

Talking About Weight With Families—Helping Health Care Professionals Start the Conversation: A Nonrandomized Controlled Trial

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Julie Bernard-Genest, MD, MScCH (HPTE)^{1,2}, Lisa Chu, PhD², Elizabeth Dettmer, PhD, C Psych², Catharine M. Walsh, MD, MEd, PhD², Amy C. McPherson, PhD, CPsychol, AFBPs^{3,4}, Jonah Strub, BA Hons², Alissa Steinberg, RD, CDE, MHSc², Cathleen Steinegger, MD, MSc², and Jill K. Hamilton, MD^{2,4} 

Abstract

Health care professionals (HCPs) and trainees feel ill-equipped to discuss weight-related issues with children and their families. A whiteboard video for HCPs and trainees outlining strategies to communicate about weight was developed and evaluated. Seventy HCPs, including 15 trainees, participated in the baseline assessment and 39 repeated measures 4 to 6 months later. HCP self-efficacy for initiating conversations with overweight and underweight patients, measured immediately following the video, significantly improved from pre-video values ($Z = -5.6, P \leq .001$, and $Z = -3.3, P = .001$, respectively). Although improvements were not sustained 4 to 6 months later (overweight: $P = .143$, and underweight: $P = .846$), no significant decline was observed, suggesting retention of the skill. A majority of HCP respondents would recommend the video to a colleague and feel it will affect their practice. Thus, the present study suggests educational videos may be an effective tool for facilitating healthy weight-related conversations between HCPs and their pediatric patients.

Keywords

weight management, pediatrics, health care professional, conversation, educational video, confidence

Background

Approximately 1 in 3 children and adolescents are classified as overweight or obese^{1,2} and eating disorders, such as anorexia or bulimia, are the third most common chronic condition in adolescents.³ Although weight-related issues are highly prevalent in pediatrics and are associated with significant short- and long-term morbidity and mortality, the extant literature shows that health care professionals (HCPs) feel ill-equipped when addressing these problems, particularly obesity.^{4–8} A lack of self-efficacy and training are recognized as 2 significant barriers to discussing weight with patients and their families.^{5–7} Other challenges for HCPs include the fear of damaging their relationship with patients and their families and the apprehension of triggering other issues such as eating disorders.^{5,8}

Educational videos have been shown to be an effective way to improve knowledge, confidence, and attitudes of HCPs and trainees.^{9–12} The objectives of this

study were the following: (1) to develop an educational whiteboard video for HCPs that outlines strategies to communicate about weight for HCPs and (2) to evaluate the usability, content, quality, and impact of the video on HCPs' self-efficacy to discuss weight-related issues with pediatric patients and their families. We hypothesized that such a video would improve the self-efficacy of HCPs for discussing weight-related issues with families.

¹Centre Hospitalier universitaire de Québec, Université Laval, Québec City, Québec, Canada

²The Hospital for Sick Children, Toronto, Ontario, Canada

³Holland Bloorview Kids Rehabilitation Hospital, Toronto, Ontario, Canada

⁴University of Toronto, Toronto, Ontario, Canada

Corresponding Author:

Jill K. Hamilton, Division of Endocrinology, The Hospital for Sick Children, 555 University Avenue, Toronto, Ontario M5G 1X8, Canada.

Email: jill.hamilton@sickkids.ca

Methods

Video Development

Our group conducted a scoping review of evidence-based weight-related communication best practices.¹³ Additionally, we conducted focus groups with parents and youth to explore their perceptions as to how HCPs should discuss weight-related topics in relation to the extant literature.¹⁴ Based on this work, key messages and themes for the video content were identified. Using Mayer's¹⁵ principles of multimedia design, which have been shown to enhance learning, a high-definition animated whiteboard video was developed with *VideoScribe* (Version 3.2.1 PRO, Sparkol Inc, Brooklyn, NY) and *Graphic* software (Version 3.1). The video underwent usability testing conducted with 20 different HCPs (10 per cycle). Each HCP was interviewed by a research team member following a viewing of the video. Questions regarding content, length of video, presentation of information, and satisfaction on viewing were posed. Comments regarding what was most and least useful, what could be done differently, and suggestions for improvement were noted. After the first cycle, the video was refined based on common themes identified through content analysis of the interviews, field notes, and the questionnaires. A second iterative cycle of usability testing was then conducted with an additional 10 HCPs to identify any further recommendations for change. The final video was then refined for use in this study.

Subjects and Data Collection

Physicians, nurses, nurse practitioners, dietitians, physiotherapists, occupational therapists, psychologists, social workers, and trainees from these professions who work with children were recruited from hospitals, universities, and community practices in the Greater Toronto Area to review the final video. Posters were displayed throughout the Hospital for Sick Children (SickKids), an urban academic pediatric hospital and distributed to physician, nursing, dietetic, physiotherapy, occupational therapy, psychology, and social work departments by email. The poster was also distributed by email to colleagues and trainees enrolled in University of Toronto training programs and throughout the city network of community pediatricians and associated allied health professionals. Interested HCPs and trainees contacted the team directly through email or by phone. They were provided with an information letter and a secure Internet link via email to access the video and pre/post questionnaires using the Research Electronic Data Capture portal.¹⁶ By completing and submitting the

questionnaires, participants provided implied consent to the study. This nonrandomized, prospective, single-arm trial was conducted at SickKids Hospital in Toronto, Canada, and approved by the SickKids Institutional Research Ethics Board.

Participants first completed a pre-questionnaire to collect demographic, practice data, and ratings of perceived self-efficacy in talking about weight-related issues. They were then prompted to watch the video. Immediately after the video, they completed a satisfaction questionnaire, and rerated their perceived self-efficacy. Self-efficacy was assessed by asking them to rate their degree of confidence (0-100) initiating a conversation with a family about weight in the context of (1) overweight and (2) underweight. Participants, who agreed to be contacted 4 to 6 months later, were also asked to complete a short questionnaire on perceived self-efficacy, satisfaction, and impact on practice. The pre- and post-questionnaires were adapted from a questionnaire previously used in a study evaluating an educational website for teenagers¹⁷ and employed a Likert-type scale.¹⁸ Questions on self-efficacy were built according to the Bandura Guide.¹⁹ An open response section was provided at the end for participants to provide any additional feedback. Refer to eFigure 1 and eFigure 2 in Supplemental file 1 (available online) for a copy of the questionnaires distributed to participants.

Statistical Analysis

Descriptive statistics of baseline HCP demographic and practice variables were presented as mean and standard deviations or median and interquartile ranges where applicable. Normality was checked using the Shapiro-Wilk test. Pre-, post-, and 6-month retention self-efficacy scores were analyzed with the Friedman test, followed by Wilcoxon-signed rank tests for paired comparisons. A sample size of 29 achieves 80% power to detect a mean change of 10 points on the scale between pre- and post-video and between pre- and 4 to 6 months later with an estimated standard deviation of 15 and α of 0.13 using a 2-sided paired *t* test. To account for potential dropout, a minimum of 35 participants were recruited. Significance was set at $P < .05$, and Bonferroni correction was used to adjust for multiple comparisons.

Results

Video Development

We created an educational resource addressing weight-related conversations between health care professionals and their patients. This resource was the product of synthesized research evidence¹⁴ and iterative feedback from

parents and teenagers. The resource was shared as a 6-minute white board–style cartoon video narrated from the perspective of a 15-year-old female named Megan. Megan discussed who she felt comfortable engaging in weight-related discussions with, the timing of such conversations, how these conversations should be initiated and carried out, the use of strengths-based language emphasizing health over weight, collaborative goal setting, and how pragmatic and inclusive approaches to weight management were more appreciated over those that were restrictive in nature. The video can be found at the following link as the “5As ASK video” (<https://meant2prevent.ca/2019/06/03/5as-of-pediatric-obesity-management/>).

Description of the Participants

A total of 70 participants (59 females) including 15 trainees and 55 HCPs (practice duration 12.9 ± 10.7 years) from varied disciplines were recruited (Table 1). Most of the responders cared for pediatric patients who meet criteria for either overweight or underweight at least once a month. Approximately half of the participants (45%) had previously received training on how to communicate about weight, with a lecture being the most common educational format. The prior training time of participants greatly varied (Table 1). A proportion of participants (79%) agreed to be contacted 6 months later to complete a short follow-up questionnaire. Among these participants, 39 completed the questionnaire including 9 trainees and 30 HCPs (Figure 1). Twenty-one of these 39 participants (54%) had received previous training on how to communicate about weight.

Evaluation of the Video

A majority of participants rated the following video features as a 4 or 5 out of 5: “overall satisfaction” (79%; 56 participants), “how enjoyable the video was to watch” (83%; 59 participants), and “content presented in an interesting way that held attention” (79%; 56 participants). Almost all participants found the information provided in the video easy to understand (94%; 67 participants rated a 4 or 5 out of 5). Moreover, 80% of participants felt the length of the video was appropriate (57 participants rated 4 or 5 out of 5) and the right amount of information was received according to 62% of participants (44 participants rated 4 or 5 out of 5).

Immediately after watching the video, a high proportion (66%) of the participants highly agreed with the statement, “The information provided in the video will affect my practice when talking about weight with pediatric patients and their families” (Figure 2A).

Table 1. Demographic Characteristics of the Study Participants (n = 70).

Characteristics	Number of Participants (%)
Age, years	
18-24	9 (13)
25-34	24 (34)
35-44	19 (27)
45-54	10 (14)
>55	7 (10)
I prefer not to answer	1 (1)
Sex	
Female	58 (83)
Male	11 (16)
I prefer not to answer	1 (1)
Ethnicity	
White	54 (77)
Black or African American	1 (1)
Asian/Pacific Islander	8 (11)
Other	3 (4)
I prefer not to answer	4 (6)
HCPs (n = 55, 79%)	
Dietitians	21 (30)
General pediatricians	15 (21)
Pediatrician subspecialists	6 (8)
Nurses	8 (11)
Nurse practitioners	1 (2)
Physiotherapists	1 (1)
Occupational therapists	1 (1)
Others	2 (3)
Trainees (n = 15, 21%)	
Medical students	8 (11)
Residents in pediatrics	7 (10)
Hours of training time (n = 32)	
< 1 hour	2 (6)
1-4 hours	10 (31)
5-7 hours	1 (3)
1 day-1 week	9 (28)
> 1 week	10 (31)

Abbreviation: HCP, health care provider.

Nearly 75% of the participants also agreed with the statement, “I learned something new on communicating about weight with pediatric patients and their families” (Figure 2B). Approximately the same proportion of participants highly agreed with the statement, “My questions about communicating effectively about weight-related topics with pediatric patients and their families were answered” (Figure 2C). Additionally, a high proportion of participants (75%) highly agreed with the statement, “I would recommend the video to a colleague or trainee” (Figure 2D). Six months later, the proportion of participants who reported an actual

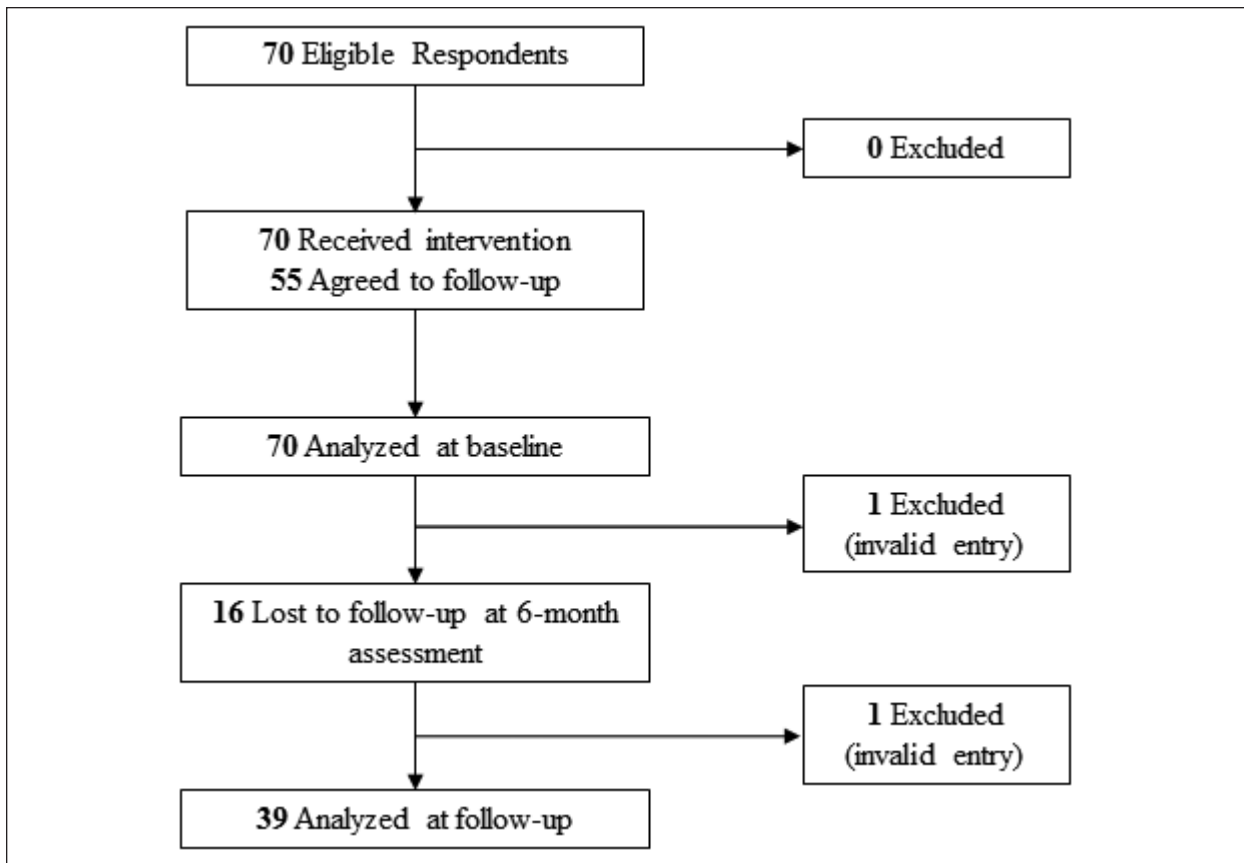


Figure 1. Consolidated Standards for Reporting of Trials (CONSORT) flow diagram.

impact on their practice remained significantly high (51%; Figure 3).

Perceived Self-Efficacy

The confidence level (on a scale from 0 to 100) of participants in initiating weight-related conversations with patients and their family was documented for 70 participants at the baseline. Confidence level at baseline was 66.2 ± 28.7 and 77.4 ± 24.5 for initiating overweight and underweight conversations, respectively. In total, 39 participants completed the questionnaire immediately following the video and 6 months later. In this group, self-efficacy scores immediately following the video were 75.8 ± 26.0 and 78.6 ± 24.8 for initiating conversations about overweight and underweight, respectively, and were statistically significant when compared with baseline (overweight conversation: $Z = -3.93$, $P < .001$, and underweight conversation: $Z = -2.72$, $P = .004$). The 6 month later self-efficacy scores of HCPs were 72.4 ± 22.5 for initiating overweight-related conversations and 80.4 ± 21.8 for initiating underweight conversations. These scores were higher than the

baseline scores, but were not significantly different based on the Wilcoxon signed-rank test results (overweight conversations: $Z = -1.5$, $P = .129$, and underweight conversations: $Z = -1.6$, $P = .116$). No statistically significant differences were found between self-efficacy scores immediately post-video and 6 months later (overweight conversations: $Z = -1.5$, $P = .143$, and underweight conversations: $Z = -0.21$, $P = .846$). Results are shown in Figure 4, showing the median and 75th percentile for self-efficacy scores at each time point.

Discussion

Watching the educational whiteboard video led to increased HCP self-efficacy scores for talking about weight-related issues with pediatric patients and their families. The video also showed positive outcomes related to training. According to Kirkpatrick's hierarchy of levels of evaluation,²⁰ educational outcomes can be measured at 4 levels. Our video was received positively for the first 3 levels of Kirkpatrick's training evaluation model.²⁰ The first level of training evaluation is reaction

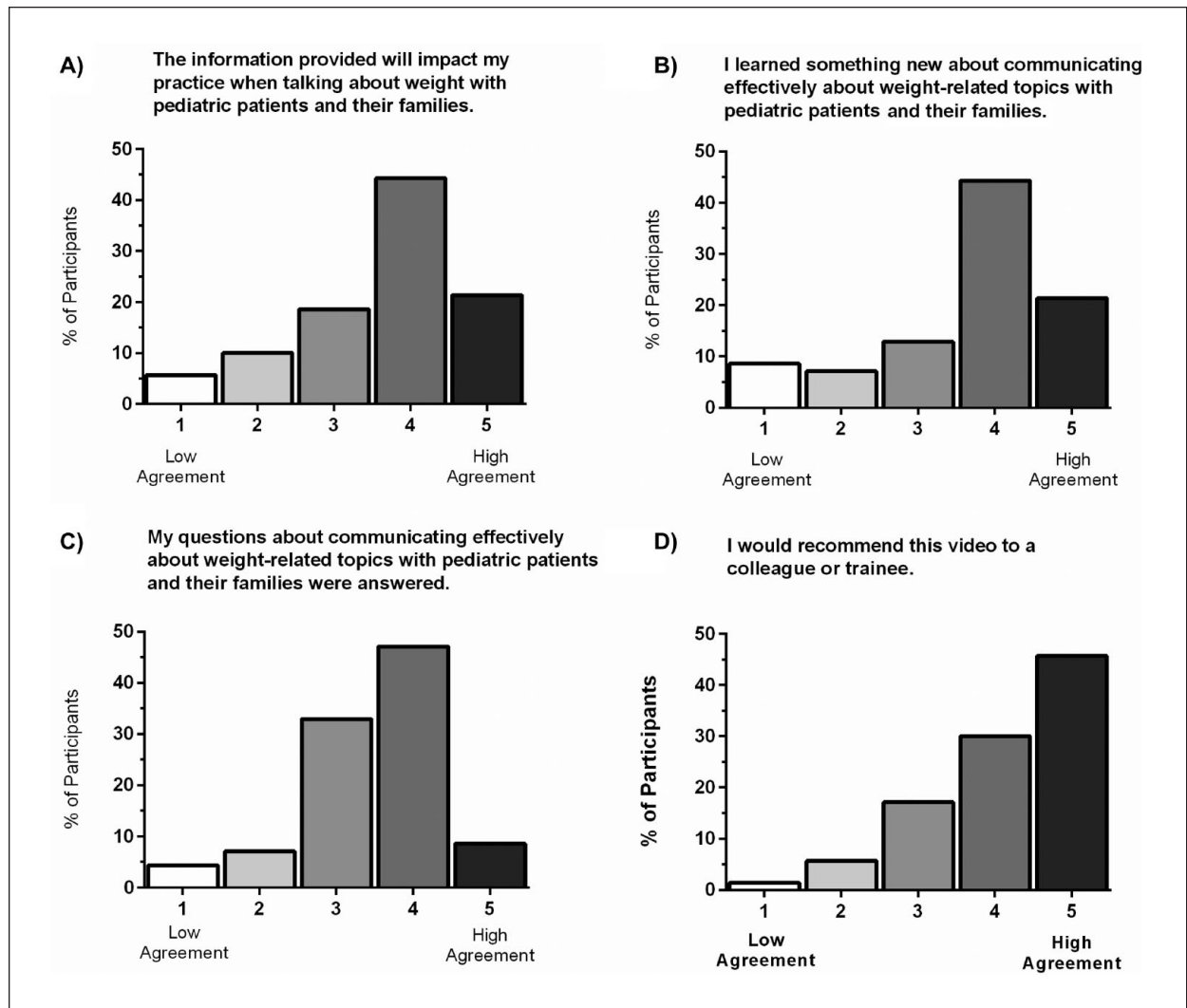


Figure 2. Video evaluation. Participant agreement (%) measured using a Likert-type scale (1 to 5, where low agreement = 1 and high agreement = 5) is shown for the following statements: (A) The information provided will affect my practice when talking about weight with pediatric patients and their families ($n = 70$). (B) I learned something new about communicating effectively about weight-related topics with pediatric patients and their families ($n = 70$). (C) My questions about communicating effectively about weight-related topics with pediatric patients and their families were answered ($n = 70$). (D) I would recommend this video to a colleague or trainee ($n = 70$).

(satisfaction with the training), the second is learning (degree of knowledge, attitude, confidence, and skills gained with the training), the third is behavior (degree of application in clinical practice of what has been learned with the training), and the highest level is results (impact on patients). Indeed, the majority of the participants reported overall satisfaction with the video, thought the video was enjoyable, easy to understand, appropriate in length, and presented in an interesting manner (first level, reaction). Immediately after watching the video, the HCPs felt more confident about initiating a conversation with both overweight and underweight pediatric

patients and their families (second level, learning). When self-efficacy scores at 6 months were compared with baseline self-efficacy scores, although not statistically significant, a trend for improvement was observed (third level, behaviors). Additionally, there was no significant decline in self-efficacy scores from immediate posttraining to 6 months suggesting information from watching the video was retained.

HCPs rated their baseline perceived self-efficacy scores as higher than what was reported in a previous study.⁵ These scores are likely affected by their prior training—almost half had received previous training on

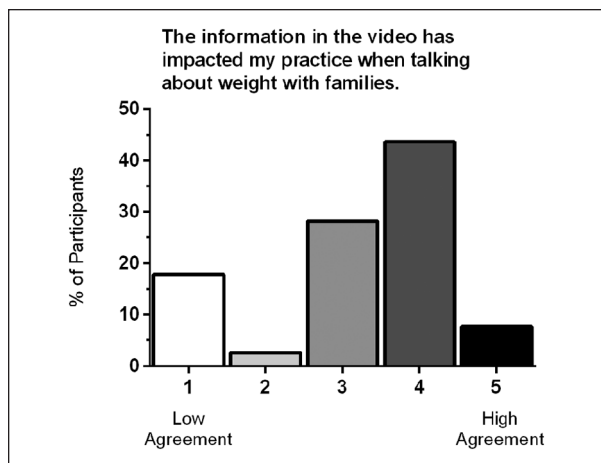


Figure 3. Video evaluation 4 to 6 months later. Participant agreement (%) measured using a Likert-type scale (1 to 5, where low agreement = 1 and high agreement = 5) is shown for the following statements: The information in the video has affected my practice when talking about weight with families ($n = 39$).

communication about weight-related issues. Such training may have minimized the impact of the video. The proportion of HCPs who had prior training on communicating about weight was even higher for the participants included in the 6 month later analysis. Thus, the trend for improved self-efficacy observed between scores at baseline and 6 months later may have been higher if our participants had less background training on the topic. Additionally, the impact may have been greater if participants were provided with unlimited access to the video.

Six months after watching the video, a majority (51%) of our participants described that the video influenced their practice for discussing weight-related issues (third level, behavioral change). We feel that this result is highly clinically relevant especially given the minimal time requirement for engagement (watching a 6-minute video) and the time elapsed since the intervention. Thus, positive impact on clinical practice using a video intervention is very possible, as previously described and supported.¹¹

The positive impact of an educational video intervention on participants' perceived self-efficacy for performing a task is well supported by other studies.^{10,11} One intervention, which included HCPs from various backgrounds (pediatric emergency physicians, general pediatricians, trainees, and nurse practitioners), as in our study, evaluated the impact of a video on the clinicians' comfort at performing lumbar punctures.¹¹ Of the participants who watched the video, 78% felt it had increased their level of comfort, and showed significant increases in

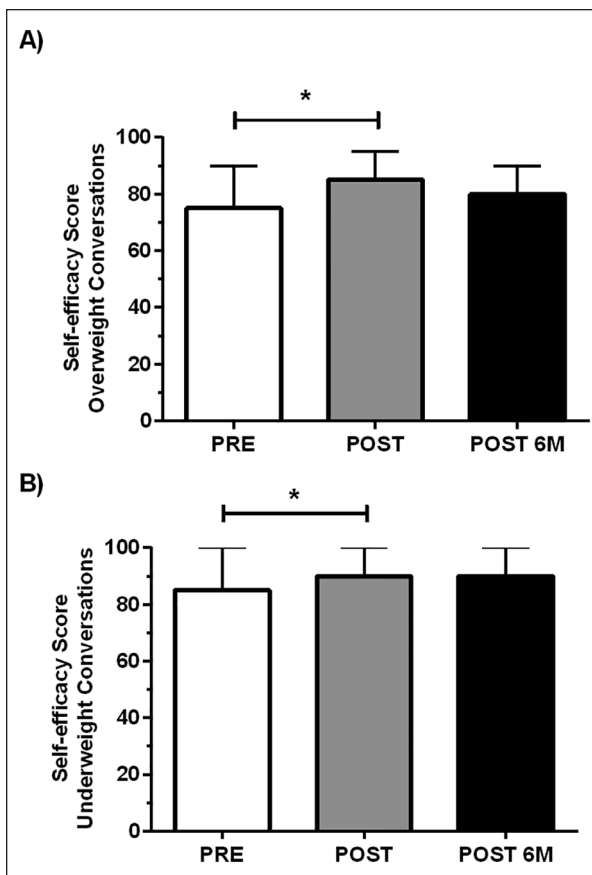


Figure 4. (A) Self-efficacy score for initiating overweight conversations with a family or a pediatric patient. Friedman test showed a significant main effect ($P < .001$). *Significant difference reported when compared with pre-video self-efficacy score ($Z = -3.93$, $P < .001$), according to Wilcoxon signed-rank test. Values are reported as median and 75th percentile. (B) Self-efficacy score for initiating underweight conversations with a family or a pediatric patient. Friedman test showed a significant main effect ($P = .028$). *Significant difference reported when compared with pre-video self-efficacy score, according to Wilcoxon signed-rank test ($Z = -2.72$, $P = .004$). Values are reported as median and 75th percentile. PRE, pre-video; POST, immediately post-video; POST 6M, retention 4 to 6 months after watching the video.

adherence to evidence-based best practices.¹¹ Another study included undergraduate dental students who watched an educational video on the use of local anesthetics with children in addition to receiving the standard teaching.¹⁰ Confidence level in managing this issue was significantly higher after the intervention and persisted 4 months later compared with students who received standard teaching only.¹⁰ Despite the positive effects reported, careful consideration is encouraged when comparing results from these 2 studies to our study. We acknowledge that there may be very different

factors to consider when teaching communication skills versus technical skills.

Improvement in self-efficacy scores from pre to immediate post questionnaire were greater when discussing weight-related issues with overweight pediatric patients and families than with underweight pediatric patients and families, which is not surprising. A similar trend was observed when looking at the 6-month data. Although the general principles for best practice guidelines for discussing weight-related issues are similar with both overweight and underweight conditions, the video provided more tips geared toward the initiation of a conversation with overweight patients and their families.

There are a few study limitations and several strengths to be considered. Because of the self-selected recruitment process, our study is subjected to selection bias. Our participants are likely to be more interested in pediatric weight-related issues. The results may differ in other groups. Additionally, the data collected were based on self-assessment ratings. Interesting in the context of our study, literature has shown HCPs may have limited abilities to self-assess.²¹ HCPs may have felt more aware of what they do not know after watching the video which is an essential step in improving skills. Including a retention questionnaire, administered 4 to 6 months later, is certainly one of the strengths of the study. The wide variety of HCPs and trainees involved in our study also allows us to translate our results to a larger audience. An additional advantage of video-based education is that they can be readily consumed, translated to different languages, and rapidly disseminated to a wide audience.²² Video-based resources are also efficient and cost-effective compared with traditional lectures or paper formats.

Conclusions

Our study shows that educational whiteboard videos are an effective and engaging means to improve knowledge, confidence, and attitudes of HCPs and trainees. The educational white board video outlining strategies to communicate about weight-related issues with pediatric patients and their families improved HCP self-efficacy immediately after watching the video. Additionally, no significant decline of self-efficacy scores were observed 6 months later, suggesting long-term retention of the skills. Educating HCPs and trainees on initiating conversations about weight-related issues may be important for enhancing patient care and clinical outcomes. Future evaluation of ways to improve and retain high HCP self-efficacy scores for communicating about weight-related issues are warranted. The development of interactive videos may be an interesting avenue to explore.

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Trial Registration

ClinicalTrials.gov Identifier: NCT03664492.

Author Contributions

JBG performed a literature search, designed the study protocol and questionnaires, wrote the storyboard, helped with video design and animation, participated in data analysis and interpretation, generated figures and tables, and wrote the initial manuscript. LC assisted with data analysis and interpretation, generated figures and tables, and revised the manuscript for intellectual content. ACM reviewed the study protocol, led the scoping review, and conducted focus groups with children and parents who informed the video intervention. ED, CMW, AS, CS, and JH contributed to the study design and questionnaire development. JS was involved in design and animation of the video. All authors were involved in writing the paper and had final approval of the submitted and published versions.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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ORCID iD

Jill K. Hamilton  <https://orcid.org/0000-0002-1958-2800>

Supplemental Material

Supplemental material for this article is available online.

References

1. Rao DP, Kropac E, Do MT, Roberts KC, Jayaraman GC. Childhood overweight and obesity trends in Canada. *Health Promot Chronic Dis Prev Can.* 2016;36:194-198.
2. US Preventive Services Task Force, Grossman DC, Bibbins-Domingo K, et al. Screening for obesity in

- children and adolescents: US Preventive Services Task Force Recommendation Statement. *JAMA*. 2017;317:2417-2426. doi:10.1001/jama.2017.6803
3. Fisher M, Golden NH, Katzman DK, et al. Eating disorders in adolescents: a background paper. *J Adolesc Health*. 1995;16:420-437. doi:10.1016/1054-139X(95)00069-5
 4. Golden NH, Schneider M, Wood C; Committee on Nutrition; Committee on Adolescence; Section on Obesity. Preventing obesity and eating disorders in adolescents. *Pediatrics*. 2016;138:20161649. doi:10.1542/peds.2016-1649
 5. Jelalian E, Boergers J, Alday CS, Frank R. Survey of physician attitudes and practices related to pediatric obesity. *Clin Pediatr (Phila)*. 2003;42:235-245.
 6. Mikhailovich K, Morrison P. Discussing childhood overweight and obesity with parents: a health communication dilemma. *J Child Health Care*. 2007;11:311-322.
 7. van Gerwen M, Franc C, Rosman S, Le Vaillant M, Pelletier-Fleury N. Primary care physicians' knowledge, attitudes, beliefs and practices regarding childhood obesity: a systematic review. *Obes Rev*. 2009;10:227-236. doi:10.1111/j.1467-789X.2008.00532.x
 8. Walker O, Strong M, Atchinson R, Saunders J, Abbott J. A qualitative study of primary care clinicians' views of treating childhood obesity. *BMC Fam Pract*. 2007;8:50. doi:10.1186/1471-2296-8-50
 9. Haywood C, Lanzkron S, Hughes MT, et al. A video-intervention to improve clinician attitudes toward patients with sickle cell disease: the results of a randomized experiment. *J Gen Intern Med*. 2011;26:518-523. doi:10.1007/s11606-010-1605-5
 10. Kenny KP, Alkazme AM, Day PF. The effect of viewing video clips of paediatric local anaesthetic administration on the confidence of undergraduate dental students. *Eur J Dent Educ*. 2018;22:e57-e62. doi:10.1111/eje.12257
 11. Srivastava G, Roddy M, Langsam D, Agrawal D. An educational video improves technique in performance of pediatric lumbar punctures. *Pediatr Emerg Care*. 2012;28:12-16. doi:10.1097/PEC.0b013e31823ed5ed
 12. Thomson AA, Brown M, Zhang S, Stern E, Hahn PM, Reid RL. Evaluating acquisition of knowledge about infertility using a whiteboard video. *J Obstet Gynaecol Can*. 2016;38:646-650. doi:10.1016/j.jogc.2016.03.010
 13. McPherson AC, Knibbe TJ, Oake M, et al. "Fat is really a four-letter word": exploring weight-related communication best practices in children with and without disabilities and their caregivers. *Child Care Health Dev*. 2018;44:636-643. doi:10.1111/cch.12575
 14. McPherson A, Hamilton J, Kingsnorth S, et al. Communicating with children and families about obesity and weight-related topics: a scoping review of best practices. *Obes Rev*. 2017;18:164-182.
 15. Mayer RE. Applying the science of learning to medical education. *Med Educ*. 2010;44:543-549. doi:10.1111/j.1365-2923.2010.03624.x
 16. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform*. 2009;42:377-381. doi:10.1016/j.jbi.2008.08.010
 17. Whittermore R, Grey M, Lindemann E, Ambrosino J, Jaser S. Development of an Internet coping skills training program for teenagers with type 1 diabetes. *Comput Inform Nurs*. 2010;28:103-111.
 18. McIntosh-Scott A, Mason T, Mason-Whitehead E, Coyle D. *Key Concepts in Nursing and Healthcare Research*. Thousand Oaks, CA: Sage; 2013.
 19. Bandura A. Guide for constructing self-efficacy scales. In: Pajares F, Urdan TC, eds. *Self-Efficacy Beliefs of Adolescents*. Charlotte, NC: Information Age; 2006:307-337. doi:10.1017/CBO9781107415324.004
 20. Kirkpatrick DL, Kirkpatrick JD. *Evaluating Training Programs : The Four Levels*. 3rd ed. San Francisco, CA: Berrett-Koehler; 2006.
 21. Davis DA, Mazmanian PE, Fordis M, Van Harrison R, Thorpe KE, Perrier L. Accuracy of physician self-assessment compared with observed measures of competence. *JAMA*. 2006;296:1094-1102. doi:10.1001/jama.296.9.1094
 22. Woolfitt Z. The effective use of video in higher education. <https://www.inholland.nl/media/10230/the-effective-use-of-video-in-higher-education-woolfitt-october-2015.pdf>. Published October 2015. Accessed April 21, 2020.