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Teaching primary care physicians the 5 A's for discussing weight with overweight and obese adolescents

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Abstract

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Conflicts of interest
None.

Consent

I confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story.

Contributors

Kathryn I. Pollak, PhD: Helped with the design of the study and reviewed the manuscript.

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Objective—We developed an online intervention to teach physicians both MI (addressed in outcomes paper) and the 5 A's (Ask, Advise, Assess, Assist, and Arrange) when discussing weight with overweight/obese adolescents.

Methods—We audio recorded 527 encounters between adolescents and physicians and coded the 5 A's during weight/BMI discussions. Half of physicians were randomized to receive a tailored, intervention that included their own audio-recorded clips. To examine arm differences, we used multilevel linear mixed-effects models for sum of 5 A's and generalized estimating equations (GEE) models with a logit link for each of the A's separately.

Results—Intervention arm physicians used more A's than control physicians (estimated difference = 0.6; 95% CI(0.2,1.0); $p = 0.001$). Intervention physicians used Assess ($p = 0.004$), Assist ($p = 0.001$) and Arrange ($p = 0.02$) more when compared to control arm physicians.

Conclusion—An online intervention increased physicians' use of the 5 A's when discussing weight with overweight adolescents. These results are promising as the online intervention improved performance for the three A's that are infrequently used (Assess, Assist, and Arrange) yet have the most impact. *Practice implications:* A tailored online program can increase physicians' use of the 5 A's behavioral counseling approach in clinical practice with adolescents.

Keywords

Physicians; Motivational interviewing; Adolescents; Obesity

1. Introduction

Over 30% of American adolescents are overweight or obese [1], putting them at risk of future obesity and chronic illness [2,3]. Although addressing adolescent obesity is a multifaceted problem, an essential part of the solution includes physicians [4,5]. Although little is known about counseling adolescents, physician counseling can help overweight adults improve their physical activity, nutrition and weight [6,7].

Guidelines for counseling adults about weight and other behaviors suggest that physicians use the 5 A's as a road map to guide their discussions. The 5 A's, applied from the smoking literature, is a simple mnemonic (Ask, Advise, Assess, Assist, and Arrange) and should take no more than 3 min of a 20-min encounter. The 5 A's have some theoretical foundation in the transtheoretical model of behavior change (Assessing readiness) [8] and promoting accountability (Arranging). Use of the 5 A's promotes higher motivation and more quit attempts among smokers [9]. Only recently have the 5 A's been applied to weight-related discussions among adults. [10]. This study found that physicians' pattern of use mimics those found with physicians discussing smoking. Specifically, physicians mostly Ask and Advise, yet, Assess and Arrange were related to weight-related behavior change. However, the best results occur when physicians use all 5 A's rather than just the first two. Arguably, just Asking and Advising represents a unidirectional conversation with physicians telling patients to change without much input from them. Adding, the three following A's (Assess, Assist, and Arrange), provides a richer and more meaningful conversation for patients. For instance, physicians can learn whether patients are open to changing any of their weight-related behaviors (Assess), briefly discuss how they might attempt to make changes (Assist),

or let them know that the topic is important enough that the physician would like to see them again to address this topic at future visits (Arrange).

Although untested, the 5 A's might be especially important in conversations with adolescents. Supporting adolescent autonomy by Assessing whether they want to change could be more powerful than even with adults who are not striving for independence the way adolescents are. Assessing in a way that emphasizes that adolescents are responsible for their own behavior change is consistent with current primary care guidelines[11,12]. Adolescents might be less aware of ways to change behaviors than adults as their behaviors are still forming; thus, when physicians Assist them in changing weight-related behaviors, it could be more impactful than it would be for adults whose behaviors are more entrenched. Further, when physicians Arrange a follow-up visit with adolescents, this could drive the message home that their behaviors matter enough to physicians to schedule another visit. Physicians could a powerful role as they arguably serve as authority figures with whom adolescents might share sensitive health information as physicians are encouraged to promise of confidentiality. With this role, adolescents might be more likely to take physicians' messages more seriously.

The aim of this paper is to examine the effect of a tailored online intervention in increasing physician use of 5 A's during weight-related counseling with adolescents. The main aim of the intervention was to teach MI; however, teaching the 5 A's were a secondary aim. Unlike other counseling techniques, the 5 A's are straightforward for physicians to learn. They provide physicians with a "roadmap" that guides them through the weight discussion. Yet, many physicians have not learned the roadmap or use it consistently. To teach this roadmap, we developed an online intervention to demonstrate and give feedback to pediatricians and family physicians about how to use the 5 A's when discussing attaining a healthy weight with overweight and obese adolescents.

2. Methods

2.1. Recruitment: Physicians

The Teen CHAT study (Communicating Health: Analyzing Talk) was approved by the Duke University School of Medicine IRB. We approached primary care physicians from academically-affiliated and community-based practices to participate in a study examining how they address healthy weight with their adolescent patients. Only physicians who had at least two patients recruited during the Baseline Phase were randomized for the Intervention Phase of the study and continue through the Summary Report Phase (data not discussed in this paper; see Fig. 1). Physicians gave written consent, completed a baseline survey, and provided an electronic signature for generating letters to their patients. The years of collection were between 2009 and 13, and data analysis was completed in May 2015.

2.2. Recruitment: Patients

Patient recruitment procedures were the same for all Phases. We reviewed physicians' schedules to identify eligible patients: English-speaking, BMI > 85th percentile for age and gender, age 12–18, not pregnant, and with a preventive or return visit scheduled. We sent

adolescents and their parents letters signed by the adolescent's physician, including a toll-free number for refusal. We obtained both parents' and adolescents' verbal consent/assent and asked adolescents to complete a baseline telephone survey. Research staff then met adolescent patients in clinic, obtained written assent and consent, and audio recorded their visits. We blinded physicians to when their visit was audio recorded by including an audio recorder case in every exam room and only putting a recorder in when a Teen CHAT patient was being seen.

2.3. Interventions

We have described intervention details in another manuscript [13]. Randomized physicians were assigned to view a 60-min individually tailored, online intervention that contained clips from their own audio-recorded patient encounters. Physicians spent on average 54 min viewing this intervention (range: 31–115 min). The intervention contained four modules (15 min each) explaining the value of addressing weight and weight-related behaviors, MI techniques (addressed separately in Pollak, et al. [14] the 5 A's, and techniques for communicating with adolescents. The intervention contained didactic information about each of the 5 A's separately. We created an exemplar video in which a physician actor had a conversation with an adolescent patient. As the physician actor was talking, at the bottom of the screen, the relevant "A" would appear in text to provide scaffolding for the learner to see when each of the A's were occurring. Then, physicians received clips from their own audio-recorded encounters in which they used each of the 5 A's and were provided feedback about what they did well and how to improve. Finally, physicians were asked to set a goal for one of the 5 A's they would attempt to incorporate. We did not want to overwhelm physicians by asking them to try to use all of the 5 A's as most were only using 2 of the A's at Baseline (Ask and Advise). The system emailed physicians in the fourth week after they viewed the online intervention to remind them of their 5 A's goals. Details of the Summary Report Phase are not provided as we only present results from the Intervention Phase in this paper.

2.4. Measures: 5 A's

We coded the audio-recorded conversations directly from the audio recordings for use of the 5 A's: 1) *Asks* about weight, nutrition, exercise, sleep, or screen time, 2) *Advises* on how adolescent should change one of those topics, 3) *Assesses* whether patient wants to change, 4) *Assists* patient in setting goals, and 5) *Arranges* for follow-up via physician visit, nutrition visit, or telephone contact (Table 1).

Two independent coders analyzed audio recordings; 20% were double-coded to assess inter-rater reliability. Disagreements were discussed and final decisions made by consensus. Inter-rater agreement was calculated using Cohen's Kappa [15]. All codes had adequate agreement (Ask = 0.86, Advise = 0.73, Assess = 0.74, Assist = 0.75, and Arrange = 0.86).

For each of the 5 A's, we created a dichotomous variable that was coded with a "1" if an "A" was used in the encounter at least once or a 0 if not used. The primary outcome was a summary score for the number of different 5 A's used that was created for each encounter by summing over each of the 5 A's dichotomous variables (range 0–5).

2.5. Analysis

For all analyses, we used SAS for Windows (Version 9.4; SAS Institute, Cary, NC). For the continuous measure (summary score of number of different 5 A's), we fit multilevel linear mixed models (LMM) with random effects for physicians to account for clustering of patients within physician and for Phase nested within physician [16–18]. For the dichotomous variable (individual 5 A's use variables), we fit generalized estimating equation (GEE) models to account for clustering of patients within physicians. For all models, fixed effects for Phase and interaction terms for Phase and treatment arm were included (results for Summary Report Phase not presented).

3. Results

3.1. Sample characteristics

See CONSORT diagram for recruitment and retention data (Fig. 2). Table 2 shows demographic characteristics of physicians (different sets patients were recruited for each Phase). Physicians in the intervention arm were younger, and more were pediatricians than those in the control arm. The mean total times were 21.9 and 21.8 min in Baseline and Intervention Phases respectively, of which physicians and patients spent a means of 5.1 (23%) and 5.3 (24%) minutes discussing weight-related topics.

3.2. Frequency of 5 A's usage

Most conversations included discussions of weight. In the Baseline Phase (both arms combined), mean number of 5 A's at baseline was low ($M = 2.1$, $SD = 1.1$), and the use of the individual 5 A's were: Ask 89%, Advise 73%, Assess 10%, Assist 24% and Arrange 16%. In the Intervention Phase, estimated mean number of 5 A's was 0.6 higher in the intervention arm than in the control arm ($p = 0.001$; Table 3). The intraclass correlation (ICC) for number of 5 A's was 0.24 (which indicates a somewhat high inter-correlation among patients of the same physicians), which represents the similarity of use of number of 5 A's among different patients who had encounters with the same physician in the same Phase (e.g., clustering effect).

For use of each of the individual 5 A's, separately we found no arm difference in use of Ask and Advise ($p = 0.79$; Table 3). Estimated proportions of use of Ask and Advise were high in both arms (Ask 94–95%; Advise 73–83%). In the Intervention Phase, the estimated odds of use of Assist and Arrange for physicians in the intervention arm was over 2 times higher compared to control (all p 's < 0.05 ; Table 3) with estimated use of Assist increasing to well over 50% in the intervention arm. Also, the estimated odds of Assess was 3.5 times higher in the intervention arm compared to control ($p = 0.004$). Baseline use of Assess was low (10%) and increased to over 30% in the Intervention Phase.

4. Discussion and conclusion

4.1. Discussion

These findings are promising. Our 60-min Internet-based intervention more than doubled the frequency of physicians Assessing, Assisting, and Arranging when discussing weight with

overweight and obese adolescents. These A's have been linked to changes in weight-related behaviors in adults. Importantly, physicians in the intervention arm went from almost never Assessing what their adolescent patients wanted to change to doing it one-third of the time. Knowing whether patients want to change significantly can change the conversation.

Increases were also seen for Arrange, for which proportions almost doubled among physicians in the intervention arm. In our previous work, when physicians Arranged, patients were more likely to lose weight after the visit [10]. Arrange promotes accountability in patients as they know they will need to talk about their goals again. Arrange also send the message to patients that the topic is important enough that the physician wants to spend time on it in a future visit.

The biggest increase was found in frequency of Assisting. Prior to the intervention, most physicians were only Asking and Advising. After the intervention, the proportion who assisted went from one-quarter to two-thirds helping patients with plans to make changes. The three A's that physicians increased likely made the conversations more interactive rather than didactic ("I'm concerned about your weight and think you need to do something about it.") versus ("What would you like to do about how much Koolaid you drink?").

What is most notable about these results is that the 5 A's was only one out of four modules of the Internet-based intervention. The intervention also improved how much the physicians used MI techniques (reported in main outcomes paper), which was the primary focus of the intervention. The module on the 5 A's was only 15 min long, yet changed physician behavior.

This study should be viewed in light of a few limitations. First, these analyses were limited to those patients who agreed to be in the study and showed up to their appointment on time so we could audio record them. Also, with a small sample of physicians, we were unable to control for any individual level factors in our analyses. We asked physicians to choose one of the 5 A's to incorporate rather than asking them to include all five. This might have dampened the effect of the intervention. Yet, even though the intervention did encourage physicians to use all of the 5 A's, it still was able to increase use from two to three. The study also has several strengths. This is the first intervention of its kind to attempt to teach the 5 A's with a tailored Internet format. Most have used either face-to-face formats that are inconvenient for physicians or have used ineffective online, didactic presentations. The intervention was potent and lasting in spite of its brevity.

4.2. Conclusion

This intervention shows promise for changing how physicians talk to overweight and obese adolescents about weight-related topics. Many physicians have not learned how to structure the conversation. Helping them learn how to communicate in a format that is easy for them to use is key and most likely to be widely adopted. More research should be done to learn whether this type of short intervention can promote larger weight-related behavior changes compared with usual care practices.

4.3. Implications

Physicians are able to increase their use of 5 A's when talking to adolescents with 15 min dedicated from a 60-min online tailored intervention. An adapted version of this intervention could help physicians who counsel adults to change weight-related behaviors. Given the importance of teaching physicians a roadmap for behavior change counseling conversations, more efforts should be made to increase physician use of the 5 A's with adolescents.

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Fig. 1.
Study flowchart.

Fig. 2.
Flow of participants in Teen CHAT Trial.

Table 1

5 A's: definitions and examples from Teen CHAT.

	Definition	Examples
Ask	Physician asks the patient about weight, nutrition, and/or exercise	"Do you exercise?" "Tell me what you typically eat for breakfast."
Advise	Physician provides the patient with clear, strong advice.	"You need to get 30 min of exercise a day, 5 days a week." "I think you need to lose about 20 pounds." "Because of your diabetes, it is important for you to exercise."
Assess	Physician verbally assesses patient's readiness to change	"What do you want to do about your weight in the next month?" "Do you see yourself getting more exercise in the coming months?"
Assist	Physician provides brief counseling or self-help materials.	"How much do you want to lose weight?" "What might get in the way of your plan to exercise three times a week?" "How are you feeling about being able to make this change?"
Arrange	Physician arranges for follow-up with physician or nutritionist.	"I'd like to see you again in a month to see how your plan is going?" "I will schedule an appointment for you to see our nutritionist."

Table 2

Physician characteristics.

Characteristic ^a	Overall (n = 46)	Tx (n = 22)	Control (n = 24)
Age (M, SD)	40.8(8.6)	38.9(8.5)	42.5(8.7)
BMI	23.9(3.9)	23.7(4.2)	24.1(3.7)
White/Asian race (%)	91	91	92
Female (%)	65	68	63
Years since med school (M, SD)	11.7(8.9)	9.3(8.5)	13.8(8.9)
Specialty pediatrics (%)	83	95	71
Prior MITI training (%)	24	23	25

^aPhysician missing data: 5 missing age (2 Tx, 3 Control).

Table 3

Results of Multilevel LMM for Number of 5A's and GEE models for use of individual 5A's*.

5 A's Construct	Baseline Phase (46 physicians; 176 patients)		Intervention Phase (45 physicians; 202 patients)	
	Estimated mean 2.1 Estimated%	Intervention Estimated Mean 2.9 Intervention Estimated%	Control Estimated Mean 2.3 Control Estimated%	Mean Difference Between Arms (95% CI; p-value) 0.6(0.2,1.0);0.001 Odds ratio (95% CI; p-value)
Ask	89	94	95	1.0(0.9,1.1);0.79
Advise	73	73	83	0.9(0.7,1.0);0.11
Assess	10	31	9	3.5(1.5,8.0);0.004
Assist	24	63	28	2.2(1.4,3.5);0.001
Arrange	17	32	12	2.7(1.2,5.9);0.02

* $n = 378$ physician/adolescent audio-recorded conversations; 1 physician had no patients in Intervention Phase.