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## **Guided Goal Setting: A Feasible Obesity Prevention Behavior Change Strategy for Low-Income Parents with Young Children**

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*To reduce the risk of pediatric obesity, behaviorally-focused parental education is needed. This study examined the feasibility of guided goal setting in a pediatric obesity prevention intervention for low-income parents of young children. Parents from Head Start participated in a six-week nutrition, activity, and parenting intervention that included guided goal setting (N = 47). At each session, data were collected on goal selection, effort, and attainment. Pre- and postintervention data were collected on nutrition, activity, and child feeding behaviors (n = 24). A subset of parents completed in-depth interviews (n = 20). Parents reported a high level of goal effort (88%) and achievement (79%) as well as a preference for goal personalization and a list of goals from which to choose. In general, parents did not find the goal contract or weekly tracking as motivating as goal personalization. Pre- and postintervention assessment showed significant changes in the dietary energy density (p = .008) and vegetable behavior (p = .04) subscales with a marginal change in the snacking subscale (p = .08). Guided goal setting was a feasible behavioral strategy for the parents in this study. Parents engaged in the guided goal setting process and demonstrated changes in serving more vegetables and fewer energy-dense foods.*

**Keywords:** guided goal setting, pediatric obesity, nutrition intervention, low-income

### **Introduction**

Pediatric obesity continues to disproportionately impact low-income, ethnically-diverse populations and is a serious public health issue – over 14% of low-income children are suffering from obesity, and 2% are suffering from extreme obesity (Pan, Blanck, Sherry, Dalenius, &

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Grummer-Strawn, 2012; Pan et al., 2016). It has been shown that obesity during the preschool years tracks into adulthood (Kelsey, Zaepfel, Bjornstad, & Nadeau, 2014; Singh, Mulder, Twisk, Van Mechelen, & Chinapaw, 2008). This justifies sustained and expanded efforts to reduce pediatric obesity prevalence in low-income, ethnically diverse populations. However, further research is needed to develop and implement effective interventions targeting behavioral and environmental changes (Centers for Disease Control & Prevention, 2013; Ogden, Margaret, Kit, & Flegal, 2014; Waters et al., 2011).

Current U.S. Dietary Guidelines for 2015–2020 suggest specific behaviors to align the family home environment with the recommended guidelines, including meal planning, cooking together, family physical activity, and limiting screen time (U.S. Department of Health and Human Services & U.S. Department of Agriculture, 2015). Parenting-skills training combined with promoting a healthy family lifestyle has been shown to be an effective approach to weight management in young children, particularly boys (Golley, Magarey, Baur, Steinbeck, & Daniels, 2007). Goal setting is a strategy used to promote behavior change. The research to document goal setting effectiveness in health behavior change has increased in the last two decades (Shilts, Townsend, & Dishman, 2013). Several reviews documented that goal setting is frequently used to facilitate the adoption of dietary and physical activity behaviors to reduce chronic disease risk (Bodenheimer & Handley, 2009; Cullen, Baranowski, & Smith, 2001; Shilts, Horowitz, & Townsend, 2004; Strecher et al., 1995). Furthermore, nutrition education combined with a new goal setting approach, “guided” goal setting, has been shown to be effective for improving dietary and physical activity behaviors among low-income, middle-school students (Contento, Koch, Lee, & Calabrese-Barton, 2010; Shilts, Horowitz, & Townsend, 2009; Shilts & Townsend, 2012) and adults in a worksite wellness program (Sternfeld et al., 2009). Guided goal setting was also recently adapted as a behavioral strategy for low-income parents of preschool-aged children (Shilts, Sitnick, Ontai, & Townsend, 2013).

Guided goal setting was initially designed as an alternative to self-set, participatory/collaborative, and assigned goal setting specifically for the adolescent audience (Shilts, Townsend, & Horowitz, 2004). Research has not provided evidence to suggest one type of goal setting produces better outcomes (Locke & Latham, 1990; Shilts, Horowitz, et al., 2004). The authors of this current study believe that many factors, such as the intervention setting, the age of the participant, and the readiness to change, influence the preferred type of goal setting. However, for interventions delivered in a group setting, like many that target low-income families in Cooperative Extension programs such as the Expanded Food and Nutrition Education Program (EFNEP) and Supplemental Nutrition Assistance Program Education (SNAP-Ed), participatory/collaborative goal setting is not an option due to the time commitment needed from the educator with each individual participant. Assigned goal setting often limits participant autonomy, and self-set goals could require time-intensive training on how to set appropriate, achievable goals (Shilts, Townsend, et al., 2013).

Guided goal setting gives choices from a collection of practitioner-developed major and minor goals so parents can make their own goal decisions. Each broad major goal is coupled with a collection of minor goals that are specific in terms of what, when, where, and how often. An example of a major goal is “You may want to work on limiting your child's screen time” with three minor goal options: (1) “Keep your child's screen time to 1-2 hours, 3 days this week.” (2) “Remove TV/video games from your child's room this week.” and (3) “Play games with your child for 1 hour, 2 times this week when he or she usually watches TV.” The participant makes an independent decision in selecting the major and minor goals based on a personal assessment, a key element in this strategy. This type of goal setting reduces the possibility of inappropriate goal selection by ensuring that goal options contain the attributes necessary for optimal goal effectiveness: specificity, proximity, difficulty, and attainability (Locke & Latham, 2002). This strategy is also suited well for group classes, which are common in Cooperative Extension. Details about this approach can be found elsewhere (Shilts, Townsend, et al., 2004).

The study aimed to test the hypothesis that guided goal setting in a pediatric obesity prevention intervention is a feasible behavior change strategy for a new audience – low-income adults with young children. The research questions addressed in this study include:

- How did the participants engage in the goal setting process, i.e., goal selection, effort, and attainment?
- Did participants consider guided goal setting to be a feasible behavioral strategy?
- Did parents who completed the guided goal setting intervention show behavioral improvements as measured by the Healthy Kids (HK) tool?

### **Intervention**

Formative evaluation and pilot testing informed the adaptation of the guided goal setting strategy, initially developed for the adolescent audience, into a six-week curriculum appropriate for parents of young children (Shilts, Sitnick, et al., 2013). Based on the social cognitive (Bandura, 1991) and goal setting theories (Locke & Latham, 2002), the guided goal setting companion curriculum was designed to augment a behaviorally-focused nutrition education curriculum, with each goal setting session lasting 15–30 minutes. *Eating Smart Being Active* (ESBA) and *Healthy, Happy Families* were selected to be partnered with the guided goal setting companion curriculum to promote goal attainment (Ontai & Families with Young Children Workgroup, 2010; Ontai, Lipscomb, Sitnick, Bowers, & Lamp, 2013; University of California Davis & Colorado State University, 2007).

Intervention participants, who were parents or primary caregivers, completed the Healthy Kids (HK) risk assessment tool (Figure 1) to identify nutrition, activity, and child feeding factors related to pediatric obesity (Townsend, Slyva, et al., 2011). Based on these results, parents were

praised for one strength and presented with two areas for improvement on a customized sheet with their name included. The parents selected one of these areas to improve for a major goal and then selected a minor goal from three predetermined choices. The content of the predetermined goals were based upon previously identified determinants of pediatric obesity (Ontai, Ritchie, Williams, Young, & Townsend, 2009; Townsend, Ontai, Young, Ritchie, Williams, 2009) and formative research identifying parental preference of goal motivators (Shilts, Sitnick, et al., 2013) with a focus on meal planning, child health, parent health, and child involvement in food selection. The parents were guided to select a minor goal during the first intervention session, but at subsequent sessions, the options were given to continue with the same goal, select a new goal from the guided list, modify the existing goal, or create a new goal. Parents received substantive nutrition, lifestyle, and child feeding education along with targeted instruction on how to achieve desired goals. A parent workbook, designed specifically for this intervention, was used to reinforce the guided goal setting experience (Figure 1). Workbook components include personalized goal options, goal contract, goal tracking (shading in goal accomplishments on a graphic), and activity worksheets on action planning, self-monitoring, goal barriers, cue management, and rewards (Shilts, Davidson, Leavens, Sitnick, & Townsend, 2010).

**Figure 1. Healthy Kids Tool and Four Pages from the 12-page Parent Goal Setting Workbook**



## Methods

### Participants

As part of a larger study investigating the validity of a pediatric obesity risk assessment tool, 206 low-income, ethnically diverse, English-speaking parents or primary caregivers (i.e., grandparents or foster parents) of preschool-aged children were enrolled from three counties in California. Parents participating in the study were invited to take part in the six-week primary prevention intervention. Parents ( $N = 47$ ) were enrolled in the intervention from seven low-income preschool sites including the Head Start program. Parents received \$10 gas or superstore gift cards as stipends for attending each session to assist with transportation and child care costs.

### Design

A mixed-methods approach using quantitative and qualitative data was used to test the feasibility of the guided goal setting component of the nutrition and parenting intervention. Specifically, three methods were employed: (1) individual interviews; (2) goal selection, effort, and attainment repeated measures; and (3) one-group pre- and postintervention assessment to test dietary behavior change. The qualitative data from the individual interviews were used to interpret the quantitative results.

### Measures and Data Analysis

Parents were interviewed by the research staff at each intervention session to garner information on their goal selection process, goal effort, and goal attainment (Locke & Latham, 1990). Parents were asked about the goal they selected and if the goal was selected from the provided guided list or created by the parent or a combination of the two. After the weekly goal choices were determined, parents were asked if they made goal effort and if they achieved the previous week's goal. Descriptive statistics were conducted on the results.

Participants also completed the 45-item University of California Cooperative Extension Healthy Kids (HK) assessment tool pre- and postintervention (Townsend et al., 2014; Townsend, Slyva, et al., 2011) (Table 1). HK was developed to measure specific modifiable behaviors associated with pediatric overweight in low-income populations (Ontai et al., 2009; Townsend et al., 2009). The HK tool has a Flesch-Kincaid readability index of grades 1-2, making it suitable for the low-income, low-literate parents in this study, and face and content validity have been demonstrated (Townsend et al., 2014). Criterion validity and test-retest reliability of HK subscales in evaluating children's behaviors have been demonstrated using objective measures (e.g., BMI and biomarkers) and subjective measures (e.g., 24-hour dietary recalls, physical activity, screen time, sleep logs, and parent behaviors). Children with higher HK subscale scores have a more

healthful profile with more favorable micronutrient intakes, activity reports, and parent behaviors. Importantly, lower HK scores predict higher BMI percentiles-for-age 24 months later (Shilts, Drake, Lanoue, Beatrice, & Townsend, 2016; Shilts, Styne, Drake, Aden, & Townsend, 2015; Townsend et al., 2018; Townsend, Shilts, Allen, et al., 2015; Townsend, Shilts, Drake, Lanoue, & Beatrice, 2016; Townsend, Shilts, Styne, et al., 2016). An instruction guide for implementing HK was used to ensure consistent administration (Townsend, Shilts, et al., 2011). HK responses were coded using four response options per item with a maximum of four points per item. Four points were assigned to the most healthful response and one point to the least healthful response. The 45 items were scaled and summed into six subscales: vegetables, sweetened beverages, activity (screen and physical activity), snacking, energy density, and BMI (Table 4). A paired samples *t*-test was performed using SAS version 9.4 to compare HK subscales before and after the intervention. The significance level was set at  $p \leq .05$ .

**Table 1. University of California Davis Healthy Kids Pediatric Obesity Risk Assessment Tool Items**

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1. My child is outside \_\_\_\_\_ hours a day.
  2. My child eats vegetables.
  3. My child goes to bed around \_\_\_\_\_ P.M.
  4. My child gets up around \_\_\_\_\_ A.M.
  5. My child plays outside.
  6. My child eats breakfast \_\_\_\_\_ times a week.
  7. My child eats fruit.
  8. My child drinks milk \_\_\_\_\_ times a day.
  9. My child drinks milk.
  10. My child likes to play inside instead of watching TV.
  11. I plan meals.
  12. I eat fruit \_\_\_\_\_ times a day.
  13. I buy vegetables.
  14. I buy fruits.
  15. I know what my child watches on TV.
  16. I drink milk \_\_\_\_\_ times a day.
  17. I play outside with my child \_\_\_\_\_ days a week.
  18. I buy chips, candy or cookies.
  19. I keep fruit ready for my child to eat.
  20. My child eats beans \_\_\_\_\_ times a week.
  21. My child eats snack foods like cookies, chips, and candy.
  22. My child has a TV in his bedroom.
  23. My child eats meals while watching TV.
  24. My child watches TV \_\_\_\_\_ hours a day.
  25. My child is picky about the foods he eats.
  26. My child eats snack foods like apples, bananas or carrots.
  27. My child eats \_\_\_\_\_ vegetables at his main meal.
  28. My child eats cereal for breakfast \_\_\_\_\_ times a week.
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*Items (continued)*

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29. My child eats more than one kind of vegetable a day.
  30. My child plays video or computer games \_\_\_\_\_ hours a day.
  31. My child eats candy, cake or cookies \_\_\_\_\_ times a day.
  32. My child drinks soda or sugared drinks with meals.
  33. My child drinks soda \_\_\_\_\_ times a day.
  34. My child drinks sports drinks or sugared drinks \_\_\_\_\_ times a day.
  35. My child eats fast food \_\_\_\_\_ times a week.
  36. My child eats chips for snacks \_\_\_\_\_ times a day.
  37. My child sees me eat vegetables.
  38. My family eats fried foods \_\_\_\_\_ times a week.
  39. I keep vegetables ready for my child to eat.
  40. We eat out \_\_\_\_\_ times a week.
  41. I sit and eat a meal with my child.
  42. I fix meals for my child.
  43. I trim fat before eating meat.
  44. I eat the skin on chicken.
  45. I watch TV \_\_\_\_\_ hours a day.
- 

Parents who completed the intervention were invited to attend in-depth individual interviews to address the feasibility of the guided goal setting strategy. Interview data were collected using the standardized, scripted, open-ended interview technique (Patton, 1990). Sixteen questions with probes addressed how parents engaged in the guided goal setting process and which intervention components they considered most and least useful (Table 2). Interviews, lasting approximately 60 minutes, were conducted at the preschool centers where the intervention was held. Interviews conducted by authors were audiorecorded with participant consent. Notes were simultaneously taken by another member of the research team. Each interview was transcribed, and content was systematically analyzed for major themes. The study was approved by the Institutional Review Boards at University of California, Davis and California State University, Sacramento.

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***Table 2. Individual Interview Questions for Parents at the Conclusion of the Guided Goal Setting Intervention***

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1. What was the most useful part of the goal setting process? What was the least useful?
  2. Each week you had the opportunity to continue working on the same goal you selected the previous week, select a new goal, or create your own. Please describe what you did and why.
  3. These are the goals you selected during the nutrition classes. Did you make goal effort? If yes, then could you explain what you did specifically to work on each goal? Did you achieve this goal? How difficult was this for you? How did achieving the goal/s make you feel?
  4. Now, I would like to shift our discussion to the goal/s you selected but did not meet. Which goal/s were you not able to meet? For each goal you did not meet, what difficulties did you encounter? How could we improve our nutrition classes to help you achieve this goal?
  5. We personalized your goal choices based on responses to the surveys you completed. Did this personalization make the goal setting meaningful to you? Were you surprised by the results? Did the results seem accurate?
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**Interview Questions (continued)**

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6. The goal setting process provided you with several goals from which to choose. Did you like having several choices? Or would you have preferred to create your own goal from the beginning?
  7. The nutrition goal selection process provided you with two areas/major goals to choose from and the parenting goal provided you with one area/major goal. Which process did you prefer?
  8. Did you feel the goals you had to choose from were right for you? Were they challenging, too easy, or too difficult?
  9. You were asked to work on two goals simultaneously, one nutrition and one parenting. Was this manageable?
  10. After you selected a goal to work on, you completed a contract. Did this help you commit to the goal?
  11. Goal reminder slips were given to you each week. Did you like this?
  12. Each nutrition class, you were asked to track your goal progress. How did this influence reaching your goal?
  13. Rewards like raffle tickets drawn for prizes were given to those who made effort toward their goal. Did you like this? Was this motivating to you?
  14. Overall, what did you think about the goal setting portion of the nutrition classes?
  15. Of the goals you selected, are there any you are still currently doing?
  16. Do you think setting goals as part of the classes changed the food and physical activity choices of you and your family?
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**Results**

Ethnically diverse parents/primary caregivers (49% Hispanic, 17% White, 13% Black, 9% Asian, 4% American Indian, and 8% other;  $N = 47$ ) with an average age of 33 years (94% female) participated in the guided goal setting intervention. Participants had at least one child three to five years of age, and 96% reported participating in at least one federal assistance program (i.e., WIC, SNAP, or Head Start). A subset of parents (35% Hispanic, 20% White, 20% Black, 10% Asian, 10% American Indian, and 5% other;  $n = 20$ ) with an average age of 36 years (85% female) participated in the individual interviews. These parents also had at least one child three to five years of age, and most (95%) participated in at least one federal assistance program.

All parents enrolled in the intervention engaged in the guided goal setting procedure by selecting a goal from the preformatted list or creating another more personal goal. The most frequent goals selected by parents in the first education session were related to physical activity (30%) and sweetened beverage intake (26%). The goals related to fast food consumption were the least frequently selected (2%).

On average, 91% of parents participating in the intervention reported committing effort to their weekly selected goal, while 78% stated they achieved the goal. Goal effort and achievement did not fluctuate considerably over the course of the intervention. Goal effort and achievement ranged from 83% to 96% and 66% to 86%, respectively, over the six-week intervention, indicating that most parents attempted their selected goal each week.

Most parents (88%) selected a different goal or modified their previous goal at each education session rather than continuing to work on the same goal. Of those selecting a different goal, 51% selected a goal generated from the guided goal setting procedure, and 49% modified a previous week's goal or created their own goal. For example, a parent selected the goal generated from the guided goal setting procedure: "Play outside with your child three times this week." The following week, the parent modified the goal to be more specific: "I will take her to the park or play place one day this week." As the education sessions progressed, more participants created their own goals. An example of a parent-created goal was "Reduce the amount of sugar my kid drinks per day by drinking three glasses of water a day." From the individual interviews, participants reported selecting a new goal because they wanted variety and did not want to get bored with the same goal. They liked to build upon the previous week's goal (Table 3). This provides a rationale for giving parents autonomy in the goal setting process instead of having them work on the same goal each week. Additionally, when parents were asked at the end of the intervention, "Of the goals you selected, are there any you are still currently doing?" all parents reported continuing at least one of the goals, with 40% reporting working on all goals selected.

The transcripts from the individual interviews ( $n = 20$ ) were analyzed, and four major themes were identified: (1) useful aspects of guided goal setting, (2) least useful aspects of guided goal setting, (3) goal selection behavior, and (4) barriers to goal achievement (Table 3). All participants reported at least one positive and useful element of the guided goal setting process, with the most frequently preferred elements being personalization and preformatted goal options (Table 3). Participants commented that personalization made the program feel "tailored" with their name printed on the goal printout sheet. They also appreciated the positive affirmation on the goal printout sheet with one parent stating, "It made me feel like I was doing something right." The minor goal options gave them ideas to work on that they "never really thought of" and gave them "a wakeup call." When participants were asked if the goal choices were right for them, 88% stated yes, specifically commenting that "The goals were made directly for me" and "They were doable, yet challenging." Participants reported that it was useful to learn how to set a realistic goal and achieve it: "It was exciting for me to see myself reach those goals."

More than half of the parents reported that tracking their goal progress was not motivating, but instead, they were motivated by their children. Parent suggestions to improve the goal tracking activity included using a bar graph instead of the pyramid steps, inserting education session week, and expanding instructions. Half of the participants indicated the goal contract did not assist with goal commitment because the contract was signed by other parents in the class. They suggested that the contract be taken home for family members or significant others to sign.

Participants described several common barriers to goal achievement. Parents discussed the lack of social support as a barrier: "It was like a fight between me and my sister with the soda thing. At her house, they could have soda, but at my house, they knew they couldn't have soda." The

mess created in the kitchen when cooking with their child was another common goal barrier discussed: “I didn’t want her to do too much because I didn’t want a big mess,” and another parent stated, “It was hard to keep her [child] focused without making a big mess.”

**Table 3. Individual Interview Quotes from Low-income Parents of Young Children Representing Four Major Themes (n = 20)**

<b>Useful aspects of guided goal setting</b>	
Personalization	<ul style="list-style-type: none"> <li>• <i>The goals were made up directly for me.</i></li> <li>• <i>I think these [tailored goals] were more meaningful because we knew that this was what we needed to work on instead of someone just telling us what to do. It was based on us.</i></li> </ul>
Specific goal options	<ul style="list-style-type: none"> <li>• <i>I knew what I needed to do.</i></li> <li>• <i>They were very helpful as my major goal, and it gave the minor goals. If it didn’t have minor goals, it [goal setting] would have been more difficult.</i></li> <li>• <i>I liked having choices because I didn’t have a clue.</i></li> <li>• <i>For me, it was perfect. It was something that needed to be done at home, something that we all knew, but nobody wanted to do. The fact that somebody said it needs to be done and this is how you are going to do it, or here are some of the steps so you can do it, made it a lot easier.</i></li> <li>• <i>I wouldn’t have gotten down to what I really needed to work on. I probably would have just set a goal for something that I have already set a goal for, but nothing like that. I liked that they put the goals out there and I was able to choose what I wanted to do.</i></li> </ul>
<b>Least useful aspects of guided goal setting</b>	
Goal contract	<ul style="list-style-type: none"> <li>• <i>I didn’t really think the contract was helpful. I was committed without the contract. I didn’t even remember that I had signed a contract.</i></li> <li>• <i>It didn’t really matter to me because letting my kids go shopping with me, I just had to put it on me to let them, and hopefully, they would be into more vegetables. I don’t think the contract would help this.</i></li> <li>• <i>Mmm, no not really, I mean for me with the classmate signing it, I didn’t know him personally so really wouldn’t have no effect on me if I was disappointing him.</i></li> </ul>
Goal tracking	<ul style="list-style-type: none"> <li>• <i>I thought it was a waste of time. Just filling in some little arrows when you reached your goals when you know you have already tracked your goals all week.</i></li> <li>• <i>I like more of the idea that it gives us goals and ideas. This part (tracking progress) didn’t really do too much. Just the fact that it got the ideas in my head and doing class projects was good. It felt good to accomplish the next goal. The important part was getting the goal in my mind and figuring out/remembering how to do it.</i></li> <li>• <i>It didn’t influence reaching my goal.</i></li> <li>• <i>In a way, it wasn’t a big deal to me whether I shaded it.</i></li> </ul>
<b>Participant goal selection behavior</b>	
Selecting a new goal each week	<ul style="list-style-type: none"> <li>• <i>Overall, I preferred choosing new goals.</i></li> <li>• <i>If you did the same goal for two weeks, they (kids) would lose interest, so that way when you add something new, they stay interested.</i></li> </ul>
Modifying an existing goal	<ul style="list-style-type: none"> <li>• <i>I continued with the same goal each week, and then I just added another step with it each time.</i></li> </ul>

**Interview Quotes (continued)****Barriers to goal achievement**

Mess created in the kitchen	<ul style="list-style-type: none"> <li>• <i>I was nervous [to have child serve herself] because I didn't want a mess. If she drops it on the floor or etc. . . . then I have to clean it up.</i></li> <li>• <i>It [making food fun] just makes more of a mess; for me, it is a lot more work.</i></li> <li>• <i>I didn't have her do too much because I didn't want a big mess. . . . It was hard to keep her focused without making a big mess.</i></li> </ul>
Lack of time	<ul style="list-style-type: none"> <li>• <i>When I get home [from work] they have already eaten. I was able to do it [sit and eat with children] the times I got home early, and I made effort to sit down with them.</i></li> <li>• <i>Let child prepare food [a goal] . . . I felt it was too much for me. . . . a lot of time involved.</i></li> <li>• <i>I just think after working the whole day, it was hard.</i></li> </ul>
Lack of support by other family members	<ul style="list-style-type: none"> <li>• <i>I [grandma] don't give them soda, and I don't drink it myself. The mom buys it.</i></li> <li>• <i>It was like a fight between me and my sister with the soda thing. At her house, they could have soda, but at my house, they knew they couldn't have soda.</i></li> <li>• <i>Yes, it [serving water or milk instead of soda] is difficult. Anything that has to do with soda in my house is extremely difficult because Dad is very adamant about having his soda and it wasn't a diet soda – it was the full carbonation, full sugar.</i></li> </ul>
Weather and TV interfered with physical activity	<ul style="list-style-type: none"> <li>• <i>It was difficult for him because he was used to watching TV 3–4 hours a day and not going outside even though his friend would knock on the door, because he was playing a game or cartoons. It was very difficult for him. After a while, he knew that Monday, Wednesday, and Friday, we were going outside. Now he knows the routine.</i></li> <li>• <i>The only thing that was hard was when I set these goals, I swear the heat just jumped from like 80 to 112, and I remember I wanted to stick to the goal.</i></li> </ul>
Child food preferences (soda and vegetables)	<ul style="list-style-type: none"> <li>• <i>He wanted his soda. My husband has been telling me to get him on orange juice, but he still goes for Coke or Sprite. He won't drink the orange juice; it will just sit there. It was one of the hardest [goals].</i></li> <li>• <i>It was a fight, but the water finally went down. I also had to change so that he would see me drink water so he would ask me for some.</i></li> <li>• <i>Introducing the veggies was hard, because I usually stick to the foods I know they will eat, but I tried to serve it twice and then he actually tried it.</i></li> <li>• <i>Yeah, it was a little difficult because she was so used to having soda or Kool-aid before that. . . . When she saw me drink it (water), she drank it also.</i></li> <li>• <i>They would sometimes yell at me, I want sodas! . . . I buy new drinks and put it in the refrigerator and throw away the soda. When I go to my daughter's house and she has soda, I say no!</i></li> </ul>

Two-thirds of enrolled parents (68%) completed three or more intervention sessions ( $n = 32$ ) with 24 of those parents completing the HK 45-item tool pre- and postintervention. Paired-samples  $t$ -test analysis was conducted using data from the 24 parents. The HK items were grouped into six subscales (Table 4). There was a significant difference between the HK 12-item energy density subscale pretest scores and posttest scores ( $p = .008$ ) indicating families ate out less often and served fewer sweetened beverages and unhealthy snacks. Improvement in the HK 8-item vegetable subscale was also shown with parents buying, serving, and modeling vegetable

intake more often after the intervention ( $p = .04$ ). A potential trend was shown in the 12-item snacking subscale ( $p = .08$ ) with parents reporting serving healthy snacks and beverages. No significant changes were found for the other subscales.

**Table 4. Healthy Kids Assessment Tool Scores by Subscale Before and After the Guided Goal Setting Intervention ( $n = 24$ )**

<b>Subscale</b>	<b>Pre <i>M (SD)</i></b>	<b>Post <i>M (SD)</i></b>	<b>Difference <i>M (SD)</i></b>	<b><i>t</i></b>	<b><i>p</i></b>
BMI Scale 19 items including behaviors associated with child BMI: bedtime, fruit and vegetables, activity, snacking, and sweetened beverages.	56.96 (7.37)	58.46 (6.53)	1.50 (6.12)	1.20	.12
Vegetable Scale 8 items including the following behaviors: buying, serving, and modeling vegetable intake.	22.86 (5.0)	24.04 (3.28)	1.17 (3.22)	1.77	.04
Physical Activity Scale 9 items including the following behaviors: playing outside and viewing TV and computers.	27.13 (4.05)	26.46 (4.37)	-0.67 (2.78)	-1.18	.13
Energy Density Scale 12 items including the following behaviors: eating fast food, sugar-sweetened beverage consumption, and snacking on cookies, chips, and candy.	34.00 (7.00)	36.25 (5.80)	2.54 (4.76)	2.61	.008
Sugar Sweetened Beverage Scale 3 items including the following behaviors: drinking soda, sports drinks, and beverages with added sugars such as fruit drinks.	9.04 (2.36)	9.54 (2.28)	0.50 (2.25)	1.09	.14
Snacking Scale 12 items including the following behaviors: parent providing fruit and vegetable snacks, sugar-sweetened beverage consumption, and child snacking on cookies, chips, and candy.	36.75 (5.11)	38.08 (4.74)	1.33 (4.48)	1.46	.08

*Note:* Response options were coded such that the maximum of 4 points was assigned to the most healthful response and the minimum of 1 point to the least healthful response. Scores were scaled and summed. A paired samples  $t$ -test, 1-tailed, was performed with significance set at  $p \leq .05$ .

## Discussion

The aforementioned goal setting reviews provide evidence that goal setting is an appropriate strategy to facilitate health behavior change, but it was not clear which goal setting type (self-set, participatory, assigned, or guided) is most effective and whether the methods need to change according to the setting and target audience (Shilts, Townsend, et al., 2013). However, the current study provides evidence that guided goal setting is a feasible goal setting strategy for low-income parents with young children.

Similar to our approach of adding weekly guided goal setting to an existing nutrition curriculum, Cullen et al. (2009) investigated the impact of adding self-set goal setting plus video modeling to an existing EFNEP curriculum. Comparable to our results, 80% of parents indicated that the goal setting component was very helpful, and 67% reported setting goals. The enhanced EFNEP curriculum also resulted in parental BMI decrease, which provides additional evidence that goal setting, whether self-set or guided, is an appropriate behavioral strategy for low-income adults with children (Cullen et al., 2009).

Using a mixed-methods procedure, the current study provided evidence from three sources (individual interviews, goal selection/effort patterns, and behavioral outcome data) to support feasibility. From the individual interviews, participants indicated that the guided part of the goal setting method appeared to be an integral part of what they felt was most useful for the goal setting process (i.e., personalization and goal options from which to choose). From goal selection/effort patterns, we found that parents readily selected the preformatted goal options, and 90% made effort toward those goals. Behavioral outcome data supported the qualitative and goal selection/effort findings in that parents reported serving more vegetables and fewer energy-dense meals and snacks.

Physical activity-related goals were most frequently selected by parents in this study, so it was unexpected that no change in physical activity as measured by the HK physical activity subscale was shown after the intervention. The subscale's nine items focused on parent report of outdoor physical activities and screen time (Table 4). Seasonality may have been a contributing factor in the decrease observed. The intervention content included active games that could be done indoors (i.e., musical chairs, balloon toss, dancing to music) as well as promoted outdoor play. From the interviews, parents indicated that they liked and implemented these types of indoor physical activities and wanted to learn about others. The HK 9-item subscale did not include indoor activities and was not sensitive to changes in indoor physical activity. Some posttest data were collected during a heat wave, while other posttest data were collected in fall/rainy season, so rain and extreme heat could have contributed to the decrease in outdoor physical activity levels. Baranowski, Thompson, DuRant, Baranowski, and Puhl (1993) found that preschool-aged children were less active during hotter months. Also, Kolle, Steene-Johannessen, Andersen, and

Anderssen (2009) found substantial seasonal differences in physical activity for children with lower rates in fall and winter. Future research should account for seasonality and develop assessment questions that include both indoor and outdoor physical activities.

### **Limitations**

Study limitations include the use of a convenience sample where motivated parents attended the intervention sessions and volunteered to be interviewed. The results could be an overestimate of the feasibility if compared to unmotivated parents or those in a captive audience setting. The latter is often the situation for EFNEP and SNAP-Ed classes. Parents that did not value the guided goal setting procedure may have been more likely to drop out early in the intervention. Assessments were based on self-report data only. Because these participants were motivated enough to volunteer for the intervention, this strategy should also be evaluated with parents participating in programs that serve a captive audience.

### **Conclusion**

Guided goal setting was a feasible behavioral strategy for the participants in this study. Parents actively engaged in the guided goal setting process, routinely challenged themselves by selecting new weekly goals, made improvements in vegetable behaviors, and served fewer energy-dense meals and snacks. The guided (personalization of goal options) portion of the goal setting activities appeared to be an integral part of what parents considered most useful.

The Healthy Kids self-assessment tool and goal generating process are automated and available at <http://healthykids.ucdavis.edu/>. The companion parent workbook is also available at the Healthy Kids website to be partnered with a traditional Cooperative Extension nutrition education and parenting curriculum.

To date, guided goal setting has been tested with middle school adolescents and low-income parents of young children. Further research could extend to other audiences, like pregnant teens; drug rehabilitation clients; and adults in parenting, English language, and job training classes.

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