interactive effect predicted significant variance in T2 enjoyment (\(\beta = −0.16, p < 0.05\)), suggesting that the effect of beliefs about parental social support on girls’ enjoyment was contingent upon their perceived competence. To
clarify the interaction, we separated girls on the basis of whether their beliefs about parental social support (z scores) were greater than or less than one standard deviation compared to the mean. 

A series of subsequent regression analyses were then conducted. Decomposition of this interaction indicated that, for girls with low perceived competence (1 SD below the mean; \( n = 32 \)), beliefs about parental social support were a significant predictor of perceived enjoyment in school PA (\( \beta = 0.28, p < 0.05 \)). Such a link, however, was not evident among girls with high perceived competence (1 SD above the mean; \( n = 34; \beta = 0.15, p = 0.23 \)). See Fig. 1 for the interaction.

Moreover, we next investigated the possibility that the effects of girls’ competence perceptions on their T2 enjoyment were ameliorated by beliefs about parental social support, such that they are stronger when the beliefs are low than when they are high. To this end, we tested the effects of children’s competence perceptions at low and high levels of beliefs about parental social support. Here, we conducted a regression analysis identical to those just described except that we centered at 1 SD below or above the mean of the beliefs about parental social support. The results revealed that the association between girls’ competence perceptions and enjoyment was moderated by the beliefs about parental social support. When parental social support was low, girls’ competence perceptions were a significant predictor of their enjoyment (\( \beta = 0.47, p < 0.01 \)), whereas when parental social support was high, children’s perceptions were not a significant predictor (\( \beta = 0.10, p = 0.10 \)).

4. Discussion

The central purpose of this research was to determine the idea that parents’ social support in school PA is likely to enhance the enjoyment of children who view themselves as lacking the skills to do well in PA. Both concurrent and longitudinal analyses were conducted for the research purpose. We found that beliefs about parental social support were directly associated with children’s PA enjoyment. Because enjoyment of PA is one of the most stable psychological constructs related to long-term PA behaviors, it is reasonable to postulate that the role of parents in children’s in-school PA is critical. Parental social support may be particularly beneficial for children who lack perceived competence. Compared to their counterparts who held high competence, children who participate in school PA with low perceived competence need more interpersonal support from their parents.

In accord to Ecological Systems Theory, findings in this study support that multiple levels of factors can work together to influence children’s health behaviors including both physical and social environments. Family and community engagement, as specific interpersonal components, are indispensable for the success of comprehensive school PA programs. Understanding the impact of parents and intentionally engaging parents in decision making could lead to enhanced school PA.

First of all, consistent with cognitive theories of motivation, we hypothesized that perceived competence would be positively associated with in-school PA enjoyment. The results from both concurrent and longitudinal analyses supported this hypothesis. Children with low competence perceptions are less likely to enjoy PA than are their counterparts who hold high perceptions. Although researchers have found significant associations between perceived competence and in-school PA enjoyment, to our knowledge, this study is one of few that have tested the association using both concurrent and longitudinal data. The findings support previous calls targeting perceived competence in intervention work aimed at increasing PA enjoyment among school-aged children.

Second, we hypothesized that children with low perceived competence would be more likely to benefit from strong parental social support. This hypothesis was partially supported. We found that the relationship between perceived competence and ongoing enjoyment over 8 months, adjusting for their earlier functioning, was complicated by an interaction with children’s belief about parental social support. Specifically, the influence of the interaction on children of both genders who had higher levels of perceived competence was not significant. Strong competence perceptions resulted in high enjoyment in school PA. However, differences emerged between boys and girls with lower levels of perceived competence. Parents’ socially supportive practices with children who perceive their competence low may represent a sensitive response to such children’s difficulty with in school PA. 

For boys, after adjusting for earlier enjoyment and controlling perceived competence, their beliefs about parental social support still predicted the ongoing enjoyment, indicating a unique and independent role of parental social support in nurturing boys’ enjoyment in school PA. Their beliefs about parental social support could facilitate enjoyment in school PA. 

For girls, beliefs about parental social support and perceived competence were intertwined together. The significant negative interaction between the beliefs and perceived competence and follow-up analyses indicated parental social support in the
context of providing assistance predicted enjoyment more strongly among girls who perceived their competence low than among those who perceived it high. The beliefs about parental social support were particularly helpful in enhancing the enjoyment of girls who viewed themselves as lacking the skills to do well in school PA. Further, as the belief of parental social support increased, girls’ competence perceptions were less likely to foreshadow their ongoing enjoyment. When the beliefs of parental social support were low, girls’ competence perceptions predicted their enjoyment adjustment, but when beliefs of parental social support were high, this was not the case. To some extent, beliefs about parental social support could compensate the negative effects of low perceived competence to enhance girls’ enjoyment and involvement in school PA.

School PA is considered a social context in which gender stereotyped expectations are alive and the gender appropriate values are well preserved in the process of involvement. Social and cultural traditions are significant forces that shape and reshape gender stereotype of PA. The gender difference in the interactive relationships between parental social support and perceived competence might reflect such shaping and reshaping processes. Unlike boys, girls might be more likely to consider participation in school PA as a whole and integrate parental expectations and value with their interestingness in tasks. High social support from parents might help girls positively negotiate their gender positions in school PA and strengthen girls to feel PA inspiring.

There are several limitations to the current study. First, we measured children’s beliefs about parental social support as an undifferentiated construct based on the developmental characteristics of younger children. Nevertheless, it is likely that different types of social support (e.g., instrumental, emotional, informational support, etc.) may have different influences on children’s PA. Therefore, testing the impact of parental socialization with multiple types of support is needed. Second, although many researchers support enjoyment as a proximal motivator of PA, it is important to investigate broad outcomes in school PA. Knowledge and skill acquisition, objective PA levels, and after-school activities are suggested. Third, because the primary focus of this study was on the interaction between perceived competence and beliefs about parental social support, we did not include other motivation constructs (e.g., parental supportive climate, parental expectancy, etc.) in our analyses. Future researchers may integrate other motivation constructs into a model to further understand the influence of parental socialization. Finally, reliance on self-report data by children might bias the results due to social expectations and the possibility of recall errors. Obtaining parents’ reports would complement children’s perceptions to have the results more comprehensive.

5. Conclusion

Overall, the current research takes a significant step toward uncovering the role of parents’ socialization in children’s in-school PA. The current findings are consistent with the idea that when parents use encouragement and provide opportunities and experiences for their children, children can develop stronger PA motivation. It is suggested that family socialization factors should be taken into consideration when designing effective intervention strategies that enhance children’s PA in school. The findings support the importance to increase parents’ capacity of providing social support for enhancing children’s in-school PA. Particularly, the efficacy of individual- and community-level strategies should be included and evaluated. In this vein, there is a need for the development of innovative approaches to not only educating parents about their roles but also explicitly teaching them how to effectively use their influence to achieve the best outcomes for their children.

Physical education teachers should understand “marketing” and know how to advocate parents to increase school PA. Teachers can intersect with parents in many ways, such as presentations at parent/teacher conferences and school board meetings, hosting family fitness nights, sending regular correspondence to parents about the program and healthy living education. Also, implementing healthy living homework for students to complete with their parents/guardians has been shown to be effective in enhancing parental engagement.

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Authors’ contributions

BS designed the study and the instrument, analyzed the data and wrote the first draft; CE, GA assisted with study design; MJ, KN, and SC assisted with data collection and preparation of the manuscript. All authors have read and approved the final version of the manuscript, and agree with the order of presentation of the authors.

Competing interests

None of the authors declare competing financial interests.

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