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Research Article

Maternal Self-Efficacy and Perceived Barriers in Pediatric Overweight and Obesity

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Abstract

Maternal self-efficacy (SE) to support child eating and activity patterns of youth who are overweight/obese is an understudied topic, despite the key role of parents in influencing youth access to healthy eating (HE) and physical activity (PA). This study described SE and perceived barriers to HE and PA among mothers of youth with overweight/obesity and examined relationships between maternal SE and barriers to HE and PA. 222 mother-child dyads with youth with overweight/obesity from clinic or community weight management programs participated. Maternal SE was high overall, but SE to support HE was lowest when the mother would not be present to assist in making healthy choices. PA barriers were more common than HE barriers and included lack of time, environmental constraints, and youth weight-related barriers. Higher maternal SE was associated with fewer perceived barriers to HE or PA; however, no relationships emerged between SE or perceived barriers and behavioral outcomes. Future research should address relationships between maternal SE and perceived barriers to HE and PA to positively impact youth weight status.

Keywords:

Barriers; Obesity; Overweight; Pediatrics; Self-Efficacy

Abbreviations

SE: Self-Efficacy;

HE: Healthy Eating;

PA: Physical Activity

Introduction

Obesity is an epidemic affecting approximately 17% of American youth aged 2-18 [1]. Worldwide, approximately one in every ten school-aged children are overweight/obese [2]. Intervention efforts aimed at youth are imperative, since 70% of obese youth will become obese adults [3].

Few studies have examined the impact of maternal self-efficacy (SE) on youth healthy eating (HE) or physical activity (PA), even though SE is a well-documented correlate of other health-promoting behaviors. SE is confidence in one's ability to translate knowledge of healthy behaviors to action [4]. In pediatric overweight/obesity, maternal SE refers to mothers' perceived confidence in their ability to help their children engage in health-promoting behaviors. One recent qualitative study coded mothers' conversation during a focus group about the challenges of raising an overweight/obese child [5]. Mothers identified the following challenges: denying children food, juggling other duties, limiting food intake, and withholding unhealthy foods. These findings may reflect issues related to lack of parental assertiveness or low SE. However, additional research is needed to examine the generalizability of these findings.

Lower SE may result in the perception of more barriers to behavior change [4]. Research examining parent-perceived barriers to helping children eat healthy has revealed barriers in the following domains: child's food preferences; insufficient time to prepare healthy meals; cost of healthy foods; advertisements for unhealthy foods; limited availability of fresh produce; and poor modeling of HE behaviors by family and friends [6-9]. Parental perceived barriers related to helping children engage in PA have included: peer pressure to engage in sedentary behaviors and lack of strategies to encourage PA [10]. Although barriers to HE and PA have been described in past literature, no studies have examined the relationship between SE and barriers. Establishing that low SE is associated with increased parental barriers to behavior change is imperative insofar as enhancing SE may ultimately reduce these barriers.

In addition, documenting the role of parent SE in facilitating youth HE and PA is an important but understudied topic. However, several studies support the importance of parent involvement/support (a construct related to but not synonymous with SE) in facilitating youth health-related behaviors [11-16]. These studies have demonstrated that parental involvement/support are significantly associated with: youth PA, sedentary activity, and healthy eating, especially during family meals.

The current study sought to further explore the relationships between the aforementioned factors in a sample of mothers of youth with pediatric overweight/obesity participating in outpatient weight management programs. We aimed to describe maternal SE related to youth PA and HE and to describe mater-

nal perceived barriers to youth PA and HE. Second, we aimed to examine associations between maternal SE and perceived barriers to HE and PA. We expected that higher SE would be associated with fewer perceived barriers. Finally, we sought to examine associations between maternal SE and youth health-related behaviors. We expected higher maternal SE to be associated with more frequent youth PA, fewer youth sedentary behaviors, and more frequent family meals.

Materials and Methods

Procedures

Data were taken from a prospective longitudinal study of youth participating in clinic or community weight management programs at a Midwestern Children's Hospital between March 2008 and March 2009.

Clinic procedure

Parents/guardians provided written informed consent for their own and their child's participation during a clinic visit. Written informed assent was obtained from children 7-17 years, and 18-year-olds provided written consent. Baseline information was recorded from questionnaires completed during the initial evaluation (i.e., before families began the program). Participants' medical records were reviewed to obtain medical information, nutritional habits, activity patterns, and anthropometrics.

Community procedure

Consent/assent procedures for the community sample were the same as described above. Information gathered from program sources included: referral information from primary care physicians; program questionnaires and fitness testing records (both completed prior to program onset).

Participants

The sample was comprised of mother-youth dyads referred by their pediatricians to either a community or clinic weight management program. Since participants were referred from multiple primary care clinics, referral rates to the program are not available. However, all families approached for participation in the current study consented to participate.

Eligibility criteria included: active status in community (BMI at or above the 85th percentile) or clinic (BMI at or above the 95th percentile) weight management programs; parent/guardian willing to participate; English-speaking families; and youth aged 2-18 years. Children with cognitive delay that would preclude comprehension of questionnaires were excluded. For current data analyses, participants were excluded if: diagnosed with a condition associated with abnormal growth patterns (e.g., Down's syndrome), or if maternal reports were absent.

Only one parent was required to complete clinical questionnaires, and paternal reports were available in very few cases. Thus, father-child dyads were excluded from the current analyses given possible differences between mother and father perceptions [17] and our inability to examine differences in mothers and fathers perceptions given the small number of fathers.

222 mother-child dyads were included in the analyses ($n = 96$ clinic; $n = 126$ community). Mean age of children was 10.76 years ($SD = 3.11$ years; range 2-17 years). Mean age of mothers was 38.17 years ($SD = 7.73$ years; range 24-61 years). The sample of youth was 59% female, 41% male, 40% African American, 37% Caucasian, 8% Latino, 8% Biracial, and 7% Other.

Constructs and measures

Demographic information

Demographic information was collected using a questionnaire developed for program use.

Anthropometrics

Height and weight were recorded by research assistants at the initial evaluation, prior to beginning the program. The average of three separate readings was recorded.

Maternal PA SE ratings

Mothers completed a modified version of the Physical Activity Self Efficacy Questionnaire, [18] adapted with permission from the developers of the original youth-report version. Questions were modified to allow mothers to report their level of confidence in helping their child engage in PA. For example, rather than responding to the original item ("I can be physically active during my free time on most days"), the question was altered to assess maternal SE ("I can help my child be physically active during free time on most days"). The maternal-report consisted of 8 items rated on a Likert scale from 1 "strongly agree" to 5 "strongly disagree," with higher scores reflecting lower SE. The internal consistency for the modified version was high ($\alpha = 0.86$).

Maternal HE SE ratings

Mothers completed a modified version of the Healthy Eating Self Efficacy Questionnaire, [19] adapted with permission from the developers of the original youth-report version. Questions were modified to allow mothers to report their level of confidence in helping their child engage in HE. For example, rather than responding to the original item ("I can make healthy eating choices when I am at the mall"), the question was altered to assess maternal SE ("I can help my child make healthy eating choices when we are at the mall"). The maternal-report consisted of 9 items rated on a Likert scale from 1, "strongly

agree," to 5, "strongly disagree," with higher scores reflecting lower SE. The internal consistency for the modified version was excellent ($\alpha = 0.92$).

Perceived barriers to PA

Mothers completed an adapted version of the Barriers to Physical Activity Questionnaire, [20] created with permission from the developers of the original youth-report version. Questions were modified to allow mothers to report their perception of barriers related to their child's PA. For example, rather than responding to the original item ("I am self conscious about my looks when doing physical activity"), the question was altered to assess maternal perceived barriers ("My child is self conscious about his/her looks when doing physical activity"). The maternal-report questionnaire consisted of 21 items rated on a Likert scale from 1, "never," to 5, "very often," with higher scores reflecting more perceived barriers. Internal consistency was excellent ($\alpha = 0.93$).

Perceived barriers to HE

Mothers completed an adapted version of the Barriers to Healthy Diet Questionnaire, [21] created with permission from the developers of the original youth-report version. Questions were modified to allow mothers to report their perception of barriers related to their child's HE. For example, rather than responding to the original item ("Healthy food choices are not available at my school"), the question was altered to assess maternal perceived barriers ("Healthy food choices are not available at my child's school"). The maternal-report questionnaire consisted of 26 items rated on a Likert scale from 1, "strongly disagree," to 5, "strongly agree," with higher scores reflecting more perceived barriers. Internal consistency was high ($\alpha = 0.84$).

Number of family meals

Mothers responded to the question, "How many days a week does your family eat a meal together at the table?"

Sedentary activity

Mothers responded to the question, "In total, how many hours a day does your child watch TV, play videogames, use the computer or talk on the phone?"

PA level

Mothers responded to the question, "How many days a week is your child physically active outside of school time, for a total of at least 60 minutes (Examples: walking, running, swimming, playing basketball, dancing, playing outside, or bike riding.)?"

Analytic Plan

Preliminary analyses were conducted to summarize sample demographic information and to identify any issues related to non-normal distributions of study variables. Data transformations were used as needed to improve normality for parametric analyses.

To describe maternal SE and perceived barriers to PA and HE, means, medians, and standard deviations for the entire sample's scores on maternal-report measures were calculated. In addition, frequency analyses were conducted at the item level to examine the proportion of mothers who endorsed high SE (defined as ratings of "strongly agree" or "agree") versus low SE (defined as ratings of "strongly disagree," "disagree," or "unsure") for a given item. Similarly, frequency analyses were conducted to examine the percentage of mothers endorsing specific barriers.

To examine the relationship between maternal SE scores and maternal perceived barriers, two Pearson correlations were conducted. The relationships that were examined were as follows: (1) Maternal PA SE score and Barriers to PA score, and (2) Maternal HE SE score and Barriers to HE score.

Finally, to examine the relationship between maternal SE scores and youth health-promoting behaviors, three Pearson correlations were conducted. The relationships that were examined were: (1) Maternal PA SE score and child's PA (measured in days per week active for more than 60 minutes), (2) Maternal PA SE score and child's screen time (measured in hours per day), and (3) Maternal HE SE score and number of family dinners.

Results

Descriptive information is presented in Table 1. Several variables had non-normal distributions and were resolved with the following transformations: Maternal PA SE (logarithmic), Maternal HE SE (logarithmic), sedentary activity (inverse), and number of family dinners (square root). Due to non-normal distributions, medians are presented.

Variable	<i>M</i>	<i>SD</i>	<i>Mdn</i>	Interquartile Range
Age (Youth)	10.8	3.1	11.0	9.0 – 13.0
Age (Mothers)	38.2	7.7	38.0	33.0 – 43.0
PA (days per week active for > 60 minutes)	2.3	1.5	2.0	1.0 – 3.8
Sedentary activity (hours per day)	3.4	1.1	4.0	3.0 – 4.0
Family Dinners (times per week)	3.1	1.6	4.0	2.0 – 4.0
Maternal PA SE	2.2	0.7	2.1	1.9 – 2.5
Maternal HE SE	2.2	0.7	2.1	1.9 – 2.6
Barriers to PA	2.7	0.7	2.8	2.3 – 3.2
Barriers to HE	2.5	0.5	2.5	2.2 – 2.9

¹Non-transformed values

Note: SE = Self Efficacy, PA = Physical Activity, HE = Healthy Eating, *N* = 222

Table 1. Sample Descriptive Statistics¹.

Maternal PA & HE SE

Median levels of maternal SE for PA and HE were high across both samples (*Mdn* = 2.13 clinic, 2.11 community), reflecting that the mother was confident in her ability to support the child in the given domain. See Table 2 for additional descriptive information. No significant between-group differences in maternal SE for PA [$t(154) = -0.03, p = 0.979$] or HE [$t(154) = 0.85, p = 0.396$] were found between community versus clinic participants. For PA SE, the following items were lowest across the sample: "I can help my child be physically active during free time on most days no matter how busy our day is" (87.8% low SE), "I can help my child ask a friend to be physically active with him/her during free time on most days" (84.6%), and "My child has the coordination s/he needs to be physically active during free time on most days" (77.6%). For HE SE, the following items were lowest across the sample: *I can help my child make HE choices when* "my child is alone" (51.3%), "he/she is with friends" (44.2%), and "my child is at a fast food restaurant" (28.8%).

Item	<i>N</i> (%) Reporting High SE ¹	<i>N</i> (%) Reporting Low SE ²
Physical Activity		
<i>I can:</i>		
1. Help my child be physically active during free time on most days	132 (84%)	24 (16%)
2. Be physically active with my child when he or she asks me to	124 (79.5%)	32 (20.5%)
3. Help my child be physically active during free time on most days even if we could watch TV or play video games instead	40 (25.6%)	116 (74.4%)
4. Help my child be physically active during free time on most days even if it is very hot or cold outside	100 (64.1%)	56 (35.9%)
5. Help my child ask a friend to be physically active with him/her during free time on most days	24 (15.4%)	132 (84.6%)
6. Help my child be physically active during free time on most days even if we have to stay home	129 (82.7%)	27 (17.3%)
7. My child has the coordination s/he needs to be physically active during free time on most days	35 (22.4%)	121 (77.6%)
8. Help my child be physically active during free time on most days no matter how busy our day is	19 (12.2%)	137 (87.8%)
Healthy Eating (HE)		
<i>I can help my child make HE choices:</i>		
1. When we are at the mall	128 (82.1%)	28 (17.9%)
2. When he/she is with friends	87 (55.8%)	69 (44.2%)
3. When my child is feeling stressed	117 (75.0%)	39 (25.0%)
4. When my child is feeling down	115 (73.7%)	41 (26.3%)
5. When my child is feeling bored	118 (75.6%)	38 (24.4%)
6. When my child is at a fast food restaurant	111 (71.2%)	45 (28.8%)
7. After school	131 (84.0%)	25 (16.0%)
8. When my child is alone	76 (48.7%)	80 (51.3%)
9. During family dinners	138 (88.5%)	18 (11.5%)

¹High SE: scores of 1 ("strongly agree") or 2 ("agree"); ²Low SE: scores of 3 ("unsure"), 4 ("disagree"), or 5 ("strongly disagree"); SE = Self Efficacy; HE = Healthy Eating; *N* = 222

Table 2. Maternal Self Efficacy Ratings

Maternal barriers to PA & HE

Median levels of maternal barriers to PA (*Mdn* = 2.81) reflected a rating of "sometimes" for endorsement of PA barriers. Median levels of maternal barriers to HE were in the "neutral" range (*Mdn* = 2.54). See Table 3 for additional descriptive information. The most frequently endorsed barriers to PA were:

Item	N (%) Reporting Frequent Barriers ¹	N (%) Reporting Infrequent Barriers ²
Physical Activity (PA)		
1. My child is self-conscious about his/her looks when doing PA	134 (60.9%)	86 (39.1%)
2. My child is not interested in PA	143 (64.7%)	78 (35.5%)
3. Lack of time	141 (64.7%)	77 (35.3%)
4. Child does not have anyone to do PA with him/her	137 (62.3%)	83 (37.7%)
5. Lack of equipment	134 (61.2%)	85 (38.8%)
6. My child has a lack of skill for PA	100 (45.7%)	119 (54.3%)
7. My child has a lack of knowledge on how to do PA	108 (49.1%)	112 (50.9%)
8. Lack of convenient place for my child to do PA	121 (55.3%)	98 (44.7%)
9. My child is too overweight	170 (76.9%)	51 (23.1%)
10. My child's friends don't like PA	109 (50.2%)	108 (49.8%)
11. My child's friends tease him/her during exercise or sports	109 (50.7%)	106 (49.3%)
12. My child is chosen last for teams	115 (55.8%)	91 (44.2%)
13. The weather is too bad	160 (72.7%)	60 (27.3%)
14. My child's homework	117 (55.2%)	95 (44.8%)
15. My child is self-conscious about his/her body when doing PA	149 (68.0%)	70 (32.0%)
16. My child doesn't want people to see his/her body during PA	132 (60.8%)	85 (39.2%)
17. My child does not have anyone at his/her skill level to do PA with him/her	128 (58.2%)	92 (41.8%)
18. My child does not like the way his/her body feels during PA	134 (62.3%)	81 (37.7%)
19. My child thinks PA is too hard	143 (65.3%)	76 (34.7%)
20. My child thinks being active is physically uncomfortable	135 (62.2%)	82 (37.8%)
21. My child thinks that PA is too much work	136 (66.7%)	73 (33.3%)
Healthy Eating		
1. Healthy food choices are not available at my child's school	42 (18.9%)	190 (81.1%)
2. Healthy food choices are not available at home	39 (17.6%)	183 (82.4%)
3. It costs too much to buy healthy food at the store, cafeteria, or restaurant	75 (33.8%)	147 (66.2%)
4. My child doesn't know what foods are healthy to eat	49 (22.1%)	183 (77.9%)
5. My child doesn't know how to cook/bake/prepare healthy foods	102 (46.2%)	119 (53.8%)
6. No one else in the family (besides my child) eats healthy food	36 (16.5%)	182 (83.5%)
7. My child's friends do not eat healthy food	50 (22.7%)	170 (77.3%)
8. No one encourages my child to eat healthy food	21 (9.5%)	201 (90.5%)
9. My child thinks eating healthy food is not cool	23 (10.4%)	198 (89.6%)
10. Adults get on my child's case about how he/she should eat healthy food	99 (44.8%)	122 (55.2%)
11. My child doesn't care about eating healthy food	59 (26.7%)	162 (73.3%)
12. My child doesn't have time to worry about eating healthy or unhealthy foods	22 (10.0%)	198 (90.0%)
13. Healthy foods do not fill my child up	33 (14.9%)	188 (85.1%)
14. My child doesn't think about what he/she is going to eat until right before meal time	46 (38.0%)	75 (62.0%)
15. My child doesn't enjoy the taste of fruits	31 (14.0%)	191 (86.0%)
16. My child doesn't enjoy the taste of vegetables	37 (30.3%)	85 (69.7%)
17. My child doesn't enjoy the taste of healthy foods	41 (18.5%)	181 (81.5%)
18. My child just really enjoys the taste of unhealthy foods	103 (46.6%)	118 (53.4%)
19. My child thinks healthy foods do not look good	38 (17.2%)	183 (82.8%)
20. Our family doesn't know what are healthy foods that we should eat	35 (15.9%)	185 (84.1%)
21. Our family doesn't know how to cook/bake/prepare healthy foods	43 (19.4%)	179 (80.6%)
22. Our family doesn't care about eating healthy foods	16 (7.2%)	106 (92.8%)
23. Our family doesn't have time to worry about eating healthy or unhealthy foods	30 (13.5%)	192 (86.5%)
24. Some people in our family don't enjoy the taste of healthy foods	92 (41.4%)	130 (58.6%)
25. Some people in our family just really enjoy the taste of unhealthy foods	117 (58.5%)	83 (41.5%)
26. Some people in our family think healthy foods do not look good	67 (33.5%)	133 (66.5%)

¹High perceived barriers: scores of 3 ("sometimes"), 4 ("often") or 5 ("very often"); ²Low perceived barriers: scores of 1 ("never"), or 2 ("rarely"); PA = Physical Activity; N = 222

Table 3. Maternal Perceived Barriers.

“My child is too overweight” (76.9% endorsed), “The weather is too bad” (72.7%), and “My child is self-conscious about his/her body when doing PA” (68.0%). The most frequently endorsed barriers to HE were: “Some people in our family just really enjoy the taste of unhealthy foods” (58.5%), “My child just really enjoys the taste of unhealthy foods” (46.6%), and “My child doesn’t know how to cook/bake/prepare healthy foods” (46.2%).

Association between maternal SE & perceived barriers

Maternal PA SE scores were significantly correlated with Barriers to PA scores: $r = 0.31, p < .001$, a medium effect size. Maternal HE SE scores were significantly correlated with Barriers to Healthy Diet scores: $r = 0.44, p < 0.001$, a medium effect size. In both cases, findings were consistent with prediction, such that higher SE was associated with fewer perceived barriers.

Association between maternal SE & health-promoting behaviors

Contrary to prediction, maternal PA SE scores were not correlated with youth PA ($r = -0.03, p = 0.719$) or sedentary activity ($r = 0.04, p = 0.648$). Similarly, maternal HE SE scores were not significantly correlated with frequency of family dinners ($r = 0.06, p = 0.514$).

Discussion

Although SE has been identified as a significant predictor of health-promoting behaviors, little research has examined the role of maternal SE in influencing youth weight-management behaviors. It is important to examine this relationship since children are highly dependent on their parents, and given research suggesting that parental factors significantly impact youth HE and PA [11, 13, 15].

The current findings are informative in several respects. First, median responses for maternal SE for supporting their children in PA and HE indicated generally high SE with a few exceptions. Mothers, on average, reported sometimes experiencing barriers to helping their child be physically active. PA barriers endorsed by a majority of the sample related to child: being overweight, self-conscious or uncomfortable when engaging in PA; lack of motivation; and environmental constraints. In contrast, mothers overall endorsed lower levels of HE barriers. The only item endorsed by over half the sample was, “Some people in our family just really enjoy the taste of unhealthy foods.” These results mirror those obtained from qualitative focus groups with mothers of children with obesity [5]. However, mothers in the current sample endorsed fewer barriers than did participants in the focus group study. This difference may be due to variations in methods of barriers assessment. Specifically, quantitative self-report does not allow participants to spontaneously report additional perceived barriers that may be offered up in

a focus group setting. Additionally, since our sample was limited to mothers seeking treatment for their child's weight-related issues, mothers in our sample may have been more motivated to change and subsequently possess higher SE and fewer perceived barriers than non-treatment seeking mothers. However, this sample is likely representative of a subset of the larger population who were identified as at risk by their pediatricians who followed through with the referral recommendation.

As expected, our findings supported a relationship between higher maternal SE and fewer perceived barriers. However, it should be noted that these findings are cross-sectional in nature, so causality cannot be determined. Thus, although it is possible that higher SE leads to a reduction in perceived barriers, the alternative could also be true. This finding has important implications for clinical work with pediatric overweight/obesity groups. Research indicates that interventions must extend beyond only providing parental support around promoting HE and PA, but should also seek to strengthen and maintain parents' SE in these areas. Interventions that focus on increasing maternal SE related to helping children engage in health-promoting behaviors have the potential to decrease perceived barriers to a healthier lifestyle. In addition, interventions that focus on decreasing perceived barriers to a healthy lifestyle may have the potential to increase maternal SE. In support of this, several intervention studies focused on parental change have documented successful outcomes with respect to child weight-related outcomes. For example, one study had positive outcomes in an intervention study which aimed to reduce children's risk of chronic weight issues by increasing parents' skills and SE in managing children's weight-related behavior [22]. Additionally, an intervention study for parents of preschoolers which targeted the parent-youth dyad's healthy weight via instruction in parenting styles and skills, stress management training, and education about healthy behaviors reported improvements in feeding practices, maternal dietary intake, and changes to home environment [23].

Maternal SE and perceived barriers were expected to correlate significantly with health-related behaviors, given previous research showing similar constructs (e.g., parental support) were positively correlated with youth SE, youth health-related behaviors, and youth PA [4, 11, 13, 15]. Contrary to expectations, no significant relationships were found between maternal SE and health-related behaviors. There are several possible explanations for the lack of findings. First, the limited variability in maternal SE ratings likely made detecting associations between SE and behavioral outcomes more challenging. Alternatively, the construct of maternal SE alone may not be enough to predict health-promoting behaviors due to relevant child-specific factors (i.e., child SE, motivation). Finally, our measures of behavioral outcomes were limited to broad screening items of youth PA, youth sedentary behavior, and family mealtime habits. It is possible that if we had access to more specific measure of PA, sedentary behavior, and eating

habits, a significant relationship may have emerged.

Several limitations of the present study should be acknowledged, as they may be useful areas for future research. At the time the study was undertaken, no parent SE or perceived barriers questionnaires existed. The current adapted measures showed promise with respect to their validity, but additional research should examine whether additional items are needed to fully capture the HE and PA domains relevant to mothers. In addition, the assessment of weight-related health behaviors was conducted based on retrospective maternal report. Future research should utilize objective behavioral measures (i.e., accelerometers) or more frequent measurements (i.e., daily recording of behaviors). Furthermore, research in non-treatment-seeking samples and parents of children with a wider weight range (including healthy weight/underweight) could enhance our understanding of the generalizability of relationships between maternal SE, perceived barriers, and youth health behaviors. Finally, findings were based on correlational analyses, which cannot determine the direction of the relationships or control for potential confounding variables. Future prospective longitudinal studies in this area would allow for more sophisticated analyses that can assess for causality and control for potentially confounding variables.

Conclusion

The current study documented the presence of maternal barriers to PA, as well as relationships between maternal SE and perceived barriers to support youth HE and PA. Based on our findings, interventions should focus on teaching mothers skills to positively impact their child's behaviors in situations where the mother has little physical control and skills to overcome perceived barriers to PA. In addition, many of the barriers endorsed by the mothers in this sample referred to the child feeling self-conscious or uncomfortable engaging in PA. Interventions should focus on providing less threatening environments in which children with overweight/obesity can participate in PA.

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