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Black Children's Perceptions of Parental Support and Parenting Practices: 6-Month Weight Loss and Retention in a Pediatric Weight Management Program

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ABSTRACT

Objective: Black families are less likely to continue in pediatric weight management programs (PWMPs) and have less optimal outcomes. Few studies have examined how parenting practices and perceived support influence Black children's retention and weight loss in PWMPs.

Method: To fill this gap, this study sampled Black children and their parent ($N = 49$) who were participating in a Midwest PWMP to explore how children's reports of parental support and parenting practices at program initiation associate with early weight loss 3- and 6-month and retention at 6-month in the PWMP.

Results: There were no significant findings for the association of children's reports of parenting practices and their perceptions of parents' support for making health changes in the PWMP. However, the findings were in the anticipated direction, with effect sizes ranging from −0.92 to 0.42. Children who reported that their parent was supportive of their behavior change had less weight loss (i.e., increases in BMIz) from baseline to 3 months than those who perceived their parent's as unsupportive or neither supportive or unsupportive ($p = 0.004$). There were no significant correlations between BMIz change at 3 or 6 months and reports of parenting practices.

Conclusion: Additional research and with a larger sample are needed to further understand how parenting practices and support are associated with healthy behavior changes and retention of Black children and families in PWMPs.

1 | Introduction

Obesity is the most prevalent pediatric chronic disease [1, 2], and is associated with the development of multiple chronic health conditions [3] and negative psychosocial outcomes [4]. Obesity rates disproportionally affect non-Hispanic Black families [1], with Black children experiencing obesity at a three times higher rate than their White peers [5]. One of the most significant risk factors for children to develop obesity is the intergenerational risk of having at least one parent with an overweight or obese weight status [6]. Children who have one parent with overweight or obesity are 2–3 times more likely to

also have an overweight or obese weight status [7]. Children are at even greater risk of developing overweight or obesity when they have two parents with obesity [6]. This intergenerational risk is especially relevant when families face additional factors placing them at risk for obesity such as poverty and low socioeconomic status [8].

Children with obesity identified in primary care are often referred for more intensive treatment to Pediatric Weight Management Programs (PWMPs). These programs employ family-based multidisciplinary treatment through the attendance and inclusion of at least one parent, caregiver, or legal adult guardian (referred to as parent herein) [9, 10]. Evidence demonstrates that the more frequent contact families have with PWMPs, the greater success youth have with behavior change and weight loss [10]. Unfortunately, despite concerted efforts to address the increased prevalence of obesity among Black children and their parents through PWMPs, racial disparities exist related to retention and optimal outcomes in PWMPs. For example, Black families have lower enrollment and retention in PWMPs [11]. Black children who participate in PWMPs often have less weight loss compared to their White peers [8]. These low retention rates and poorer weight loss outcomes may indicate that PWMPs are not providing the type of support or programming that provides the most benefit to Black families.

Outcomes assessed in PWMPs are primarily focused on behavior change and weight loss, secondarily on mental health (i.e., depression, disordered eating), and lastly on psychosocial (i.e., self-esteem, quality of life) factors [12]. Relatedly, limited evidence exists that explores the interpersonal and family context for children and their families attending PWMPs [13], and further that assesses this context uniquely among Black families. This is essential information as youth's behavior change and subsequent weight loss, even retention in PWMPs, are likely influenced by the interpersonal and family dynamics between parents and children and in the broader household and family. In fact, engaging parents in youth's PWMPs leads to better child weight loss [14, 15]. Parents have an important role to play in PWMPs given their interpersonal relationship with their child, responsibility for modeling healthy behaviors and attitudes about healthy choices, and control over the home food-environment (i.e., are primary shoppers and food preparers) [16].

Interpersonal family dynamics have been assessed through a variety of measures such as family functioning, support, and parenting behaviors, practices, and styles [17, 18]. While family functioning provides an overall assessment of the family environment, parenting measures provide specific insight into the dynamic between children and their parent(s). Parenting as a more global construct, rather than specific to dietary and activity behaviors, has been studied less frequently, in part because measures can be lengthy and not tailored for brief assessment in health care [19]. However, in recent years parenting measures have been truncated for expedited assessment, making them more feasible to administer and acceptable by participants in health care and clinical settings (see the Multidimensional Assessment of Parenting Scale-MAPS) [20].

Global measures of parenting include parenting style, practices, and support such as warmth, control, and structure [21]. Overall, as related to overweight and obesity in children, increased parental warmth, control, and structure are associated with positive child-outcomes [22]. The Parenting Style Questionnaire is used most often to assess child dietary behavior [23, 24], in which children who have parents who are responsive have more positive outcomes [25]. Parents who exhibit practices that focus on shared decision-making (i.e., authoritative) have children who practice healthier eating patterns [26]. Furthermore, Monroe-Lord and colleagues [27] found that authoritative parenting practices led to reductions in children's less healthy snacking and increases in fruit and vegetable consumption. Conversely, authoritarian parenting, described as low levels of responsiveness and high levels of demandingness, has been shown to increase the risk of obesity among children and adolescents [28, 29], which is a traditionally more common parenting practice in Black families [30]. In one study focused specifically on Black families, adolescents who perceived their parents to be more responsive had lower BMIs [31].

There are important limitations to consider regarding parenting assessed among Black families in PWMPs. While many studies have included Black children and parents as part of a larger treatment sample, few have conducted within group investigations to determine how parenting practices and supports associate with child outcomes among Black families attending PWMPs. Further, parenting assessments were primarily developed using middle-class, White samples, which do not accurately capture parenting styles in other racial/ethnic groups [32]. Often assessments of parenting are conducted from the parent's perspective, not the child, who is the primary focus of treatment and intervention. This is essential information needed so that PWMPs and interventions can be sensitive to cultural differences and lead to successful outcomes for the most high-risk group of children to develop obesity [27].

As such, the objective of this study was to determine in a sample of Black children and their parents enrolled in a midwestern PWMP, how children's reports of parenting practices (acceptance vs. rejection, psychological control vs. psychological autonomy, and firm control vs. lax control) and perceptions of parental support for behavior change associate with their short-term weight loss at 3 and 6-month and retention in the PWMP at 6-month. The following research questions guided this study: (1) How do children's reports of parenting practices associate with their perceptions of their parents perceived support for making health behavior change in the PWMP? (2) How do children's reports of parenting practices, support, and parents' weight status (healthy weight, overweight, obese) associate with changes in child weight loss over 6 months? (3) How do children's reports of parenting behaviors, support, and parent weight status associate with retention in the PWMP?

2 | Method

2.1 | Design

A longitudinal uncontrolled pilot study was utilized in which 52 parent-child dyads were asked to complete a baseline survey and anthropometric assessments that coincided with the timing

of routine clinical visits (first visit, 3-month visit, 6-month visit) at the Nationwide Children's Hospital Center for Healthy Weight and Nutrition (CHWN). CHWN is a tertiary care pediatric weight management program that treats obesity in children and adolescents 2–18 years-old. The Center offers standard, multidisciplinary family-based care delivered by a team of medical providers, dietitians, physical therapists, social workers, and psychologists. Youth and an attending caregiver are seen for an initial visit with recommended follow-up visits every 4–6 weeks. At each visit, families worked through dietary and activity goals, which were reviewed and evaluated for modifications at the subsequent visit. This study was part of a larger grant with the objective to conduct a within-group assessment of Black families', family and parenting dynamics, behaviors, and associations with program outcomes. For the purposes of this study, measures of parenting practices and support, child weight loss, and attrition/retention were utilized.

2.2 | Participants

Fifty-two Black parent-child dyads agreed and consented to participate in the study. Every dyad that met the inclusion criteria was approached to participate in the study until the enrollment goal was met. Only 49 participants provided completed data, and were included in the final analysis. Potential participants meeting inclusion criteria via the electronic health record (EHR) were mailed a letter and received a call about the study prior to their first clinic visit. Inclusion criteria for adults/parents included: ≥ 18 years of age, identify as a parent or legal guardian of the patient, live in the same household as the child the majority of the week (> 4 days), be English speaking/reading, and identify as Black (including multiracial). Adult participants were excluded if they self-identified or was evident in the EHR that Child Protective Services (CPS) were involved or if a developmental/psychiatric would prevent involvement. Inclusion criteria for children included: between the ages of 6–14 years old (elementary and middle-school age youth) due to the involvement of parents in their care and treatment, a new patient, speak and read English, identify as Black (including multiracial), and have an obese weight status (≥ 95^{th} percentile). Children were excluded if a developmental/psychiatric condition or history of abuse and/or neglect was self- or parent-identified or was evident in the EHR.

2.3 | Protocol

If parents indicated initial interest prior to their first visit, a member of the research team explained the study and coordinated a time during their first visit (before or after) to go over consent/assent and complete the first survey assessment. At the first visit, parents provided consent for their and the child's participation. The children provided assent for their participation in the study. Parents and children completed the survey at the same time point, but separately. The survey was administered via Research Electronic Data Capture (REDCap), in which parent and child responses were linked with a unique identification number. At the 3- and 6-month assessments, parents and children provided this identification number to link their data over time. If participants did not attend (rescheduled) a given clinical visit or if time was limited at that visit, they were asked to complete the survey remotely with a research assistant available over the phone to answer questions. Parents and children each received a $25.00 credit after each assessment. The study was approved by the Nationwide Children's Hospital Institutional Review Board (STUDY00001109).

2.4 | Measures

2.4.1 | Demographics and Anthropometrics

Demographics included parent and child age, race, ethnicity, sex, and family structure (two parents, single parent, multiple adult household). Weight (pounds) and height (inches) were measured by study personnel at each of the three assessment points. Height and weight were recorded three times each visit for accuracy [33–36]. In the event that dyads did not attend a given assessment and completed the survey virtually, a height/weight measure within 1 month of the visit was used when available in the health record. There were two families who weighed on home scales and reported their weights to study personnel; height was used from the previous measurement date. Parent height and weight were used to calculate body mass index (BMI) and weight status categories (underweight, healthy weight, overweight, obese). Child height and weight were used to determine age- and sex-specific BMI percentile and BMI *z*-score (BMIz).

2.4.2 | Retention

Retention was defined as continued participation in CHWN through 6 months. Retention was encouraged through standard reminder calls and/or text messages prior to their CHWN visit [37].Retention at 6-month was recorded as retained (1) or not retained (0).

2.4.3 | Child Report of Parenting Behavior Inventory (CRPBI-30)

The CRPBI is a reliable 30-item measure of parenting behaviors that contains three subscales: acceptance versus rejection, psychological control versus psychological autonomy, and firm control versus lax control [38, 39]. CRPBI has been used previously in PWMPs to assess associations with attrition [40] and changes in children's weight status [41, 42]. The CRPBI has also been used specially with Black children to explore associations with racial and ethnic socialization [43, 44] and adolescent problem behaviors [45], addictive behaviors [46] and mental health diagnoses [47]. The CRPBI allows the child to select one of three options based on their perception of each parent: not like, somewhat like, or a lot like. A scoring sheet is then used to provide scores for perceived acceptance, perceived psychological control or autonomy, and perceived control. Higher scores indicate higher perceptions of acceptance, independence, and authoritative parenting.

2.4.4 | Children's Perceptions of Support

A Likert question was created by the research team that asked, "How supportive do you believe your parent is in your attempt to make healthy behavior changes." Options included: very unsupportive (1), somewhat unsupportive (2), neither unsupportive nor supportive (3), somewhat supportive (4) and very supportive (5). The child's perception of perceived support was coded as unsupportive/neither (including very unsupportive, somewhat unsupportive, and neither) (1) or supportive (including somewhat supportive and very supportive) (2).

2.5 | Analysis

Analyses were conducted using IBM SPSS version 28. Descriptive statistics were run for all parent and child demographics. Independent *t*-tests were used to analyze the association of parenting practices with parents' perceived support (supportive, neither or unsupportive) for making healthy behavior changes, perceived support (supportive, neither or unsupportive) and change in BMIz from baseline to 3 months and baseline to 6 months, parent weight status (healthy weight, overweight/obese) and change in child BMIz from baseline to 3 months and baseline to 6 months, and parenting practices and retention (yes, no). Pearson's bivariate correlations were used to analyze associations between parenting practices and changes in child BMIz from baseline to 3 months and baseline to 6 months. Chi-square tests were used to analyze the association of perceived support (supportive, neither or unsupportive) and retention (yes, no), and parent weight status (healthy weight, overweight/obese) and retention (yes, no). Data were assumed to be missing at random. Analyses were conducted with exclusion analysis by analysis, so that if a participant completed one scale but not another, they were included in the analysis of the completed scale.

3 | Results

The sample (see Table 1) consisted of children ages 7–14 years at baseline (10.45 ± 2.30), 51.0% of whom were female. The children had a mean BMIz of 2.64 ± 0.30, range = 1.87–3.35. Children had an average BMIz increase of −0.014 ± 0.065, range = −0.13 to 0.23 from their baseline assessment to their 3-month assessment. From their baseline assessment to their 6-month assessment, children had an average decrease in BMIz of 0.033 ± 0.188, range = −0.25 to 0.95. Primary caregivers identified as mothers (83.7%), fathers (6.1%), and grandparents (10.2%), ages 28-68 (39.78 ± 9.98). Parents self-reported their weight status as underweight (2%), healthy weight (18.4%), overweight (63.3%), and obese (16.3%). Their calculated weight status was slightly different: underweight (0%), healthy weight (6.1%), overweight (16.3%), obese (18.4%), and severe obesity (59.2%). Retention at six-months was 44.9%.

TABLE 1 | Child and parent demographics.

Child demographics ($N = 49$)	%(n) or M ± SD, range
Sex	
Female	51% (25)
Male	49% (24)
Age	10.45 ± 2.30, 6–14
BMIz	2.64 ± 0.30, 1.87–3.35
BMI percentile	99.51 ± 0.74, 97–100
BMI	35.87 ± 6.89, 25.40–53.10
Change in BMIz from baseline to 3- months	−0.014 ± 0.065, −0.13-0.23
Change in BMIz from baseline to 6- months	0.033 ± 0.188, −0.25-0.95
CRPBI	
Acceptance versus Rejection	26.45 ± 4.97, 10–30
Psychological control	21.98 ± 2.98, 17–29
Psychological autonomy	17.04 ± 3.82, 10–28
Perceived parental support	
Supportive	85.7% (30)
Unsupportive/Neither	14.3% (5)
Retention	
Retained	44.9% (22)
Dropped out or No attendance at 6-month follow-up	55.1% (27)
Primary parent demographics ($N = 49$)	**%(n) or M ± SD, range**
Relationship to child	
Mother	83.7% (41)
Father	6.1% (3)
Grandparent	10.2% (5)
Race/Ethnicity	
Black or African American	96% (47)
Biracial	2% (1)
Other	2% (1)
Age	39.78 ± 9.98, 28–68
BMI	37.99 ± 9.36, 21.07–63.67
Calculated weight status	
Underweight	0.0% (0)
Healthy weight	6.1% (3)
Overweight	14.3% (7)
Obese	20.4% (10)
Severe obesity	59.2% (29)

Parenting practices and the child's perceived parental support are reported in Table 1. Using the CRPBI, children reported an average of 26.45 (±4.97) for Acceptance versus Rejection, indicating higher perceptions of acceptance. Independence was also perceived higher by the children as psychological control averaged 21.98 (±2.98). Authoritative parenting was reported as an average of 17.04 (±3.82) through psychological autonomy. The

children reported higher levels of perceived support (85.7%) compared with unsupportive or neither (14.3%).

3.1 | Children's Reports of Parenting Practices and Perceived Support

There were no significant findings for the association of children's reports of parenting practices and their perceptions of parents' support for making health changes in the PWMP. However, the findings were all in the anticipated direction for association, with medium to large effect sizes ranging from −0.922 to 0.417(see Table 2).

3.2 | Children's Reports of Parenting Practices, Perceived Support, and Parent's Weight Status With 3 and 6-Month Weight Loss

Children's reports of parenting practices, perceived support, and parent's weight status were not significantly associated with chances in child BMIz at 6 months (see Tables 2 and 3). However, children who perceived their parent to be supportive of their behavior changes (-0.02 ± 0.05) had greater increases in BMIz from baseline to 3 months compared to those who perceived their parent as unsupportive or neither [0.11 ± 0.11; $t(29) = 3.09$, $p = 0.004$], with a large effect size [Cohen's $d = 1.65$ (95% CI (0.508, 2.773)]. There were no significant correlations between BMIz change at 3 or 6 months and reports of parenting practices. There were no significant differences in children's BMIz change at 3 or 6 months based on the parent's calculated weight status or perceived support, though some effect sizes were small from baseline to 3 months (see Table 4).

3.3 | Children's Reports of Parenting Practices and Parent Weight Status With 6-Month Retention

Children's reports of parenting practices and calculated weight status were not associated with retention in the PWMP. However, there was a small effect size for children's reports of acceptance parenting practices with retention [Cohen's $d = -0.280$ (95% CI (−0.844, 0.287)] (see Tables 2 and 4).

4 | Discussion

This study's objective was to determine the role that Black children perceive their parents' parenting practices and support to have on their 3- and 6-month weight loss and 6-month retention in a PWMP. The majority of the study's findings were in the anticipated direction but did not meet statistical significance. This study found one association not in the anticipated direction, in which children who reported that their parent was supportive had an increase in their weight (increase in BMIz) at 3 months compared to children who perceived their parent as unsupportive or neither supportive or unsupportive. While this finding was not expected, it is important to situate that this sample is an understudied population in PWMPs; unique contextual considerations are discussed below and need to be further explored around parental support and weight loss among Black youth in PWMPs.

In the general population, children with authoritarian parents typically experience higher rates of obesity [28]; however, the current study is specific to Black and treatment seeking children. The majority of literature around parenting and children with obesity is based on the reports of parents, with limited child reports, with child reports not being specific to Black youth [19]. Black youth with parents who are supportive of their behavior change may be less concerned with weight loss and more concerned with making changes to their dietary and physical activity behaviors that may not be quantitatively reflected though their weight loss at 3- and 6-month. Assessing weight loss over a longer period, such as 12-month may provide more time for child behavior change to result in weight loss. Additionally, assessing dietary and physical activity behaviors in addition to weight would provide a more comprehensive assessment of how perceived parental support is associated with both behavior change and weight loss among Black youth.

Future research should continue to explore associations between perceived support and parenting practices from children's perspectives with their weight outcomes. LeCuyer and Swanson [30] noted that Black parents are more likely to have authoritarian parenting practices because of the desire to protect their children, encourage proper behavior, and avoid trouble and scrutiny through firmer boundaries and expectations and more structure. As such, authoritarian parenting has been found to have more positive effects on Black children than White children [30].Black children who perceive their parents as supportive and with authoritarian practices may need different types of support from PWMPs. For example, these children may already have productive family rules, expectations, and boundaries, and may instead benefit from different types of emotional and/or social support through PWMPs through individual meetings and/or peer groups.

Power and colleagues [32] noted that parenting measures are not culturally attuned for assessing Black parents' parenting styles, including assessments with parents and children with obesity. Additional inquiry is needed to assess and qualitatively explore parenting among Black parents to better capture parenting practices and children's weight loss outcomes. Furthermore, acknowledging that Black parenting styles may be associated with socioeconomic status, safety, availability of resources, and racially inequitable treatment [30] when measuring and assessing parenting and weight loss outcomes among Black families in PWMPs. Another important culturally attuned consideration is measuring power in the parent-child relationship. Parents with greater power may exert more control over their children's food choices and activity levels. Additionally, the balance of power within parent-child relationships can be influenced by cultural norms and socioeconomic factors [48]. Taken together, additional assessment into parenting among Black families in PWMPs is warranted, which may include developing new tools for use specifically with Black families and around variables of interest like food, activity, and weight.

This study is an exploratory study of Black parent-child dyads in a PWMP with important limitations to consider. This study used

TABLE 2 | Associations of parenting practices and change in children's BMIz with perceived parental support and retention.

Children's report of parenting practices and perceived support								
	Supportive		**Unsupportive/ Neither**					
Parenting practice	**M**	**SD**	**M**	**SD**	***N***	***t* (df)**	***p***	**Effect size (Cohen's *d*)**
Acceptance	28.20	2.58	25.80	2.77	35	−1.91 (33)	0.065	−0.922
Firm control	22.30	3.12	20.20	2.28	35	−1.43 (33)	0.161	−0.693
Psychological control	16.37	3.95	18.00	3.67	35	0.863 (33)	0.395	0.417
Children's change in BMIz from baseline to 3- and 6-month and perceived support								
	Supportive		**Unsupportive/ Neither**					
Change in child BMIz	**M**	**SD**	**M**	**SD**	***N***	***t* (df)**	***p***	**Effect size (Cohen's *d*)**
3 months	−0.02	0.05	0.08	0.11	31	3.09 (29)	0.004	1.65
6 months	0.02	0.24	0.11	0.11	23	0.67 (21)	0.51	0.369
Children's change in BMIz from baseline to 3- and 6-month and parent weight status								
	Healthy weight, overweight		**Obese, severe obesity**					
Change in child BMIz	**M**	**SD**	**M**	**SD**	***N***	***t* (df)**	***p***	**Effect size (Cohen's *d*)**
3 months	0.00	0.12	−0.02	0.04	44	0.84 (42)	0.630	0.315
6 months	0.04	0.19	0.03	0.19	35	0.03 (33)	0.979	0.012
Child report of parenting practices and retention at 6-month								
	Retained		**Dropped out or No attendance**					
Parenting practice	**M**	**SD**	**M**	**SD**	***N***	***t* (df)**	***p***	**Effect size (Cohen's *d*)**
Acceptance	25.68	5.76	27.07	4.23	49	−0.975 (47)	0.335	−0.280
Firm control	21.68	2.95	22.22	3.03	49	−0.628 (47)	0.533	−0.180
Psychological control	17.05	3.55	17.04	4.10	49	0.008 (47)	0.994	0.022

TABLE 3 | Child report of parenting practices and changes in BMIz at 3- and 6-month.

Variable	1	2	3	4	5
1. Parenting acceptance	1				
2. Parenting firm control	$r = -0.074$	1			
	$p = 0.613$				
	$n = 49$				
3. Parenting psychological Contro1	$r = -0.276$	$r = 0.234$	1		
	$p = 0.055$	$p = 0.105$			
	$n = 49$	$n = 49$			
4. Change in BMIz at 3 months	$r = 0.069$	$r = -0.015$	$r = 0.021$	1	
	$p = 0.655$	$p = 0.925$	$p = 0.891$		
	$n = 44$	$n = 44$	$n = 44$		
5. Change BMIz at 6 months	$r = 0.067$	$r = -0.115$	$r = -0.016$	$r = 0.249$	1
	$p = 0.702$	$p = 0.511$	$p = 0.927$	$p = 0.156$	
	$n = 35$	$n = 35$	$n = 35$	$n = 34$	

TABLE 4 | Child perceived support and parents self-reported and calculated weight status with retention at 6-month.

	Perceived support[a] ($n = 35$)		Calculated parent Weight status[b] ($n = 49$)	
Retention	**Supportive**	**Unsupportive/ Neither**	**Healthy weight, overweight**	**Obese, severe obesity**
Retained	84.6% (11)	15.4% (2)	9.1% (2)	90.9% (20)
Dropped out or No attendance at 6-month follow- up	86.4% (19)	13.6% (3)	33.3% (9)	66.7% (18)

[a]χ^2 (1) = 0.020, $p = 0.886$.
[b]χ^2 (1) = 4.092, $p = 0.043$.

a sample isolated from one large, urban, midwestern city. Thus, findings in this study are not generalizable to those who may be in a more rural or different geographic community with different access to resources such as healthcare providers, clinical staff, and food options (i.e., situated in a food desert). Also, the sample had a low representation of children who identified their father as their primary caregiver. It is also important to note that the CRPBI is most appropriate for children eight and older [49], and the inclusion age for this study started at age 6. Finally, this study had a small sample size and, consistent with prior work, had a low retention rate (44.9%). The small sample size and low retention rate are important to consider with respect to significant findings. This study should be conducted with a larger sample to determine if there was a sample size error that resulted in the findings being in the right direction but not reaching statistical significance.

5 | Conclusion

This study examined the association of how Black children's reports of parenting practices and parental support associated with their weight loss and retention in the PWMP at 6-month. This study showed associations in the expected direction that parenting practices and perceived support were associated with greater weight loss and retention in a PWMP, though these findings did not meet statistical significance-many had small effect sizes. Acknowledging the racial disparities in obesity rates among Black children and families, future understanding of parenting practices and perceived support will help to inform future clinical intervention for healthy behavior changes and retention of Black children and families in PWMPs.

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Conflicts of Interest

The authors declare no conflicts of interest.

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