


Impact of a brief training on motivational interviewing and the 5A's approach on weight-related counseling practices of pediatricians

Jean A. Welsh^{1,2}  | Samantha J. Lange² | Janet Figueroa^{1,2} | Stephanie Walsh^{1,2} | Holly Gooding¹ | Patricia Cheung³

¹Department of Pediatrics, Emory University School of Medicine, Atlanta, Georgia, USA

²Department of Child Advocacy, Children's Healthcare of Atlanta, Atlanta, Georgia, USA

³Rollins School of Public Health, Emory University, Atlanta, Georgia, USA

Correspondence

Jean A. Welsh, Department of Pediatrics, Emory University School of Medicine, 1760 Haygood Drive NE, Atlanta, GA, 30322, USA.
Email: jwelsh1@emory.edu

Abstract

Background: Pediatric primary healthcare providers are well-positioned to provide healthy lifestyle and weight management related counseling but many lack training in evidence-based messages and methods.

Objectives: We assessed the impact of a brief, easy-to-access training for pediatric healthcare providers, (the Strong4Life Provider Training), designed to introduce/review current evidence-based messages and methods and improve healthy weight-related assessment and counseling practices.

Methods: Following their well-child visit, a convenience sample of children 12–17 years and parents of children 6–11 years ($N = 121$) of randomly selected Strong4Life trained ($N = 15$) and untrained ($N = 15$) pediatricians were administered a survey designed to assess the frequency, content, and patient satisfaction with weight management-related counseling provided. Results from parents and patients of trained pediatricians ($N = 62$) compared to those from parents and patients of untrained pediatricians ($n = 59$) were compared using chi-square tests. Generalized estimating equations were used to account for lack of independence among respondents from the same practice. P -values less than 0.05 were considered to be statistically significant.

Results: Parents/patients of trained pediatricians were more likely than those of an untrained pediatrician to report having been asked about child's consumption of fruit/vegetables, 57 (92%) versus 44 (75%), $p = 0.04$ and sugary drinks, 50 (81%) versus 29 (49%), $p = 0.005$, and their readiness for behavior change, 47 (76%) versus 29 (49%), $p = 0.005$, and to set a behavior change goal, 36 (59%) versus 23 (40%), $p = 0.005$. Regardless of training status, physical activity, screen time, and weight status were assessed for most patients, and most were satisfied with the discussion. Few (21%) were asked about barriers to behavior change.

KEYWORDS

5As, counseling, motivational interviewing, obesity, pediatric

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1 | INTRODUCTION

Pediatric primary healthcare providers (PCPs) are uniquely positioned to help promote the development of healthy weight-related lifestyle practices among children. Clinical practice guidelines developed by the American Psychological Association (APA) highlight the importance of using a family-centered approach in the implementation of weight-related behavior interventions for children and of aligning these interventions with children's developmental stages.^{1,2} PCPs have regular contact with children and their parents/caregivers, are knowledgeable about normal child development, and are, for many, a trusted source of nutrition³ and health information.^{4,5}

While PCPs are well-placed to counsel regarding obesity treatment and prevention practices, research suggests that many may lack the skills to do so effectively and would benefit from further training.^{6–9} One approach recommended by the American Academy of Pediatrics¹⁰ to improve the quality of the counseling provided by PCPs is to increase the use of motivational interviewing (MI). Motivational interviewing is a communication approach that encourages exploration of patients' values, interests, and concerns and include collaborative goal setting that supports patients' autonomy and readiness for change.^{11,12} The use of MI has been shown in some studies to have a positive impact on health related behaviors,^{12–15} and health outcomes, including children's weight.^{16,17}

The 5A's framework is an MI technique designed to initiate a conversation and guide development of a tailored intervention. Its use has been shown in some studies to increase patient motivation and behavioral change¹⁸ and is recommended for reimbursement of lifestyle interventions by the Centers for Medicare and Medicaid Services (CMS).¹⁹ The 5As consists of Asking about a specific health related behavior, Advising the patient about the behavior, Assessing readiness to change, Assisting with goal setting, and Arranging follow-up.

Recognizing the important role that pediatricians and other PCPs can play in efforts to address the high prevalence of obesity among children, Children's Healthcare of Atlanta developed the Strong4Life Provider 1.0 Training program with a goal of increasing PCP access to training in evidence-based counseling methods, specifically MI and the 5As, and in the key modifiable strategies for healthy weight management. While MI training is commonly done in workshops lasting 2–3 days,²⁰ the Strong4Life training was designed to be implemented in just two hours to facilitate physician participation. The training utilizes didactic methods to introduce participants to MI and the 5A's counseling framework. Also provided is an overview of evidence-based obesity prevention strategies. Messaging focuses on four evidence-based healthy habits: eat more fruits and vegetables, increase physical activity, reduce consumption of sugar-sweetened beverages, and limit screen time.²¹ In addition, there is an interactive skills practice component where all participants are encouraged to practice the use of the recommended counseling approaches. At the conclusion of the training, each participant is provided with a take home toolkit of materials designed to facilitate incorporating the new counseling skills into routine practice.²² This toolkit includes a

color-coded body mass index poster, a Healthy Habits assessment questionnaire, and set of fact sheets on healthy diet and activity practices.

Results from an initial pilot study of the Strong4Life program demonstrated that the brief training led to increases in pediatricians' perception of their effectiveness in obesity prevention and treatment, increases in self-efficacy in counseling and motivating patients, and increases in goal documentation.²² The purpose of the current study was to evaluate the long-term impact of the Strong4Life Provider 1.0 Training Program on the counseling practices of pediatricians. Specific objectives were to assess the program's impact on the use of evidence-based healthy weight management-related educational messages and counseling strategies during well-child visits (as recalled by patients/parents), patient satisfaction with the counseling provided, and readiness to make healthy behavior changes.

2 | METHODS

2.1 | Study design and sample

This observational study utilized a survey, administered in English or Spanish, to collect data from patients (if age 12 years or older) or parents together with their child (if child age 6–11 years) immediately following a well-child visit. The survey was designed specifically for this study to collect data to describe the frequency, content, and patient satisfaction with weight-management-related counseling provided by their pediatrician. Participants included three to five patients or parents of each of 30 randomly selected pediatricians in the metropolitan Atlanta area. Participating pediatricians were selected from a listing of 557 in the metropolitan Atlanta area, 15 of whom had attended the Strong4Life training at least 6 months before the data collection and 15 who had not attended the training (Figure 1). Selected pediatricians were contacted by phone to obtain permission for a research assistant to attend their practice waiting room to enroll and complete interview-administered surveys of a sample of patients/parents immediately following their well-child visit. Pediatricians were informed that patient/parent responses would be used to inform "future program development" for pediatric PCPs but were not made aware of the specific content of the surveys. The protocol for this program evaluation study was determined to be exempt from human subjects research review by the Internal Review Board at Emory University.

In the absence of comparable studies from which estimates of intervention impact could be drawn, expert opinion was used to determine that a meaningful difference in the proportion of trained versus untrained providers who assessed sugar-sweetened beverage intake during well-child visits would be 25%. Power calculations done using a two-sided Z test with pooled variance at $\alpha = 0.05$ (PASS 13 software) demonstrated that a sample of 120, including four parents or patients for each of 15 trained and 15 untrained physicians (for a total 60 participants per group) would be sufficient to demonstrate a 25% difference ($\alpha = 0.05$ and power = 0.80).

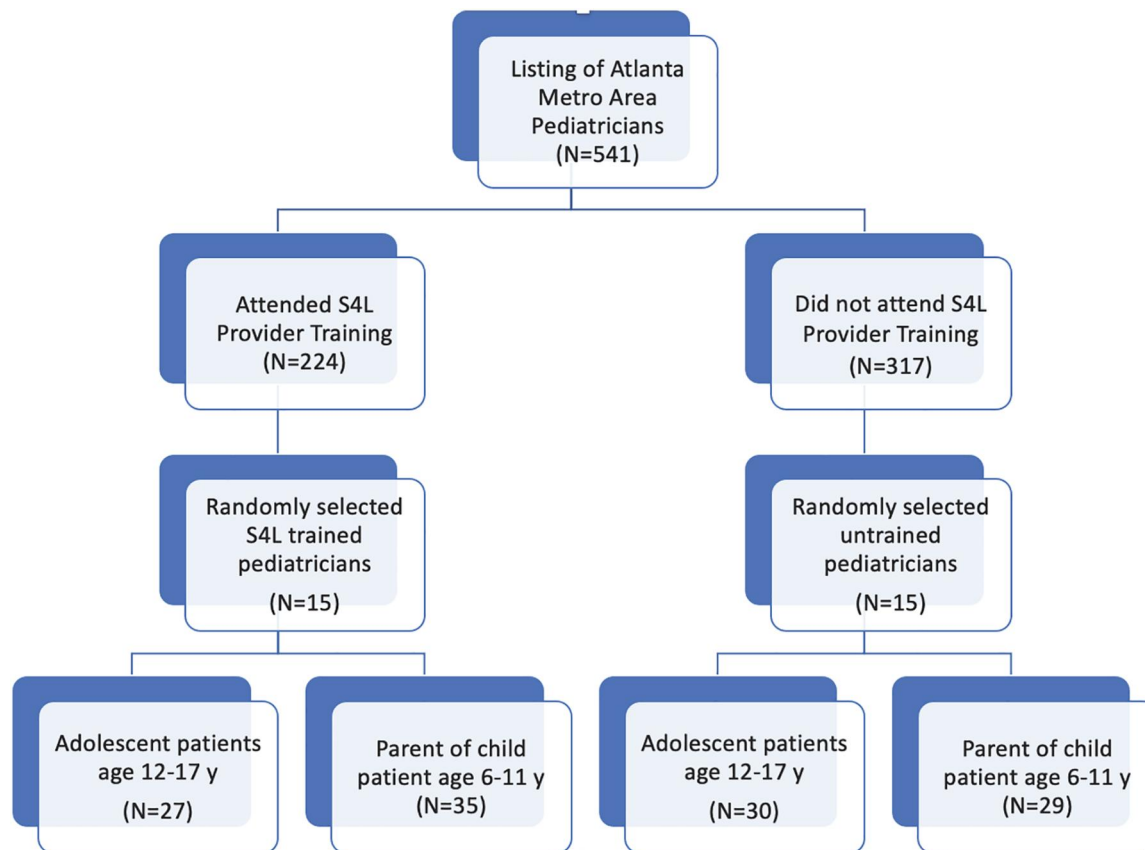


FIGURE 1 Sample selection flow chart. S4L = Strong4Life

2.2 | Data collection

A convenience sample of patients/parents present for well-child visits at their pediatrician's office on the day(s) the interviewer was present were invited to participate. Potential participants were approached in the waiting room while awaiting their appointments and asked about their willingness to complete a short survey following the visit. Parents/patients were informed that participating in the survey was voluntary and that their decision to do so would not in any way impact the care provided in any way, nor would their responses be shared with their pediatrician. The interviewer-administered survey, which was designed specifically for this study, took approximately 5–7 min to complete. Specific questions asked are included in Tables 1–3. A gift card was offered to all who completed the survey. The survey instrument was developed using the secure, REDCap database management software and iPads were utilized for data collection. Data collection took place from August 2016 to July 2017.

2.3 | Measures

A series of statements, after testing for cognitive validity, were used to assess participants' recollection of and satisfaction with the well-child visit and whether diet, physical activity, and/or growth-related counseling was conducted. Interviewers read the statements aloud to survey participants. Response options for some questions were “yes”, “no”, and

“don't known/unsure” and others required a response using a five-point Likert scale ranging from strongly disagree to strongly agree. Agree and strongly agree responses were combined for analyses and compared between patients of physicians who attended the Strong4Life training (trained; intervention group) and those who did not attend the Strong4Life training (untrained; control group). The survey questions were categorized into three main sections as follows:

2.3.1 | Assessment and counseling on weight-related diet and activity habits

Interviewers asked children and parents a series of questions about the assessment and counseling done related to the child's growth, specifically their weight in relation to their height, and their usual diet and activity habits. This included questions about the four evidence-based healthy diet and activity habits: fruit and vegetable consumption, physical activity, sugary drink consumption, and screen time.

2.3.2 | Assessment of readiness to change and goal-setting related to healthy weight management

Children 12 and older were asked if their pediatrician spoke with them about a change or changes they wanted to make to be healthier; those responding yes were asked if barriers to making the desired

TABLE 1 Post well-child visit responses of children >12 years and parents of children 6–11 years to questions related to the diet and physical activity-related assessment done by their Strong4Life trained vs. untrained pediatrician

| | All (n = 121) | Trained (n = 62) | Untrained (n = 59) | p ^a |
|--|---------------|------------------|--------------------|----------------|
| Study sample | | | | |
| Children ≥ 12 years | 64 (53%) | 35 (56%) | 29 (49%) | |
| Parents of child 6–11 years | 57 (47%) | 27 (44%) | 30 (51%) | |
| During your visit, did anyone ask about how physically active you are/your child is? | | | | |
| Yes | 106 (90%) | 57 (93%) | 49 (86%) | 0.31 |
| No | 12 (10%) | 4 (7%) | 8 (14%) | |
| Missing ^b | 3 | 1 | 2 | |
| During your visit, did anyone ask about you/your child's screen time or use of electronics including phone, TV, video games, computer, etc.? | | | | |
| Yes | 79 (65%) | 45 (73%) | 34 (58%) | 0.34 |
| No | 41 (34%) | 16 (26%) | 25 (42%) | |
| Don't know/unsure | 1 (<1%) | 1 (1.6%) | 0 | |
| During your visit, did anyone ask about how often you/your child drinks sugary drinks such as sodas, sports drinks, or sweet tea? | | | | |
| Yes | 79 (65%) | 50 (81%) | 29 (49%) | 0.005 |
| No | 41 (34%) | 12 (19%) | 29 (49%) | |
| Don't know/unsure | 1 (<1%) | 0 | 1 (1.7%) | |
| During your visit, did anyone ask about how often you/your child eats fruits and vegetables? | | | | |
| Yes | 101 (83%) | 57 (92%) | 44 (75%) | 0.04 |
| No | 20 (17%) | 5 (8%) | 15 (25%) | |

^aCluster-adjusted *p*-value comparing trained versus untrained responses (affirmative-Yes vs. non-affirmative-No/Don't know/unsure).

^bRespondents missing data were excluded from the analysis.

change were discussed. Children were also asked whether or not a healthy behavior goal was set during the visit. Parents of younger children (age 6–11 years) were asked the same questions in relation to and in collaboration with their child.

2.3.3 | Pediatric patients/parent perception of diet, activity, and weight-related counseling provided

The final set of questions assessed patient/parent satisfaction with the diet, activity, and growth-related counseling provided during their well-child visit and their level of motivation to make lifestyle improvements.

2.4 | Statistical analysis

Data were collected and managed in REDCap and then exported to SAS, version 9.4 (Cary, NC) for analysis. Descriptive statistics were run first on the entire sample and then stratified by provider training status to examine differences between parents/patients of trained compared to untrained pediatricians. In analyzing Likert-scale results with “yes”, “no”, and “don't know/unsure” response options, non-affirmative responses were combined to facilitate convergence of

statistical models. Since the data were collected in clusters (pediatric PCPs), participants from the same provider office were not independent observations. This correlation was accounted for by running generalized estimating equations when comparing responses between trained and untrained provider practices. *P*-values less than 0.05 were considered to be statistically significant.

3 | RESULTS

3.1 | Sample

A total of 62 (51%) of those surveyed were patients or parents of patients of trained pediatricians and 59 (49%) were patients or parents of untrained pediatricians. Just over half of the respondents, 64 (53%) were patients ≥12 years old; 57 (47%) were parents of a younger child (6–11 years old).

3.2 | Assessment and counseling on weight-related diet and activity habits

Nearly all, 106 (90%) of participating patients/parents of both trained and untrained pediatricians reported being asked about the

TABLE 2 Post well-child visit responses of children >12 years and parents of children 6–11 years to questions related to the lifestyle behavior change counseling approach used by their Strong4Life trained vs. untrained pediatrician

| | All (n = 121) | Trained (n = 62) | Untrained (n = 59) | p ^a |
|---|---------------|------------------|--------------------|----------------|
| Did the doctor talk with you/your child today about changes, changes that they (or you) want to make to help them be healthier? | | | | |
| Yes | 76 (63%) | 47 (76%) | 29 (49%) | 0.005 |
| No | 43 (36%) | 13 (21%) | 30 (51%) | |
| Don't know/unsure | 2 (2%) | 2 (3%) | 0 | |
| During your visit today, did Dr. [provider_name] ask about things that might make it difficult for you/your child to make the changes that you/they want to make? | | | | |
| Yes | 25 (21%) | 15 (25%) | 10 (17%) | 0.41 |
| No | 92 (77%) | 44 (73%) | 48 (81%) | |
| Don't know/unsure | 2 (2%) | 1 (2%) | 1 (2%) | |
| Missing | 2 | 2 | 0 | |
| During your visit, did you/your child set a goal for making healthy changes? | | | | |
| Yes, goal set | 54 (45%) | 36 (59%) | 23 (40%) | 0.046 |
| No, we did not set a goal | 58 (48%) | 24 (39%) | 34 (59%) | |
| Don't know/unsure | 3 (2.5%) | 2 (3%) | 1 (1.7%) | |
| Missing | 1 | 0 | 1 | |
| During your visit today, did Dr. [provider_name] talk about how you/your child has been growing over time, their weight in comparison to their height? | | | | |
| Yes | 105 (87%) | 54 (87%) | 51 (86%) | 1.00 |
| No | 14 (12%) | 6 (10%) | 8 (14%) | |
| Don't know/unsure | 2 (1.7%) | 2 (3%) | 0 | |
| Did Dr. [provider_name] mention whether your child's weight in comparison to his/her height was in a range considered to be underweight, healthy/normal weight, overweight, or very overweight/obese? | | | | |
| Yes | 99 (82%) | 53 (86%) | 46 (78%) | 0.41 |
| No | 19 (16%) | 9 (15%) | 10 (17%) | |
| Don't know/unsure | 3 (3%) | 0 | 3 (5%) | |

^aCluster-adjusted *p*-value comparing trained versus untrained responses (affirmative-Yes vs. non-affirmative-No/Don't know/unsure).

child's physical activity habits and a majority, 79 (65%) were asked about their use of electronics/screen time, with no statistically significant differences between the groups (Table 1). In regard to diet, more patients/parents of trained versus untrained pediatricians reported having been asked about the child's fruit and vegetable consumption, 57 (92%) versus 44 (75%), $p = 0.04$ and their sugary drink consumption, 50 (81%) versus 29 (49%), $p = 0.005$.

3.3 | Assessment of readiness to change and goal-setting

Most patients/parents whose pediatrician attended the Strong4Life training, 47 (76%) reported that their doctor asked about any behavior changes that they would like to make to help them (the child) be healthier (Table 2). This compares to 29 (49%) of patient/parents whose pediatrician did not participate in the training ($p = 0.005$). Only 25 (21%) of all participants recalled being asked by

their pediatrician about barriers to making healthy changes, with no difference between groups.

Just under half of all patients/parents, 54 (45%) reported setting a healthy habit related goal as part of the well-child visit. This was higher among patients/parents of trained versus untrained PCPs, 36 (59%) versus 23 (40%) $p = 0.046$ (Table 2).

The majority of participants recalled that their pediatrician spoke with them about the child's height, weight, and/or growth ($n = 105$, 87%) and most recalled being informed of the child's weight category ($n = 99$, 82%; Table 2). There was with no difference in weight assessment practices between the intervention and control groups.

3.4 | Perception of diet, activity, and weight-related counseling

Nearly all patients/parents were satisfied with the discussions they had with their pediatrician during the well-child visit regarding the child's eating habits, physical activity habits, and growth, with no

TABLE 3 Post well-child visit perceptions of children >12 years and parents of children 6–11 years regarding the diet/activity/weight-related counseling provided by their Strong4Life trained vs. untrained pediatrician

| | All (n = 121) | Trained (n = 62) | Untrained (n = 59) | p ^a |
|---|---------------|------------------|--------------------|----------------|
| Overall, I am satisfied with the discussion that I had with the doctor about my/my child's diet and physical activity (n = 60) | | | | |
| Agree/strongly agree | 56 (93) | 27 (96%) | 29 (91%) | 0.96 |
| Undecided | 1 (2%) | 1 (4%) | 0 | |
| Disagree/strongly disagree | 1 (2%) | 0 | 1 (3%) | |
| Not discussed | 2 (3%) | 0 | 2 (6%) | |
| Missing | 61 | 34 | 27 | |
| Overall, I am satisfied with the discussion that I had with the doctor about my/my child's growth (n = 121) | | | | |
| Agree/strongly agree | 108 (89%) | 55 (89%) | 53 (90%) | 0.24 |
| Undecided | 7 (6%) | 5 (8%) | 2 (3%) | |
| Disagree/strongly disagree | 3 (3%) | 2 (3%) | 1 (2%) | |
| Not discussed | 3 (3%) | 0 | 3 (5%) | |
| All of my questions and/or my child's questions about weight, physical activity, and healthy eating were answered during his/her time with the doctor (n = 121) | | | | |
| Agree/strongly agree | 110 (91%) | 58 (94%) | 52 (88%) | 0.96 |
| Undecided | 5 (4%) | 3 (5%) | 2 (3%) | |
| Disagree/strongly disagree | 1 (1%) | 0 | 1 (2%) | |
| Not discussed | 5 (4%) | 1 (2%) | 4 (7%) | |
| Today's discussion with the doctor motivated me to make changes to improve my/my child's diet or physical activity habits. (n = 60) | | | | |
| Agree/strongly agree | 47 (78%) | 24 (86%) | 23 (72%) | 0.42 |
| Undecided | 7 (12%) | 3 (11%) | 4 (13%) | |
| Disagree/strongly disagree | 1 (2%) | 0 | 1 (3%) | |
| Not discussed | 5 (8%) | 1 (4%) | 4 (13%) | |
| Missing | 61 | 34 | 27 | |

^aCluster-adjusted p-value comparing trained versus untrained responses (affirmative-Yes vs. non-affirmative-No/Don't know/unsure).

significant difference between patients/parents whose pediatricians attended the Strong4Life training versus those who did not. This included 56 (93%) children/parents who were satisfied with the discussion about the child's diet and physical activity and 108 (89%) who were satisfied with the discussion about the child's growth (Table 3). Regardless of whether or not their pediatrician participated in the Strong4Life training most, 47 (78%), reported being motivated following the well-child visit to make changes to improve their/their child's diet or physical activity habits.

4 | DISCUSSION

This study sought to evaluate the impact of the Strong4Life Provider Program, which was designed to promote the use of evidence-based counseling methods and messages, on the diet, activity, and weight management-related counseling provided by pediatricians as part of well-child visits. Patients/parents of trained pediatricians were more likely to report having been asked about evidence-based lifestyle

practices linked to increased obesity risk, including the child's sugary beverage intake and their fruit and vegetable consumption. These patients/parents were also more likely to report having been asked about changes that they would like to make to be healthier and to have set a healthy behavior goal as part of their well-visit than patients/parents of pediatricians who did not participate in the training. This suggests that participation in the brief training resulted in pediatricians incorporating more evidence-based counseling strategies and key messaging into their routine practice. While previous research indicates that trainees need extensive training to become skilled in the use of MI²³ these results suggest that even a brief introduction to the method may have a positive impact.

These findings also demonstrate that there are some areas of healthy diet, activity and weight related counseling being done consistently as part of well-child visits, regardless of participation in the Strong4Life Provider Training program. Nearly all pediatricians (90%) assessed children's physical activity, 83% asked about fruit and vegetable intake, and 87% spoke with patients/parents about the child's growth and their weight in relation to their height. While no

comparable studies among children were found, this compares to the results of a 2018 study of UK adults which demonstrated that 55% of respondents were never asked about a health behavior during any visit to their general practitioner over the previous year.²⁴

Most of the patients/parents surveyed reported that they were satisfied with the discussion about the child's diet and physical activity (93%) and about the child's weight in relation to their height (89%) that took place during the well-child visit. The significance of this finding is not clear. This may indicate that these components of weight management counseling and care are consistently being done well, or it may be an indication that the expectations of patients/parents regarding weight related counseling are low and, therefore, easily satisfied.

Areas where improvement is needed among both trained and untrained pediatricians include assessing screen time which was reported by only 65% of all patients/parent respondents as having been done. This is important as research suggests that patients highly value the concerns communicated by their physician.²⁵ If physicians don't ask about a behavior, or express concern about it, patients are less likely to perceive it to be a problem. Also, very few pediatricians in this study (21%) helped patient/parents anticipate and potentially address barriers to making a desired behavior change. This highlights an important area for further work as those seeking to make healthy behavior are more likely to be successful if they are assisted in identifying and developing a clear plan for addressing barriers.²⁶⁻²⁸

There are some notable limitations to this study. First, because interviews were administered at the child's primary care clinic, immediately following a well-child visit, participants may have provided socially desirable and, therefore, biased responses to the interview questions, though it is expected that this risk would be equal between intervention and control groups. Second, pediatricians may have modified their care practices knowing that the patient/parent interviews were taking place; however, this is not expected to have had a meaningful impact as they were not informed in advance of the specific topics covered in the surveys. Third, there may be difference between the pediatricians who attended the Strong4Life training and those that did not that influence their counseling practices that were not possible to control for in this analysis. And finally, we were unable to directly observe the counseling interaction without having an influence on it, so parent/patient recollection immediately following a visit was used as a proxy. While this recollection may differ from what was actually done, it incorporates an element of quality as counseling that is done but not remembered is unlikely to have an impact on a behavior.

Strengths of this study include the use of a design that allowed for the assessment of the sustained impact of the training program as data were collected 6 months or more after pediatricians participated in it. In addition, data were collected from the patients/parents attending the well-child visit which provides a more meaningful measure of the impact of the training than interviewing the pediatricians themselves. Finally, the random selection of pediatricians helped to minimize the impact of confounding by other factors that influence weight-

related counseling practices, and the availability of a control group provided a means of differentiating the effects of the Strong4Life training from other concurrent influences on counseling practices.

In conclusion, the findings of this study suggest that participation in the Strong4Life Provider Training, designed to introduce and motivate PCPs to use evidence-based counseling methods and messages, improves important aspects of the diet, activity, and weight-related counseling provided by pediatricians as part of well-child visits. Further research is needed to understand the impact of the intervention and its individual components on children's obesity and lifestyle-associated chronic disease risk.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

AUTHOR CONTRIBUTIONS

Jean A. Welsh and Stephanie Walsh designed the study; Samantha J. Lange, Jean A. Welsh, and Holly Gooding drafted the manuscript; Patricia Cheung selected the sample and Samantha J. Lange managed recruitment and data collection; Janet Figueroa analyzed the data. All authors reviewed drafts and approved the final document.

ORCID

Jean A. Welsh  <https://orcid.org/0000-0002-1372-5524>

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