

## Parents' perceptions and engagement regarding school-based physical activity promotion

Webster, Collin A.; McLoughlin, Gabriella; Starrett, Angie; Papa, Jillian; Erwin, Heather; Reed, Julian A.; Carson, Russell L.; Burgeson, Charlene

DOI:

[10.1177/08901171211020987](https://doi.org/10.1177/08901171211020987)

License:

None: All rights reserved

*Document Version*

Peer reviewed version

*Citation for published version (Harvard):*

Webster, CA, McLoughlin, G, Starrett, A, Papa, J, Erwin, H, Reed, JA, Carson, RL & Burgeson, C 2021, 'Parents' perceptions and engagement regarding school-based physical activity promotion', *American Journal of Health Promotion*, vol. 35, no. 8, pp. 1125-1128. <https://doi.org/10.1177/08901171211020987>

[Link to publication on Research at Birmingham portal](#)

### **Publisher Rights Statement:**

This is an accepted manuscript version of an article first published in American Journal of Health Promotion. The final version of record is available at <https://doi.org/10.1177/08901171211020987>

### **General rights**

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

### **Take down policy**

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact [UBIRA@lists.bham.ac.uk](mailto:UBIRA@lists.bham.ac.uk) providing details and we will remove access to the work immediately and investigate.

## Abstract

**Purpose:** This study examined parents' perceived importance of, and engagement in, school-based physical activity (PA) promotion.

**Design:** A cross-sectional, quantitative survey design was employed.

**Setting:** The survey was conducted in the United States.

**Subjects:** Using a probability-based panel (AmeriSpeak®), a national sample of 3599 parents was randomly recruited to participate in the survey and 1015 participants (28.2%) completed it. Parents or legal guardians of children enrolled in K-12 during the 2017-2018 school year were eligible to participate.

**Measures:** The survey was developed and distributed by a national collaborative for active schools with the support of a national research center.

**Analysis:** Data were analyzed using structural equation modeling and path analysis.

**Results:** The data supported a six-factor solution encompassing perceived importance of PA before, during, and after school, communication with administrators, and volunteering and participating in school-based PA (CFI=.974, RMSEA=.034, SRMR=.056). Path coefficients from perceived importance of PA before/after school to current ( $\beta = .43$ ; 95%CI[.25, .61]) and future communication with administrators ( $\beta = .40$ ; 95%CI[.23, .55]) were statistically significant, as were coefficients from perceived importance of PA before/after school to past ( $\beta = .60$ ; 95%CI[.35, .83]) and current volunteering/participating in school-based PA ( $\beta = .63$ ; 95%CI[.42, .85]).

**Conclusion:** Parents' perceived importance of school-based PA opportunities before and after school warrants emphasis in future research and advocacy.

## Purpose

Physical activity (PA) has numerous benefits for school-aged youth.<sup>1</sup> However, less than one quarter (24%) of children ages 6-17 meet the United States PA guideline of accumulating at least 60 minutes of PA each day.<sup>2</sup> Schools are widely recognized as a key setting for promoting PA, particularly through multicomponent approaches that draw upon the support of not just school professionals but also families and communities.<sup>3</sup>

The present study explored parents' perceptions about and engagement in school-based PA promotion. Although there are multiple examples of how parents might be engaged in promoting school-based PA (e.g., communicating with school administrators to inform decisions about PA opportunities, volunteering for PA events),<sup>4</sup> little is known about factors associated with such engagement. One factor that could be influential is parents' perceived importance of school-based PA promotion.<sup>5, 6, 7</sup> This idea is consistent with a well-established literature supporting the connection between individuals' beliefs (e.g., attitudes) and behaviors.<sup>8</sup> As attitudes are malleable<sup>9</sup>, identifying links between parents' perceptions and engagement regarding school-based PA promotion is an important step in creating effective intervention strategies to increase parent engagement. Therefore, this study examined associations between parents' perceived importance of, and self-reported engagement in school-based PA promotion.

## Methods

### Design

This study employed a cross-sectional, quantitative survey design.

47 **Sample**

48 A national sample of parents or legal guardians in the United States, whose children were  
49 enrolled in school (Kindergarten – Grade 12) during the 2017-2018 school year, participated in  
50 this study. Participants were randomly recruited from a probability-based panel (AmeriSpeak®),  
51 which provides sample coverage of approximately 97% of the U.S. household population. In  
52 total, 3599 parents were invited to participate by completing a web-based survey. A participation  
53 incentive equal to \$3 U.S. was provided during the recruitment process. In all, 1015 participants  
54 (28.2%) representing all 50 states and the District of Columbia completed the survey.  
55 Poststratification was used to adjust for any survey nonresponse as well as any noncoverage or  
56 under- and oversampling resulting from the study-specific sample design. Post-stratification  
57 variables included age, gender, census division, race/ethnicity, and education. Weighting  
58 variables were obtained from the 2018 Current Population Survey.

59  
60 **Measures**

61 The survey was developed by Active Schools, which is a national collaborative for promoting  
62 physically active schools, with the support of the non-partisan and objective research  
63 organization, National Opinion Research Center (referred to as NORC), at the University of  
64 Chicago. The survey was piloted via 34 web-based parent interviews with a 94.9% completion  
65 rate. The final survey contained 6 screener questions and 68 items and was distributed by NORC  
66 in 2018 (summer). Prior to completing the survey, participants were presented with written  
67 detailed elements of informed consent and assured that their answers would be kept confidential.  
68 Ethics approval to conduct this research was obtained by the NORC Institutional Review Board  
69 (approval #18.07.17NF).

70  
71 **Analysis**

72 Data were analyzed using structural equation modeling and path analysis in Mplus version 8.4.  
73 First, an acceptable measurement model was developed based on the two-index approach with  
74 the requirements of a Comparative Fit Index (CFI) higher than 0.95 or a Root Mean Square Error  
75 of Approximation (RMSEA) lower than 0.06 combined with a Standardized Root Mean Square  
76 Residual (SRMR) lower than 0.09.<sup>10</sup> Second, the first-order measurement model was compared  
77 to a second-order measurement model using a chi-square difference test. Third, the path analysis  
78 model was run with the weighted least squares mean and variance adjusted (WLSMV) estimator  
79 and bootstrapping the standard errors. Since the items were either binary or ordinal, the WLSMV  
80 estimator was used for greater power and control of Type I errors.<sup>11</sup> Bias-corrected, bootstrapped  
81 confidence intervals were computed for path coefficients. Missing data were handled with full-  
82 information maximum likelihood estimation in Mplus. All paths were predicted to be positive.

83  
84 **Results**

85 The first-order measurement model constituted six factors. The first factor was labeled *Attitude*  
86 *During School*. It encompassed four variables mainly focusing on parents' perceived importance  
87 of access to opportunities for physical education and other PA opportunities during school (e.g.,  
88 classroom-based PA, recess). The second factor, labeled *Attitude Before/After School*, comprised  
89 six variables that primarily focused on parents' perceived importance of access to opportunities  
90 for PA before and after school (e.g., safe walking/biking to school, PA opportunities aside from  
91 interscholastic sports). The third and fourth factors were labeled *Advocacy Now* and *Advocacy*  
92 *Past*. Eight variables represented each factor, which focused on parents' communication with the

93 school administration in the current (when the survey was administered) and past three years  
94 about issues such as allocated time for school-based PA, PA equipment provisions, and PA  
95 promotion professional development for teachers. Finally, the fifth and sixth factors, each  
96 represented by 12 variables, were labeled *Involvement Now* and *Involvement Future*. These  
97 factors focused on volunteering/participation in school-based PA in the current year and interest  
98 in helping with school-based PA if new opportunities are offered. Examples of parent  
99 involvement included observing/participating in physical education, volunteering to help with  
100 school-based PA opportunities, and helping to secure funds for school-based PA.

101  
102 Global fit indices demonstrated that the model provided acceptable fit to the data, based on  
103 established recommendations.<sup>10, 12</sup> The CFI was .974, the RMSEA was .034 (90%CI: [.032,  
104 .036]), and the SRMR was .056. Significance tests showed that each factor loading was  
105 significantly different from zero,  $p > .001$ . The size of each standardized factor loading ranged  
106 from .43 to .98,  $Mdn = .85$ . Reliability estimates for the manifest indicators ranged from .18 to  
107 .96,  $Mdn = .72$ .<sup>13</sup> For the six factors, composite reliability indices ranged from .86 to .98.<sup>14</sup>  
108 Variance-extracted estimates ranged from .55 to .89<sup>14</sup>, showing all six factors had convergent  
109 validity. The maximum shared variance occurred between the two advocacy factors (0.86). The  
110 average variance explained by these two factors was greater than this correlation between the  
111 factors, showing that the advocacy factors had discriminant validity. The four other factors failed  
112 to show discriminant validity since their average variance explained was below 0.86.

113  
114 The second-order measurement model considered if each set of latent variables was represented  
115 by a higher order latent variable. Global fit indices showed acceptable fit to the data; however,  
116 compared to the first model, the second model did not fit the data as well ( $\chi^2 = 61.108$ ,  $df = 5$ ,  $p$   
117  $< .001$ ). Therefore, the original model was used for the path analysis. For the path model, the  
118 SRMR was .056, the RMSEA was .034, and the CFI was .974, satisfying recommended  
119 criteria.<sup>13, 15</sup> Next,  $R^2$  statistics were considered for the endogenous variables. The model  
120 accounted for 22% of the variance in Involvement Now and 27% of the variance in Involvement  
121 Future. Similarly, the model accounted for 28% of the variance in Advocacy Now and 23% in  
122 Advocacy Past. Involvement Now was positively influenced by Attitude Before/After School ( $\beta$   
123  $= .43$ ; 95%CI[.25, .61]), and Involvement Future was positively influenced by Attitude  
124 Before/After School ( $\beta = .40$ ; 95%CI[.23, .55]). Additionally, Advocacy Now was positively  
125 influenced by Attitude Before/After School ( $\beta = .63$ ; 95%CI[.42, .85]), and Advocacy Past was  
126 positively influenced by Attitude Before/After School ( $\beta = .60$ ; 95%CI[.35, .83]).

127

128

## Discussion

129

### Summary

130

131

132

133

134

135

136

137

138

This study explored parents' perceived importance of, and engagement in school-based PA promotion. A survey was developed specific to this study and administered to a national sample of parents in the U.S. Psychometric analysis of the survey items supported the existence of six factors. Two of the factors – Attitude During School and Attitude Before/After School – focused on parents' perceived importance of school-based PA. The other four factors – Advocacy Now, Advocacy Past, Involvement Now, and Involvement Future – focused on parents' engagement in promoting school-based PA. The path analysis showed Attitude Before/After School was significantly associated with all four engagement factors but Attitude During School was not significantly associated with any of the engagement factors. Therefore, parents' perceived

139 importance of school-based PA opportunities before and after school warrants emphasis in future  
140 research.

141

### 142 **Limitations**

143 The results of this study are limited by the use of self-reports to measure parents' engagement in  
144 school-based PA promotion. Future investigations should endeavor to collect observational data  
145 that provides more objective evidence of parent engagement and enriches conceptualizations of  
146 such engagement for research and practice. As this study was exploratory, additional research is  
147 also needed to further develop the survey instrument in alignment with established theories and  
148 measurement practices that can increase the potential for cross-study comparisons within this  
149 important line of inquiry. For instance, there is a long history of research on attitudes and their  
150 relationship to behaviors.<sup>8,9</sup> Drawing from this literature to identify key attitude components and  
151 recommended scales would help to yield results that can be better integrated into attitude theory  
152 and considered in relation to the constructs examined in other studies. Increasing the theoretical  
153 and methodological consistency across studies would in turn strengthen the empirical basis that  
154 should be used to inform the work of translating research to practice.

155

### 156 **Significance**

157 This study is significant because it is one of the first to examine associations between parents'  
158 perceptions and engagement in relation to school-based PA promotion. Multicomponent PA  
159 interventions have been minimally effective at increasing the total daily PA of youth.<sup>15</sup> Common  
160 among these interventions was the inclusion of family and community engagement as a targeted  
161 component, suggesting that existing efforts to increase family or community engagement in  
162 school-based PA initiatives are largely ineffectual. This limitation of previous interventions is  
163 particularly problematic amid the pivot to at-home learning and reduced access to school-based  
164 PA opportunities during the COVID-19 pandemic. The present study helps to address a gap in  
165 the knowledge base concerning the factors associated with parents' engagement in promoting  
166 PA. Based on the results, incorporating intervention strategies (e.g., educational sessions,  
167 targeted communication) that aim to increase parents' perceived importance of before and after  
168 school PA opportunities may be an effective means toward increasing parents' engagement in  
169 promoting such opportunities.

170

171

## SO WHAT?

### 172 **What is already known on this topic?**

173 Parents are an important intervention target in efforts to increase the daily PA of youth through  
174 school programming.<sup>3,4</sup>

175

### 176 **What does this article add?**

177 This study demonstrates that parents' perceived importance of PA opportunities before and after  
178 school may be an important focus in future interventions to increase youth PA.

179

### 180 **What are the implications for health promotion practice or research?**

181 School professionals (e.g., physical education teachers, classroom teachers, principals) and  
182 researchers should collaborate to develop strategies that foster parents' positive perceptions of  
183 before and after school PA opportunities. For example, physical education teachers might  
184 explain to parents the added value such opportunities bring to youth PA promotion, given limited

185 curriculum time for physical education lessons. Intervention studies that test the effects of  
186 strategies targeting parents' perceptions of school-based PA, and the subsequent influence of  
187 these perceptions on parents' PA promotion, are needed.

### 188 **Declaration of Conflicting Interests**

189 The authors declare that there is no conflict of interest.

### 191 **Funding**

192 The authors disclosed receipt of the following support for the research, authorship, and/or  
193 publication of this article: This work was supported by Nike [there is no grant number associated  
194 with this funding].

### 196 **References**

- 197 1. Physical Activity Guidelines Advisory Committee. 2018 Physical Activity Guidelines  
198 Advisory Committee Scientific Report. Washington, DC: US Dept of Health and Human  
199 Services; 2018.
- 200 2. The Child & Adolescent Health Measurement Initiative (CAHMI). 2016 National Survey of  
201 Children's Health. Data Resource Center for Child and Adolescent Health; 2016.
- 202 3. Centers for Disease Control and Prevention. Increasing physical education and physical  
203 activity: A framework for schools. Atlanta, GA: Centers for Disease Control and Prevention, US  
204 Department of Health and Human Services; 2019.
- 205 4. Egan CA. Family and community involvement to increase physical activity as part of a  
206 CSPAP. *JOPERD*. 2019; 90(1): 39-45.
- 207 5. ChanLin L. Perceived importance and manageability of teachers toward the factors of  
208 integrating computer technology into classrooms. *Innovations in Education and Teaching  
209 International*. 2007;44(1): 45-55.
- 210 6. Laffrey SC, Isenberg M. The relationship of internal locus of control, value placed on health,  
211 perceived importance of exercise, and participation in physical activity during leisure. *Int J Nurs  
212 Stud*. 1983; 20(3). 187-196.
- 213 7. Wojcicki TR, Szabo AN, White SM, Mailey EL, Kramer AF, McAuley E. The perceived  
214 importance of physical activity: Associations with psychosocial and health-related outcomes. *J  
215 Phys Act Health*. 2013; 10(3): 343-349.
- 216 8. Fishbein M, Ajzen I. Predicting and changing behavior: The reasoned action approach. 2010;  
217 Psychology Press.
- 218 9. Silverman S. Attitude research in physical education: A review. *JTPE*. 2017; 36(3): 303-312.
- 219 10. Hu LT, Bentler, PM. Cutoff criteria for fit indexes in covariance structure analysis:  
220 Conventional criteria versus new alternatives. *Struct Equ Modeling*. 1999; 6(1): 1-55.
- 221 11. Bandalos DL. Relative performance of categorical diagonally weighted least squares and  
222 robust maximum likelihood estimation. *Struct Equ Modeling*. 2014; 21(1): 102-116.
- 223 12. Mueller RO, Hancock GR, Osborne J. Best practices in quantitative methods. *Best practices  
224 in structural equation modelling*. 2008; Thousand Oaks, CA: Sage Publications, Inc, 488-508.
- 225 13. Long JS. Confirmatory factor analysis: A preface to LISREL. 1983; Beverly Hills: Sage.
- 226 14. Fornell C, Larcker DF. Evaluating structural equation models with unobservable variables  
227 and measurement error. *Journal of Marketing Research*, 1981; 18(1): 39-50.

230 15. Russ LB, Webster CA, Beets MW, Phillips DS. Systematic review and meta-analysis of  
231 multicomponent interventions through schools to increase physical activity. *J Phys Act Health*.  
232 2015; 12(10): 1436-1446.