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

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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 (β = .43; 95%CI[.25, .61]) and future communication with administrators (β = .40; 95%CI[.23, .55]) were statistically significant, as were coefficients from perceived importance of PA before/after school to past (β = .60; 95%CI[.35, .83]) and current volunteering/participating in school-based PA (β = .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.[1] 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.[2] 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.[3]

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),[4] little is known about factors associated with such engagement. One factor that could be influential is parents' perceived importance of school-based PA promotion.[5, 6, 7] This idea is consistent with a well-established literature supporting the connection between individuals' beliefs (e.g., attitudes) and behaviors.[8] As attitudes are malleable[9], 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.

Sample

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

Measures

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

Analysis

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

Results

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

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

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

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

Discussion

Summary

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

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

Limitations

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

Significance

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

SO WHAT?

What is already known on this topic?

Parents are an important intervention target in efforts to increase the daily PA of youth through school programming.[3, 4]

What does this article add?

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

What are the implications for health promotion practice or research?

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

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

Declaration of Conflicting Interests

The authors declare that there is no conflict of interest.

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