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Facebook: The Use of Social Media to Engage Parents in a Pre-school Obesity Prevention Curriculum

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Abstract

Objective—This study investigated the use of Facebook for the delivery of health-related education materials to augment a preschool, classroom-based obesity prevention curriculum.

Design—Cross-sectional, Mixed Methods (Descriptive and Interviews)

Setting—Head Start classrooms administered by two large agencies (one rural, one urban).

Participants—A convenience sample of parents in 13 classrooms (Cohort 1: 3 classrooms; Cohort 2: 10 classrooms)

Intervention—Delivery of nutrition education curriculum content using social media (Facebook)

Variables measured—Qualitative interviews assessed barriers and facilitators to Facebook use. Parent views, likes, and comments were measured to reflect parent engagement with Facebook.

Analysis—Content analyses (qualitative data) and descriptive statistics (quantitative data)

Results—Families access (views) and interact (comments and likes) with the posts varied based on type and content of post. Rural families were most active. Barriers to parent Facebook engagement included a desire to see more posts from the classroom teachers, a lack of time, and misunderstanding about privacy protections. Facilitators of parent Facebook engagement included perceived utility of the content and social support.

Conclusions and Implications—Facebook was found to be a feasible platform for the provision of nutrition education and facilitated varying levels of parental engagement. Lessons learned and implications for prevention/intervention programming are offered.

Keywords

social media; nutrition promotion; preschool; obesity prevention

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INTRODUCTION

Early nutrition predicts long-term cognitive, social, and physical health outcomes.^{1–3} However, many children under age 5 are not meeting daily recommendations for minimum nutrition, especially those in low-income families.⁴ Parents and other adults are the gatekeepers for the food that is purchased and prepared for young children. In addition, children are influenced by the consumption of the adults around them. These factors make parents a key target audience for interventions aiming to improve nutrition for young children.

Parents of at-risk youth face many barriers to enrolling and attending in-person intervention programs.^{5,6} Recruitment rates for families of low socioeconomic status are below 31%⁷ and attrition rates are high even when low-income parents are successfully enrolled and provided with transportation and childcare.⁸ In a survey of Head Start mothers, the greatest reported barriers to involvement in a parent education program were schedules that conflicted with Head Start activities and having another child.⁹ Time constraints,^{10,11} childcare needs,¹¹ fewer people in the household,¹² transportation issues,¹⁰ and work conflicts¹⁰ are known barriers enrolling and remaining engaged in a parent education.

This has led to an array of innovative delivery options for parenting information.¹³ Options of information delivery and support for behavioral change likely to be successful are based on key adult learning principles. Adult learners have a history of life experience, are self-directed, internally motivated, and learn best when they have a need to know or a problem to solve.¹⁴ Research based on social learning theory makes it clear that when faced with chronic adversity, people are more likely to commit themselves to shorter-term, more immediate goals.¹⁵ Consistent with this theory, intervention programs based should be provided in small doses, available on-demand to accommodate the life demands of low-income families, allow active interchange (rather than a passive experience), and be provided by a reliable expert or respected source.

Technology provides a solution and has the potential to allow nutrition educators to connect with at-risk populations.¹⁶ The internet has long-been the most used resource for health information.¹⁷ Studies report successful use of the internet for nutrition education.^{18,19} Rates of technology use in low-income populations are high including wireless internet²⁰, cell phones²¹, and various social media²², and similar to individuals with greater SES.²³ In fact, 47% of U.S. adults and 72% of young adults (age 18–29) use Facebook for social networking.²²

Nutrition education and promotion efforts have increasingly examined the utility of technology, particularly social media. Research on The Supplemental Nutrition Assistance Program (SNAP) found that videos posted to social media between contacts with participants increased engagement.²⁴ Results of the Expanded Food and Nutrition Education Program (EFNEP) program found participants were interest in receiving nutrition information via social media²⁵, were engaged with videos,²⁶ and their preference for networking opportunities.²⁷ Another strategy involved Pinterest boards designed to deliver nutrition resources and recipes.²⁸ Nutrition experts agree with the perceived opportunities to

use technology for meal planning, cooking demonstrations, and sending nutrition messages to families.²⁹ While internet-based and technology-based (e.g., texting) obesity prevention and intervention programs exist, no studies have examined the use of Facebook within the context of an obesity prevention program targeting either youth or parents.

This multiphase mixed methods study³⁰ examined the feasibility of Facebook as a component of a center-based obesity prevention and nutrition curriculum, WISE - together, We Inspire Smart Eating.³¹ In a preliminary study, a needs assessment survey was used to evaluate the potential of technology to provide a platform for an active parent component. The survey was targeted at parents at Head Start centers about their technology access and use.¹⁶ Results from the needs assessment found the majority of caregivers frequently used some form of technology to access the internet (Facebook by 57%) and were interested in receiving educational information via technology (88%).

METHODS

Sample

The convenience sample in this study reflected data collected across two cohorts from classrooms administered by two Head Start (HS) agencies in a Southeastern state. One HS was located in a rural setting (population = 28,533) and the other in an urban (population = 193,524). The urban HS had a stable enrollment (n = 928) of 70% African-American, 5% White, and 5% other/mixed/unknown families (20% Hispanic). The rural HS had a stable enrollment (n=742) of 18% African-American, 70% White, and 13% other/mixed/unknown families (17% Hispanic). In Cohort 1 (school year 2012 – 2013) three classrooms participated (1 urban and 2 rural), and in Cohort 2 (school year 2013 – 2014) 10 classrooms participated (6 urban and 4 rural). Maximum enrollment in each class was 20 children. The study was approved by the IRB at the University of Arkansas for Medical Sciences.

Curriculum Description

The objective of WISE was to maximize children's interaction with the target foods (8 fruits and vegetables each featured for one month), get children excited about the experience, and give children successful experiences with the target food. Eight month-long units provided a lesson plan schedule, small group activities, how to integrate into other educational activities (e.g., math, reading), parent engagement materials, and recipes. WISE includes a puppet mascot, Windy Wise, the owl. Consistent with literature on the influence of characters on children's food choices,^{32,33} Windy is an encourager of healthy habits in the classroom. Windy delivers letters from farmers who grow the target foods, visits children when WISE lessons occur, and appears when WISE foods are served at mealtime. The Facebook component was intended to engage parents and translate the WISE message to the home.

Facebook Component of Curriculum

The WISE research team created a Facebook account for Windy Wise and a closed Facebook group for each class. A closed Facebook group is only accessible by those who are invited to participate. Teachers received training on the curriculum and the use of Facebook. Parents received an invitation to join the closed Facebook group for their child's Head Start

classroom. Research staff attended enrollment events to assist families in joining groups and obtained consent to allow posting children pictures. Research staff posted Facebook content as the mascot, Windy Wise. Teachers were encouraged to post pictures including, but not limited to, WISE activities.

The content of the posting plan³⁴ was based on focus groups conducted with parents in a development phase. As seen in Table 1, this resulted in eight content areas and six formats. Examples posts can be found in Table 2. HootSuite software³⁵ was used to schedule posts of varying content and times across the day and week. The posts were written and reviewed by research staff with expertise in nutrition, social work, and educational psychology.

Data Collection and Analyses

Quantitative—Because Facebook groups were closed, the Facebook analytics function was not available. Therefore, the research team manually logged the day/time, content type (e.g., parenting, recipe), post type (e.g., link), number of views, comments, and likes for all posts as a reflection of parent engagement. Descriptive statistics were calculated by content and format. The descriptive statistics of parents was computed based on the number of post views (i.e., indicating they saw the post even if they did not like or comment).

Qualitative—A subset of Cohort 1 parents participated in phone interviews about the WISE facebook groups. A purposive sampling strategy³⁶ was used to invite active (i.e., frequent engager), inactive (i.e., viewing but not engaging), and absent (i.e., not on Facebook) parents. This approach to sampling intentionally represents a variety of perspectives to provide an “information rich” response from participants. Active and inactive parents were identified for recruitment by the research team based on monitoring of the groups. Absent parents were identified by classroom teachers. Personalized invitations to targeted parents were sent home by the classroom teachers. Eight parents responded and participated: 3 active, 3 inactive, and 2 absent. Phone interviews were between 12 and 30 minutes in length (19 minutes on average). The content of interview questions were tailored to the type of parent user and were pooled from a bank of 22 questions. Topic areas included Facebook usage (in general and specific to the group), opinions about the strengths and weaknesses of the WISE Facebook (if applicable), and barriers and facilitators to their personal use of the WISE Facebook group. All phone interviews were completed using a standardized protocol by one of two research assistants with training in semi-structured interviewing. Parents received a \$25 gift card for participation.

Analyses of the qualitative data used a directed content analysis approach.³⁷ Coding was completed by a single coder with graduate and postdoctoral training in qualitative research. Coding efforts focused on identification of barriers and facilitators to Facebook engagement given that all parent participants were able to report on this topic.

RESULTS

Quantitative

Parent Recruitment—Cohort 1 classrooms had 8 (rural), 10 (urban), and 12 (rural) parents who joined groups. The mean number of parents enrolled in Cohort 1 was 10 per

classroom. In Cohort 2, a maximum of 17 (rural) and a minimum of 1 parent (urban) enrolled per class. Other Cohort 2 classrooms had 2 (n = 2, urban), 3 (n = 3, 1 rural and 2 urban), 4 (urban), and 5 (rural) parents join. The mean number of parents enrolled per class was 4.1 in Cohort 2. Given the large difference in average enrollment between the two cohorts, results for parent engagement by post format and content are presented separately.

Parent Engagement by Facebook Post Format—Table 3 shows the mean number of views, likes, and comments by Facebook post format. For Cohort 1, pictures had the highest mean number of views and likes by parents. Then, in order of decreasing number of views, were curriculum posts, polls (although they were rarely answered), links, and videos. Challenges were the least viewed type of post. Pictures were also by far the most liked post format. Challenges were the most commented on, despite being the least viewed, followed by pictures, miscellaneous posts, videos, curriculum posts, and links. Parents did not often comment on polls. Cohort 2 showed similar rates of views and likes across this sample, though comments were more frequent. Pictures received the most views and likes. Videos received the most comments.

Parent Engagement by Facebook Post Content—Table 4 presents the mean views, likes, and comments of parents by the content of the Facebook posts. In Cohort 1, recipes were the most viewed post content, followed by curriculum content, mealtime content, and cost saving information. Curriculum content was the most liked, followed by recipes, information content and cost saving content. However, mealtime content posts were the most commented on, then all forms matter, recipes, and curriculum posts. Skill content was the least commented on. For Cohort 2, the highest viewed and liked posts were those on parenting support and the highest commented upon was the WISE curriculum content posts. Overall, the posts least engaged in by parents for Cohort 2 were about sometime/anytime foods (views, likes, and comments).

Qualitative

Barriers—The primary barrier articulated by parents was a desire to see more content from their classroom teacher (4 of 6 participants). This is consistent with the observation that few teachers fully engaged with the page. An inactive parent commented, “I like the fact that Windy Wise is an anonymous character, but I think it would be more helpful and more inviting if [teacher] would participate in the group.” Related to this concern, several parents described a desire to see more pictures of the children. An active parent described this desire:

There’s a lot of posts on nutrition and child behaviors ... but there aren’t a lot of pictures or in-class posts on what they’re actually doing at the moment kind of thing. And that’s really more what I’m interested in.

Similarly, other parents described pictures as a tool to launch discussions with children at home about “trying new things” like a “new fruit or vegetable.” An active mom felt that pictures would provide visual evidence to counter the perception that her daughter as not “a vegetable eater.”

Two final prevalent barriers were parents' time and misunderstandings about privacy. Inactive parents only had time to "glance over it". An active parent said she would be less active "if the notifications didn't come directly to my phone." An absent parent agreed, "Honestly, I just had so much going on that I forgot all about it." Regarding privacy, an absent parent who admitted she did not understand a closed group said she did not "really want anyone else -- like the whole wide world-- to know exactly what my daughter is doing every day, because that can also be used as a tool for a predator."

Facilitators—The primary facilitators of engagement were the utility of the content and the observed impact of the WISE program on their families. Active users reported using the recipes, skills for food preparation, parenting tips, and cost-saving ideas. One parent felt the group helped "keep us up to date." Recipes were the most frequently mentioned resource. One mother said,

My son was obsessed with sweet potatoes, and I don't really eat sweet potatoes. So I did try those recipes just to see if I liked different version of them.... And I did actually.

Parents valued the enthusiasm of their child in talking about WISE activities, excitement for trying new foods, and improved eating habits of others in the home. These impacts were described as motivators for engaging in the Facebook group by active parents. This was illustrated by a mom who said,

I really, really enjoy hearing my daughter ... being able to tell me in detail exactly what they do. ...She's very detailed and very happy and excited and very proud of that information, and I love that.

Another facilitator mentioned included positive interactions with "Windy" and other parents. One parent said, "I can actually get on there and know that there are people on there with the same questions that I have..." Finally, active parents reported using the Facebook as a conversations starter with their child "I can ask him specific things... usually when you ask them what they did that day they don't know." Overall, comments suggested that Facebook positively influenced parent engagement and satisfaction with the WISE curriculum.

DISCUSSION

This study explored Facebook to engage parents in a preschool-based nutrition promotion and obesity prevention curriculum. An important feature of this study was the ability to track parent engagement by post format and post content and the mixed method design. Overall, results suggested directions for future efforts and opportunities for improvement of social media-based strategies for engaging parents around nutrition and healthy weight. For example, parents accessed (views) and interacted (comments and likes) with the Facebook posts to varying degrees. In large part, this was related to initial levels of parent recruitment. It appears that, in the absence of a local champion^{38,39} (like one director who made full enrollment a goal and personally worked to add parents to groups), linking parents with this social media strategy faced some of the same challenges that traditional approaches have reported.⁵⁻⁷ Further, with fewer classrooms in Cohort 1, the research team was able to

provide greater recruitment support per classroom. Passive recruitment efforts (e.g., fliers sent home) were largely ineffective.

After parents were successfully connected, qualitative and quantitative data converged providing evidence that Facebook posts influenced parent engagement. One prominent factor that drove parent engagement was how much the classroom teacher posted. This is a unique element of this study given that no other studies were found that examined the use of Facebook to connect classroom teachers with a classroom nutrition curriculum. Another important factor which drove engagement was the content and format of posts. Mixed-methods results supported the conclusion that parents especially enjoyed pictures, WISE classroom updates, and recipes. This is encouraging given that adult learning theory suggests that this enjoyment is more likely to lead to behavior change.¹⁴ Similar to studies with EFNEP and SNAP samples,^{25–28} this suggests that technology-based outreach strategies may be useful for some families. Although other nutrition intervention programs are also using social media strategies to engage parents,⁴⁰ few, if any, have explored differential engagement by post content and format. First-hand perspectives from parents have also been lacking.

Additional barriers to parent engagement included miscommunications about privacy protections and lack of time to interact with the page. While the former is unique to a social-media based strategy of engagement, parental time constraints have been frequently documented as barriers; however, unlike set-time workshops, the Facebook education was available on-demand. Findings of this study suggest that concerns about privacy may be overcome. Parent reports made it clear that there was a lack of communication about the project and/or understanding by the parents of the privacy protections which were in place. This confusion about confidentiality, combined with the attraction of pictures to engage parents, is an important barrier.

The present study is not without limitations. Facebook is not the only social media option, and results cannot be extrapolated to other social media. Each software platform has its own processes, rules, and options that affect utility by schools and/or by parents. Other social media platforms should be explored for utility and feasibility. Study participants were a convenience sample, and their self-selection into the closed group may have generated selection bias. Further, calculation of a participation rate was not possible because the structure of each family was unknown (e.g., single parent, blended family). The data collection plan for this study did not include monitoring of the engagement of educators in Facebook interactions in a systematic way. Further, this study has a relatively limited sample (urban and rural schools in a southeastern state) and is limited to a nutritional curriculum; future research should investigate the utility of social media as a platform for parent engagement and education in other interventional contexts and across other samples. Given the small sample size, results may not generalize.

IMPLICATIONS FOR RESEARCH AND PRACTICE

Investigation of the timing of posts as it relates to parental engagement and factors that influence sustained levels of engagement are important next steps for future research. In

addition, comparing a Facebook and no-Facebook implementation of curricula like WISE to assess the impact of the Facebook component itself on curriculum outcomes is needed. Other efforts for future investigations include expanding program planning and training to assess readiness to use this strategy, selecting and promoting a local champion, and addressing perceived barriers.

Facebook parental engagement and education as a component of a community- or preschool-based intervention shows potential as a viable information delivery method. This Facebook component achieved some successes and provided useful lessons for future implementation of this or similar preschool-based obesity prevention protocols. Future research in other samples and with other curriculum interventions is needed to better understand the role of Facebook or other social media as a component of interventions.

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Frequency and Percentage of Content and Format of Facebook Postings by WISE Across School Year

Table 1

Post Content	Post Format						
	Links	Video	Pictures	Polls	Challenges	Curriculum	Total
All forms matter	27	8	0	2	10	0	47
	57.4%	17.0%	0.0%	4.3%	21.3%	0.0%	100.0%
Sometime / anytime foods	20	4	0	3	3	1	31
	64.5%	12.9%	0.0%	9.7%	9.7%	3.2%	100.0%
Cost	23	1	3	0	1	4	32
	71.9%	3.1%	9.4%	0.0%	3.1%	12.5%	100.0%
Skill	35	30	1	0	9	0	75
	46.7%	40.0%	1.3%	0.0%	12.0%	0.0%	100.0%
Mealtime	37	1	0	2	22	1	63
	58.7%	1.6%	0.0%	3.2%	34.9%	1.6%	100.0%
Information	96	14	7	0	7	18	142
	67.6%	9.9%	4.9%	0.0%	4.9%	12.7%	100.0%
Curriculum	3	0	49	8	22	94	176
	1.7%	0.0%	27.8%	4.5%	12.5%	53.4%	100.0%
Recipe	42	0	1	0	0	42	85
	49.4%	0.0%	1.2%	0.0%	0.0%	49.4%	100.0%
Total	283	58	61	74	160	651	283
	43.5%	8.9%	9.4%	11.4%	24.6%	100.0%	43.5%

* Note: Posts represented were those made by the WISE team as Windy Wise. All forms matter posts provided information on eating fresh, frozen, and canned foods in a healthy way. Sometimes/anytime posts discussed variants on the target foods that were always healthy versus needed to be limited (e.g., baked sweet potato versus sweet potato fries). Costs posts provided budget-friendly tips for shopping and cooking. Skill posts provided practical information for shopping for or cooking with the target food (e.g., how to chop tomatoes). Mealtime posts promoted the value of parents eating with children. Informational posts provided facts about the growth or nutritional value of the target food. Curriculum posts included farmer newsletters and other content children received at school. Recipe posts shared low-costs recipes featuring the month's target food.

Table 2

Project Post Content Examples

Content	Post	Format
<i>All forms matter</i>	Think that the only way to eat bell peppers is fresh? Nope! Check out this neat article to learn some ideas for using canned and frozen bell peppers! I love having frozen peppers to use when I'm cooking. http://www.100daysofrealfood.com/2012/07/13/preserving-seasonal-foods-bell-peppers/	Links
<i>Sometime / anytime foods</i>	Apple slices are a good "Anytime" choice instead of French fries at fast food restaurants. Little ones love them because they are easy to eat with your fingers, perfect!	Curriculum
<i>Cost</i>	Whooh likes to save money at the grocery store? I do, so I am trying the "Three Ps". 1. Plan -Make a grocery list that matches your budget. 2. Purchase- Stick to your list, compare prices, and buy store brands. 3. Prepare - Pre-cook when you have time, and double recipes to freeze the extra for later meals.	Challenges
<i>Skill</i>	Not sure how to prepare bell peppers? Don't be nervous! Watch this short video for tips on slicing and dicing peppers! http://www.youtube.com/watch?v=3MOj3XDBP6U	Video
<i>Mealtime</i>	WISE Moms TIP o' the day: Make mealtime, family time! Try turning off the TV and other distractions so your child can focus on the meal. Research says your child will eat more veggies!	Challenges
<i>Info</i>	Everyone knows about sweet potato pie, but do you know how many other ways we can eat sweet potatoes? Watch this short video to find out more! I never thought of grilling them! http://www.youtube.com/watch?v=QLiLnAZK18Q	Video
<i>Curriculum</i>	Did your children come home and share any interesting things they learned about green beans this month?	Poll
<i>Recipe</i>	Try this green smoothie for a fun time with your children! They may not like it the first time, but they are still WISE kids if they tried it or... or even thought about trying it next time! I love all my try-ers & my "next time" triers too... because they are all learning about healthy foods every day!	Curriculum

* Note: Links directed parents to external sources which had been vetted by research staff for content accuracy and quality. Often, government websites were linked. Curriculum posts were delivered in the typical facebook post format with a focus on the target food or curricular activities. Challenge posts included a question or a call to action directed to parents. Video posts linked participants to quality videos consistent with the targeted content areas. Polls are a Facebook feature that ask parents to click a response to a targeted question. Pictures were of the recipes, target foods, or curriculum in the classroom.

Table 3

Mean Levels of Parent Engagement per Classroom by Facebook Post Format

Format	Mean Parent Views			Mean Parent Likes			Mean Parent Comments	
	Cohort 1	Cohort 2	Cohort 1	Cohort 2	Cohort 1	Cohort 2	Cohort 1	Cohort 2
Links	6.4	4.9	1.1	1.2	0.2	0.2	1.2	1.2
Video	6.4	4.0	1.0	1.0	0.3	0.3	2.0	2.0
Pictures	7.4	7.7	2.5	2.9	0.4	0.4	1.2	1.2
Polls	6.5	6.6	1.3	1.7	0.1	0.1	1.2	1.2
Challenge	5.7	5.3	1.0	1.8	0.6	0.6	1.3	1.3
WISE Curriculum	6.6	5.8	1.1	2.1	0.2	0.2	2.0	2.0

Note: The mean number of parents enrolled per class was 10 in Cohort 1 (max 12) and 4.1 in Cohort 2 (max 17).

Table 4

Mean Levels of Parent Engagement per Classroom by Facebook Post Content

Content	Mean Parent Views		Mean Parent Likes		Mean Parent Comments	
	Cohort 1	Cohort 2	Cohort 1	Cohort 2	Cohort 1	Cohort 2
All forms matter	6.7	5.1	1.0	1.6	0.4	1.3
Sometime / anytime foods	6.4	5.0	0.9	1.0	0.2	1.0
Cost	6.8	5.5	1.0	1.4	0.2	1.6
Skill	5.4	5.6	1.0	1.7	0.1	1.3
Mealtime	6.8	5.2	0.8	1.6	0.4	1.0
Parenting Support	5.8	6.9	1.1	2.7	0.2	1.2
WISE Classroom Curriculum	6.9	5.7	1.7	2.1	0.3	1.8
Recipe	7.0	4.6	1.3	1.2	0.3	1.0

Note: The mean number of parents enrolled per class was 10 in Cohort 1 (max 12) and 4.1 in Cohort 2 (max 17).