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Planning parental online education about healthy-weight lifestyle in pediatric primary care patients 6-12 years: A needs assessment of parents and healthcare staff in low-income, diverse populations

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Abstract:

Background: The childhood overweight and obesity epidemic is often labeled a pandemic due to increased growth rates globally that the current COVID-19 pandemic has only exacerbated. Significantly, overweight and obesity disproportionately affect low-income children and their families, a group often neglected in clinical research. Effective treatment targets guardians who facilitate the evidence-based changes in behavior and environment for the child. Limited evidence demonstrates that eHealth interventions based in theoretical frameworks could engage guardians to facilitate the necessary changes.This needs assessment describes the preferences of the target population with respect to content, design, and communication for an eHealth intervention.

Methods: Community-based participatory research methods were employed to gather insight on how stakeholders desired an upcoming lifestyle pediatric obesity eHealth intervention. Specifically, the research team conducted semi-structured interviews of primary healthcare staff and focus groups and interviews of guardians.

Results: In terms of content, both guardians and healthcare staff supported focus in an eHealth site on knowledge and strategies to change behavior for healthy eating, physical activity, and reducing sugar-sweetened beverages. The guardians expressed design preference for short texts with videos, bright engaging colors, summary quizzes, and resources to independently explore outside of the intervention. Guardians desired an intervention that would increase their trust in and relationship with their child's provider. Importantly, healthcare staff wanted information about family site use included in the electronic health record in order to optimize interaction during a clinical encounter.

Conclusion: Both guardians and healthcare staff expressed specific preferences about a website and expected an eHealth intervention would be beneficial. Specifically, they believed that this tool would provide personalized content to increase family engagement, strengthen the partnership between the healthcare provider and family, and be scalable to address the childhood obesity pandemic and associated health disparities more broadly.

Key Words: obesity, needs assessment; youth, lifestyle intervention, primary care

Planificación de la educación en línea para padres sobre un estilo de vida de peso saludable en pacientes pediátricos de atención primaria de 6 a 12 años

Resumen

Antecedentes. la obesidad infantil es una pandemia con riesgos para la salud inmediatos y futuros que demandan tratamientos holísticos, personalizados e innovadores. Los proveedores de atención médica luchan por brindar dicho tratamiento dentro de las limitaciones de las visitas médicas. Una intervención de eSalud teórica y basada en la evidencia podría involucrar a los padres y cuidadores para mejorar los comportamientos de salud y aumentar el alcance a las familias vulnerables de bajos ingresos, un grupo de alto riesgo que a menudo se descuida en la investigación clínica. Este estudio tiene como objetivo identificar las necesidades y preferencias de los usuarios potenciales de una intervención de eSalud.

Métodos. Grupos focales y entrevistas de padres étnicamente diversos y de bajos ingresos y entrevistas semiestructuradas del personal de atención primaria de la salud obtuvieron perspectivas sobre el contenido y la estructura de una intervención de eSalud destinada a mejorar los hábitos de estilo de vida para reducir la obesidad infantil. Los miembros del equipo de investigación analizaron los datos para identificar necesidades específicas y estrategias de comunicación para la población objetivo.

Resultados. Los padres aprobaron aprender más sobre alimentación saludable, actividad física y los efectos de las bebidas azucaradas en el peso de sus hijos. Los padres informaron una preferencia por los colores brillantes, los textos breves, los videos, los cuestionarios resumidos y los recursos adicionales para explorar por su cuenta y con sus hijos. El personal de atención médica informó limitaciones de tiempo durante las visitas clínicas y un interés en incluir el progreso de la familia en su EHR. Con una intervención de eSalud, los padres esperan una mejor relación y una mayor confianza con el pediatra de su hijo.

Conclusión. Los padres y el personal vieron valor en esta herramienta y brindaron recomendaciones útiles para su diseño. Esta intervención de eSalud podría crear una alianza de salud entre el proveedor de atención médica y la familia, brindar contenido personalizado y ampliarse para abordar las disparidades de salud de manera amplia.

Palabras clave. obesidad infantil, evaluación de necesidades educativas, jóvenes, conductas de reducción de riesgo, estilo de vida saludable, atención primaria, eSalud.

Planejamento de educação parental on-line para um estilo de vida de peso saudável em pacientes pediátricos de cuidados primários de 6 a 12 anos

Resumo

Antecedentes. A obesidade infantil é uma pandemia com riscos à saúde imediatos e futuros que demandam tratamentos holísticos, personalizados e inovadores. Os prestadores de cuidados de saúde lutam para fornecer esse tratamento dentro das limitações das consultas médicas. Uma intervenção teórica e baseada em evidências de eSaúde poderia envolver pais e cuidadores para melhorar os comportamentos de saúde e aumentar o alcance de famílias vulneráveis de baixa renda, um grupo de alto risco que muitas vezes é negligenciado em pesquisas clínicas. Este estudo visa identificar as necessidades e preferências dos potenciais utilizadores de uma intervenção de eSaúde.

Métodos. Grupos focales y entrevistas de padres étnicamente diversos y de bajos ingresos y entrevistas semiestructuradas del personal de atención primaria de la salud obtuvieron perspectivas sobre el contenido y la estructura de una intervención de eSalud destinada a mejorar los hábitos de estilo de vida para reducir la obesidade infantil. Os membros da equipe de pesquisa analisaram os dados para identificar necessidades específicas e estrategias de comunicação para a população-alvo.

Resultados. Os pais aprovaram aprender mais sobre alimentação saudável, atividade física e os efeitos das bebidas açucaradas no peso de seus filhos. Os pais relataram preferência por cores vivas, textos curtos, vídeos, questionários curtos e recursos adicionais para explorar sozinhos e com seus filhos. A equipe de saúde relatou limitações de tem-

po durante as visitas à clínica e interesse em incluir o progresso da família em seu EHR. Com uma intervenção de eSaúde, os pais esperam um melhor relacionamento e maior confiança com o pediatra de seus filhos.

Conclusão. Os pais e funcionários viram valor nesta ferramenta e forneceram recomendações úteis para o seu design. Essa intervenção de eSaúde pode criar uma parceria de saúde entre o profissional de saúde e a família, fornecer conteúdo personalizado e ser ampliada para abordar amplamente as disparidades de saúde.

Palavras-chave. obesidade infantil, avaliação de necessidades educacionais, juventude, comportamentos de redução de risco, estilo de vida saudável, atenção primária, eSaúde.

Background

Childhood obesity has been labeled a pandemic with immediate and future health risks.(1) The prevalence of childhood obesity in the United States is high:(2) 17% of children have a body mass index (BMI) above the 95th percentile, categorizing them as obese, and the prevalence is even higher among black and Hispanic youth.(3). Recent research has demonstrated that the COVID-19 pandemic has only exacerbated both the burden of and disparities in pediatric obesity.(4).

Parents and pediatric providers have distinct, complementary roles in reducing childhood obesity. It is important that parents hear and understand the diagnosis and the child be evaluated at a healthcare practice because the healthcare provider has an established relationship with the family and can focus on the health context, not appearance. However, addressing obesity in primary care settings is difficult for providers, who lack the time and skills to be effective,(5) and for families, for whom visits are disruptive to work and school and who may benefit from more interactive and culturally-aligned support. Children benefit from comprehensive, family-based, moderate to high-intensity programs,(6-8) but such programs are rarely available. These programs can be costly and not covered by insurance, and participation may be limited by the constrained program hours. Furthermore, vulnerable populations, such as low-income racial/ethnic minorities, who are most in need of such treatment programs, are seldom targeted. Therefore, innovative strategies are needed to improve program reach and effectiveness.

eHealth approaches show promise for addressing barriers to program accessibility and promoting behavior changes.(9) While few studies have used technology in the treatment of pediatric obesity, the evidence from adult obesity treatment programs support the use of an eHealth platform to provide engaging, individualized support for behavior change.(10) An unexplored novel opportunity is to connect the eHealth intervention with the patients' electronic health record (EHR). Specifically, the EHR would include paradata about the online platform so that, when families return for visits, providers can focus on re-assessment, support, and encouraging continued use of alternative in-person programs. An online platform to initiate obesity care can be both tailored to each family and scalable because, once created, it can be delivered to a large number of families with modest costs.

Parents are the appropriate and proven target of behavior change for an online platform focused on improved child weight.(11, 12) Moreover, online health promotion efforts are feasible and effective in promoting positive behavior change.(13, 14).

The adoption of new behaviors requires not only knowledge but also motivation; therefore, the success of an online program depends on understanding the perspectives of the target populations: the families and the primary care providers and staff who serve them.

This needs assessment builds on the limited existing literature to establish priorities for an obesity prevention program that complements and strengthens the work of pediatric care teams in low-resourced populations. Specifically, this article explores, from parents' and healthcare staff perspectives, the preferred content, context, and approach to an eHealth platform that is most likely to result in parent behavior change to support the management of their child's weight.

Methods

This project planned 1) focus groups and interviews of ethnically diverse, low-income parents with children ages 6-12 and 2) semi-structured interviews of primary healthcare staff, which, together, would inform a patient-centered online platform to help parents establish healthy family lifestyle behaviors and promote engagement between parents and healthcare providers of children around obesity prevention and reduction.

An advisory panel comprising three general pediatricians, a pediatric dietitian, a director of a community weight management program, and researcher in health services was asked for recommendations on three lifestyle topics for the initial version of the program and to identify behaviors that 1) were likely to have an impact on calorie balance and 2) parents were motivated to improve.

We collaborated with qualitative experts from the Qualitative Research Core (QRC) at UT Southwestern Population and Data Sciences Department to develop focus group and interview guides, conduct focus groups and interviews, and interpret findings.

The original protocol aimed for three parent focus groups: one recruited from the Community Research Registry, a list of adults served by a large safety-net health system in the area who are willing to be invited to participate in research,(15) and two (one in English and Spanish respectively) from the Children Health Pediatric Group (CHPG) of practices, which have Medicaid- and CHIP-covered children under their care. Shortly after the study began, the ownership of all but one CHPG practice was transferred, so modifications were implemented, as described below. The protocol targeted healthcare staff from CHPG for interviews, which were completed before ownership transfer.

Parent Focus Groups and Interviews

A short questionnaire elicited demographic and household information. The guides for the focus groups and interviews included questions about the perceptions of child health, familiarity with common health topics, learning needs, preferred styles of receiving information, and interest in and structure of an eHealth format.

Barriers to planned focus groups were the ownership transfer of the group of practices and low attendance. As a result, the protocol was modified to include individual interviews with parents, both in-person and over the phone, targeting both English-speaking and Spanish-speaking parents. Focus group and interview participants received a $25 gift card as compensation for their time.

For focus groups, the Community Registry members were recruited by telephone, and the remaining participants were approached while waiting for appointments. These strategies led to over 30 people expressing willingness to participate. QRC facilitated two 90-minute focus groups, attended by a total of five parents, and they recruited ten parents (6 Spanish-speaking and 4 English-speaking) from the Community Research Registry for individual interviews. One English-speaking parent was recruited from the waiting area of the CHPG office and interviewed face-to-face. Each interview lasted between 30 and 60 minutes.

Healthcare Staff Interviews

A brief survey for healthcare staff asked about age, specialty, and work history. The interview guide focused on experiences addressing overweight and obesity with families, opinions of the utility of providing an online education format to families, and how this program could be implemented into the practice.

Purposeful sampling was used to ensure representation from practices with predominantly African-American and Latino patients and to include a variety of staff positions, medical as well as administrative. Ten interviews were conducted by either staff from QRC or one of the investigators (SB). Each interview lasted 45 to 60 minutes.

Data Analysis

Interview and focus group transcripts were transcribed and translated by an outside vendor. Transcripts were then thematically coded and analyzed by the QRC. Results were then summarized, identifying themes and specific quotations to elucidate those themes.

Informed Consent

This study was approved by the Human Subjects boards at UTSW and UT Health School of Public Health. Participants received a written description of the study or had it read to them in the case of telephone interviews and provided verbal consent prior to enrollment.

Results

Study Population

The 16 parent participants were predominately African-American and Hispanic females. See Table 1 for their socio-demographic information. The ten healthcare staff participants were an ethnically diverse group of all women and additional demographic information is in Table 2.

Table 1. Parent/Care Provider Demographic Information

	Total
Description	n = 16
Relationship to child n (%)	
Parent	16 (100)
Gender n (%)	
Female	14 (87.5)
Male	2 (12.5)
Age n (%)	
Less than 25 years	0 (0)
25-34 Years	3 (18.8)
35-44 Years	8 (50)
45-54 Years	3 (18.8)
55-64 Years	2 (12.5)
65 Years or older	0 (0)
Ethnicity n (%)	

	Total
Black or African American	6 (37.5)
Hispanic	7 (43.8)
White or Caucasian	0 (0)
Asian	1 (6.2)
Other	2 (12.5)
Education n (%)	
Some high school or less	5 (31.2)
High school degree or GED	2 (12.5)
College classes (no degree)	3 (18.8)
College degree	2 (12.5)
Additional education past college	4 (25)
Household Size, including responder n (%)	
2 people	2 (12.5)
3 people	4 (25)
4 people	6 (37.5)
5 people	2 (12.5)
6 people	2 (12.5)
Number of Children between 6-12 years per family n (%)	
1 Child	13 (81.2)
2 Children	3 (18.8)
Work Status n (%)	
No	9 (56.2)
Yes, part time	1 (6.2)
Yes, full time	6 (37.5)
Household Income n (%)	
Less than $10,000	4 (25)
$10,000-19,999	2 (12.5)
$20,000-29,999	3 (18.8)
$30,000-39,999	1 (6.2)
$40,000-49,999	0 (0)
$50,000-59,999	2 (12.5)
$60,000-69,999	1 (6.2)
$70,000 or more	3 (18.8)
Car Access n (%)	
No car	0 (0)
Car sometimes	1 (6.2)

	Total
Car most of the time	15 (93.8)
Internet Access n (%)	
No access to the internet	1 (6.2)
Cell phone access only	4 (25)
Cell and home internet access	11 (68.8)
Health Issues of Interest/ Suggested Content Areas n (%)	
Choose MyPlate meals	1 (2)
Fruits and Vegetables	8 (16. 7)
Physical Activity	6 (12.5)
Screen time	12 (25)
Set times for eating	3 (6.2)
Sleep	4 (8.3)
Cooperation from children in healthy behavior	9 (18.8)

Table 2. Provider Demographic Information

	Total
Description	n = 10
Gender n (%)	
Female	10 (100)
Age n (%)	
Less than 30 years	**0 (0)**
30-39 years	6 (60)
40-49 years	4 (40)
50-59 years	0 (0)
60-65 years	0 (0)
≥ 65 years	0 (0)
Ethnicity n (%)	
African American	3 (30)
Asian	2 (20)
Caucasian	3 (30)
Native American	0 (0)
Other	2 (20)
Hispanic n (%)	
Hispanic	2 (20)
Non-Hispanic	8 (80)

	Total
Job Title n (%)	
Pediatrician	5 (50)
Nurse Practitioner	2 (20)
Physician Assistant	0 (0)
Practice Manager	2 (20)
Other	1 (10)
Number of medical providers in office n (%)	
3	2 (20)
4	6 (60)
6	1 (10)
40	1 (10)
Number of years since training completed n (%)	
1-5	5 (50)
5-10	2 (20)
10-15	0 (0)
15-20	2 (20)
Number of years in current position n (%)	
1	2 (20)
2	2 (20)
3	3 (30)
≥4	3 (30)

Part I: Perception of Health Risks and Barriers

Parent Perception of Risk

Perception of Healthy Children

Parents described a "healthy child" as one who is happy, energetic, and well-behaved. Some parents stated that a child might be a little "pudgy," but that did not mean the child was overweight or unhealthy.

Parent Perception of Risk

Parents wanted to know how to improve health, specifically, how to increase intake of fruits/vegetables and increase physical activity. Parents also were interested in knowing about specific portion sizes. Other issues of concern were excess screen time and mental health. (Table 5, Comments 1-2).

Perception of Risk for Complex Patients, a subpopulation within this vulnerable population

The presence of and interactions between multiple comorbidities were often mentioned by both parents and staff. From mental health to developmental concerns, parents expressed concern over unique barriers they face with their children who are complex patients. One parent shared her child's severe allergies, and another parent noted how her child is suffering from ADHD.

Parent-Specific Barriers

Parent-reported barriers to establishing healthier lifestyle behaviors in their children included needing assistance in finding alternatives to bribing, dealing with stressors such as finances, and intrafamily cultural dynamics.

Bribery was a common strategy for which parents sought alternatives. One parent reflected that bribing is effective while another parent admitted that, despite repeated attempts, bribing was not always an effective strategy. Parents seemed to know that bribing is not the best approach but often resorted to bribery without knowing other tactics. Yet, when bribery failed, parents expressed feelings of powerlessness and defeat. Significantly, bribery served to erode the trust between parent and child. (Table 5, Comments 3-5).

Financial constraints were also stressors mentioned across all demographics. When describing their child's fruit and vegetable intake. One parent explained that, due to financial constraints, she buys large bags of chips rather than single-serving bags, but her son will finish the entire bag when no one is looking. Finally, parents also acknowledged that making changes is challenging for the family as a whole. (Table 5, Comments 6-7).

Child-Specific Barriers

Many parents identified snacking as a challenge. They also focused on their children's dislike of vegetables, which parents perceived as universal. Screen time concerned parents and, in some cases, was their biggest health concern for their child. (Table 5, Comments 8-12).

Healthcare Staff Perception of Risk

Staff reported that obesity is one of the most pressing issues in their patients, ages 6 to 12. Other topics mentioned included behavioral/mental health issues such as ADHD, asthma, allergies, and access to health-related resources.

Healthcare Staff-Reported Barriers

Staff reported that common challenges in developing and changing patient behaviors included limited visit time, competing interests, and differences in cultural perception related to weight. Primarily, the key challenge is for *"families recognizing that obesity is a medical condition,"* as most parents were neither concerned by nor associated being overweight as unhealthy. Consistent with previous research, staff reported that the lack of recognition of obesity as a medical issue is common.(16) (Table 5, Comments 13-14)

Staff felt it was easier to have that conversation if they had a long history treating that family or if the parents initiated the conversation on weight or diabetes risk management. Several mentioned the need for multiple visits and the utility of having visual aids/tools such as the growth chart was helpful. Many also reflected that they questioned whether parents made changes. (Table 5, Comments 15-16)

Importantly, staff suggested that a potential benefit of an eHealth intervention is improved follow-up attendance. (Table 5, Comment 17)

Part II. Preferences for Content and Design of the Online Tool

In the focus groups and interviews with both parents and providers, we explored reasons for use, preferred features, frequency of use, and structure of the online program.

Purpose of the Online Tool

Parents stated they would use the program to improve their child's general health, nutritional health, and weight, in addition to motivating the entire family to have a healthier lifestyle. (Comment 18).

Healthcare staff were interested in offering an eHealth program to complement their efforts. Additionally, staff felt that the program would not only help parents change behaviors but also guide healthcare staff in follow-up visits for families who used the program, by identifying problem issues and supporting family efforts. (Table 5, Comment 19).

Content of the Online Tool:

The research team's advisory panel recommended sugar-sweetened beverages, physical activity, and MyPlate as topics to include in the initial online intervention, and all parents endorsed these topics, affirming they would be helpful and interesting. Parents were least familiar with MyPlate. (Table 3) Specifically, they were interested in learning how to protect their children from diseases like cancer and diabetes. They also suggested that the modules need to explain how to identify healthy foods types and quantities and include budget-friendly healthy recipes.

Parents were also interested in learning successful strategies and seeing video demonstrations of skills for their families to learn in a way that felt familiar and increased family cohesion. Additionally, parents reported wanting visual aids and links to additional resources they could explore on their own. (Table 5, Comments 20-21).

For healthcare staff, all but one felt that reducing sugary drinks would be the easiest for parents to implement and sustain because one can *"simply stop buying"* the drinks. Just over half felt that increasing physical activity would be the hardest behavior change due to the safety of patient neighborhoods and financial barriers for alternative spaces.

Table 3. Parent Familiarity and Prioritization of Health Topics

	Endorsed as Familiar	Ranked as Most Important
Topic n (%)	n = 16	n = 16
Sugar-Sweetened Beverage	13 (81.2)	0 (0)
Physical Activity	16 (100)	8 (50)
MyPlate	7 (43.8)	8 (50)

Format of the Online Tool

Parent Preferences

Most parents (n=13) said this program would be something they would be *"very likely"* to do with their child. Parents suggested modules be interactive and include preferred features for the online platform (Table 4). Parents varied in whom they preferred to deliver the information – while some preferred physicians and dietitians, others wanted to learn from a celebrity or "real people."

Parents were enthusiastic about their providers having access to their progress. They wanted the support and guidance of the provider during and after the program.

Table 4. Parent-reported preferred features for the eHealth intervention

Feature
Videos
·Games ·The ability to track progress ·Printable Recipes
·Question & Answer activities ·Colorful/inviting layout (color unspecified) ·Incentives either in terms of gold stars or coupons ·To see/interact with other families doing the program ·Images should be reflective of cultural diversity

Healthcare Staff Preferences

Staff suggested that the program be interactive and involve the parent and child. They recommended having videos, recipes, printable resources, and information about the importance of weight management, being physically active, and healthy eating. Staff identified the need for visual aids (e.g., physical portion sizes) when talking with parents, printable resources (e.g., MyPlate images), and information in the EHR about what labs or other evaluations would be most appropriate for that child.

Staff also emphasized the need to reinforce the child's value and being mindful of the psychological impact of weight, regardless of weight. They wanted their patients to receive significant practical, hands-on, relevant advice (e.g., snack ideas, at-home exercises, etc.) and to identify community resources.

Access and Usage

Parent Perception

Every parent reported that they are "likely" or "very likely" to access this eHealth program with their child. In fact, one mother explained how this tool could be a more effective way of educating and inspiring change in her child than on her own. Parents also felt that they would access the program a few times a week for 20 minutes a day for 3+ months. Some parents wanted access to the program for a year. Parents shared they were motivated by having their provider see their progress and be engaged in the progress. (Table 5, Comments 22-25)

Spanish-speaking parents were more likely to have access to the internet only through cellphones. Of the six Spanish-speaking parents, only three (50%) reported having Wi-Fi at home; two (33%) reported having access only through their cellphone, and one (17%) reported having no access to the internet with either Wi-Fi at home or on her phone. Of the 10 English-speaking parents, eight (80%) reported having Wi-Fi at home, whereas two parents (20%) reported having access only through their cell phone: No English-speaking parents reported having no access to the internet.

Moreover, consistent with other populations, patients reported that primary health information typically comes from Google/the internet (and, to a lesser extent, family and friends).

Healthcare Staff Perception

Staff also noted that families might lack consistent internet and felt families might struggle to maintain their commitment to the program due to loss of interest or competing life demands. In terms of clinic visits, providers elucidated the issue of limited staff time to counsel families on lifestyle issues.

Importantly, staff also noted that their Spanish-speaking parents had different needs than English-speaking patients. Specifically, staff reported that Latino patients approach the conversation from a different cultural framework that may include different values. It is evident that staff are aware of their patients' specific needs but do not have adequate time or resources to provide them the wholistic and tailored care that is necessary for a sustained change.

Staff, too, were eager to have patients more engaged outside the clinic. An eHealth intervention that connects back into the patients' EHR has the potential to increase both patient and provider engagement and commitment to addressing pediatric obesity.

Effective Implementation and Integration Strategies

Parents reported the need to ensure the program is culturally tailored and relevant – for some, this meant physical appearances while for others, tailoring meant addressing cultural understandings and complexities about weight. One Spanish-speaking parent reflected on her experience being told conflicting information from the child's grand-mother and pediatrician. Spanish-speaking parents also emphasized that they wanted family engagement with the program. (Table 5, Comments 26-27).

As the designated and desired change agents, parents articulated the need for the program to inform parents on what changes are needed, the rationale for behavior change, consequences of engaging in unhealthy behaviors, and behavioral-change strategies.

Healthcare staff had three foci for implementation and integration strategies into clinical care protocols:

Program Promotion: Promotion would best be done by flyers, brochures, invitations, and advertisements running on the waiting room TV. All healthcare staff were willing to invite parents to the program. They suggested reminders in the EHR and or from support staff.

Facilitating Parent Engagement: Ideally, patient usage and progress would be linked to the EHR; if not possible, then the usage and progress should be very easy to access. They endorsed a template in the EHR to structure their visit that incorporated the families' progress. While the existing patient portal would be useful, staff reported low use among their patient families.

Evaluation: Staff wanted feedback about their patients' engagement with and progress in the program. They wanted to know what content was easy for families, what content was completed, and whether families stopped using the program. They wanted to know what questions families had regarding the health behaviors and how families were progressing on their identified goal. Some requested the ability to communicate with families via the program (to answer questions or give parents positive feedback). Most providers, however, did not want granular tracking data (i.e., daily food diaries).

Discussion

This needs assessment was conducted to inform the development of an innovative, feasible, theory-based, and evidence-based eHealth intervention to help parents implement healthy-weight-promoting lifestyle behaviors for their children. The target will be parents of children ages 6-12 years with overweight or obesity. While previous research has studied eHealth interventions in adult populations,(17-19) the importance of including family in pediatric obesity interventions,(6, 20, 21) and the need to address specific strategies and barriers,(22-24) this is the first study, to our knowledge, to look at the attitudes and perspectives of both parents and healthcare staff of adopting an eHealth intervention in a pediatric population that feeds back into the EHR used during clinical care.

1. *Content of Tool*

Both parents and healthcare staff agreed that physical activity, reducing sugar-swee-tened drinks, and healthy eating were crucial areas of focus for healthy lifestyles and consistent with best practices in the literature.(25-27) While staff seemed more focused on behaviors related to diet, parents generally seemed more focused on behaviors re-lated to physical activity. Both subpopulations affirmed an interest in increasing fruit/vegetable consumption among children.

Both parents and staff reported significant, but different, barriers to helping children with engaging in healthy behaviors. Parents expressed frustration with implementing healthy behavior changes in their children due to financial constraints and their chil-dren's taste preferences. In contrast, staff were challenged regarding information-deli-very. They wanted parents to know how to prepare MyPlate-approved meals, but were unsure of how best to educate parents on a complex topic in such a short amount of time.(28) This finding, paired with parents reporting their use of deception or bribery, suggests that interventions should empower parents with techniques, strategies, and skills.(25, 28).

Importantly, mirroring the literature, parents expressed a strong desire to protect their children from future chronic conditions such as cancer and diabetes.(16) They understood how obesity is a risk factor for the aforementioned conditions; however, they did not seem to understand its relationship to health risks today. Staff stressed the heal-th risk of obesity and the challenge of parental obesity recognition in their child, a fin-ding consistent with the literature as well.(29-32) Therefore, for the educational content aimed at parents, it may be necessary to both focus on health risk reduction and directly connect behaviors to health risk. Moreover, multi-pronged approaches are needed to address obesity for complex patients.(28).

Our findings suggest that special attention and cultural considerations should be paid when creating educational content for Hispanic families as Spanish-speaking parti-cipants were less concerned about high weight and more concerned about their child's screen time as an unhealthy behavior. Similarly, staff who came from practices with majority Hispanic families clearly expressed the perceived need for culturally aligned content for their Hispanic patients.

Therefore, messages may need to focus less on appearances and more on under-lying behaviors that impact health outcomes. Additionally, Spanish-speaking parents preferred child-targeted rather than parent-targeted information. Generally, they belie-ved that they had the knowledge base and struggled to relay the information in an effec-tive way to their children. In other words, providing parents with language to discuss health issues and strategies to change child behavior may be more beneficial.

Importantly, there was strong interest from both parents and healthcare staff to pro-vide education outside of the clinical visit. Content that focuses on health-risk reduction, connecting behaviors to health risks, and targeted to both parents and children can meet the priorities of both parents and staff. Our findings also suggest that educational content should explain how risk factors are related to health risk, strategies to overco-me common behavioral barriers experienced by the parent participants, and include supplemental education and local community resources for families to explore indepen-dent of the prescribed curriculum. This intervention reduces the dissemination of misin-formation and improves participant knowledge, ultimately, enhancing patient/provider engagement.(28).

2. *Use of an eHealth platform*

Both parents and staff expressed excitement for an eHealth format as it can provide more comprehensive, convenient education outside the clinical visit. An online tool attends to parental desire to gain more exposure and in-depth knowledge of health topics, learn about success and strategies from other parents and families like themselves, and increase engagement with both their child and provider on this topic through structured lessons. It also addresses the staff's concern about the lack of time in a visit to explain complex topics.

A key advantage of using an eHealth format is the wide-spread access. There is a high penetration of internet access (87%) in the United States, with 81% of Americans owning smartphones.(33) Among Hispanics, African Americans, and low-income populations (≤$30K), smartphone owernship is 79%, 80%, 78%,(33) respectively, suggesting a greater potential for accessing eHealth programs.(34) Many parents reported only having access to the internet via their cellphone, so any intervention must work on a mobile platform as well. Additionally, an eHealth intervention can directly respond to the parent request to be in control and determine their learning priorities through the modules by providing flexibility for customization.

Most significantly, an eHealth intervention can collect and provide paradata to staff so they can have a more comprehensive understanding of the patient experience. eHealth platforms can also deliver more detailed information to staff about individual patient engagement and needs to improve/help providers further support patient education. In fact, connecting patient progress back into the EHR is a novel aspect that both staff and parents affirm will likely lead to increased patient engagement via more personalized patient counseling and family engagement. Furthering the patient-provider connection ultimately supports patient needs - through both weight loss and increase in appointment attendance.(35)

3. *The Obesity Chronic Care model as a framework to guide the ehealth programs*

This needs assessment is based on and affirms the tenets of the Obesity Chronic Care model, specifically "focused on patient and family engagement and empowerment."(36) Based on the key assumptions that "clinical efforts will not succeed without complementary community systems" and that "effective care requires practitioners who can enable behavior change beyond medical treatment,"(36) this needs assessment supports that clinical medical care cannot treat obesity alone.

Explicitly, the data collected from both parents and healthcare staff confirms that the health clinic is the physical place at which the medical provider should 1) assess and diagnose the child's condition with clinical information and 2) inform and activate the child and caregivers so that they can do self-management in the community outside of the clinic. Providers are *"really motivated"* to address weight management issues, but their most significant reported barrier is, *"the limited time that they [providers] have in the room."*(36) Supplemental support, especially for high-risk vulnerable populations, is necessary.

Moreover, because most families, including low-income families, have internet access(37) and an online platform could be offered in Spanish, the proposed eHealth intervention is in accordance with the model's emphasis on health equity.(36) Reiterating that *"shared data are essential,"* this needs assessment offers innovative solutions as to how an EHR can serve as a critical tool in integrating clinical care and the social system.

These recommendations foster the necessary "safe environmental infrastructure to support"(36) behavioral changes require in treating obesity. While this model globally affirms that clinical [i.e., primary care] and community systems [e.g., families] must be integrated to address obesity effectively, this needs assessment offers explicit recommendations on how to actualize this recommendation in the target population, children ages 6-12.

Conclusion

In summary, this work elucidates the need for interventions focused on obesity prevention and weight management to be more comprehensive in addressing perceptions, socio-cultural dynamics, and systemic barriers.

Both parents and healthcare staff affirm that there are knowledge gaps and value the proposed content. While there was significant heterogeneity in content priorities between staff and parents and between parents (which may be cultural preferences), the eHealth format/customization can engage patients through a range of topics and strategies, removes the burden on healthcare staff to tailor content to the patients' specific needs, and empowers patients to determine their learning priorities.

Parents seek accessible, engaging, and bright-colored material that includes stories and photos of families who look like them. While staff may understand the clinical concern, pediatric obesity, they may not be aware or consider the specifics of the patients' family situation or family preferences. It is likely that unique factors must be considered when working with Spanish-speaking populations, in terms of both cultural perceptions and attitudes.

The primary limitation of this study is the relatively small sample size and local area from which the sample was taken. Additionally, since the child's weight status is unknown, the relationship between the parent perception and child weight is unknown. Bias could also have been introduced during the translation process as translators were not present in the actual conversations. Additional feedback will be required after the development and implementation of the intervention.

The eHealth format also has tangible benefits for both parents and staff. Parents expressed excitement about the flexibility in terms of location (i.e., at home or on-the-go), timing, and content customization. Staff were eager for the paradata analysis and potential to deepen the provider-patient relationship. As one provider stated:

"Anything that makes the journey a little bit more accessible is a really good option for patients. I think it's something that hasn't been tapped into before and could be….Because, everybody has computer access now. It's not like one of those things ten years ago that would have been difficult to do, so I think it's a really good idea."

Table 5. Comments, Quotations from Study Participants

Parental Perception of Risk (Comments 1-2)
1. [Parent seeks] for ways for him [her son] to accept the healthy things being offered to them. Like, for instance, in my case, well [the] sports and foods that I offer to him.
2. As far as screen habits… [I, parent] make her grab a book and read…I always stress [that] her staring in front of those screens constantly is not good for her eyes.
Parent-Specific Barriers (Comments 3-7)
1. [My son] tells me, no, but I convince him. I tell him, 'Let's go, and I will buy you something.'
2. I bribe her to go to the park

3. I just tell him I am going to buy you something…and then after that I tell him, 'Oh, what do you know, I didn't bring any money.'

4. [If] we have them [fruits], he pretty much eats them up, and then they're gone. Sometimes we can afford them, and sometimes we can't.

5. [When] you start to impose new things with them [our children], well, I think it's hard on everybody, both for the parent and for the child.

Child-Specific Barriers (Comments 8-12)

1. [My child likes to] snack a lot.

2. [My child] really likes and overeats junk food - like hot Cheetos.

3. They [children] are very picky eaters…they aren't very good about vegetables.

4. [Parents want] to take TV or phones away. So, to raise them on better things, healthier things for them.

5. Screen time is a general issue for this age group.

Healthcare Staff-Reported Barriers (Comments 13-17)

1. Whenever there's a follow up for those type [weight management] of appointments, those are no-shows…the parents don't see them as really sick…it's not keeping them from going to school.

2. It is cultural… we're fighting the cultural mindset.

3. It takes more than one visit obviously with us talking about [their child's weight].

4. [Of] all the kids that I follow for obesity, I think I have had two that have lost weight. They will say they are making changes at home, but they are gaining weight.

5. If we knew that they were using that online material, maybe they would be more likely to respond to a phone call inviting them to make another appointment, and then show up.

Purpose of the Online Tool (Comments 18-19)

1. Any activities that could help kids or motivate them, like, for example, exercise. Things like that.

2. The limitation that we [providers] have currently is that we have 15-minute appointments, so if there is a problem with their BMI and they want to address that, there's limited time for them to do that in the office visit.

Content of the Online Tool (Comments 20-21)

1. [We want it the families to be] relatable and look liked us.

2. [Activities to be] something that me and him [my son] could watch together.

Access and Usage of the Online Tool (Comments 22-25)

1. I think he [son] would more so get it versus me telling him to go eat this or do this.

2. Making sure that they [providers] have the results and so that maybe we can actually carve out time to sit and talk about it as well.

3. Everything should be submitted to their provider demonstrating their goals."

4. [Parents envisioned their provider] keeping on task with me and going along with me.

Effective Implementation and Integration Strategies of the Online Tool (Comments 26-27)

1. [Ensuring that] different genders and body shapes are reflected.

2. The pediatrician says that she's doing really well when it comes to her weight…I tell my mom and she says that she's too thin, and I tell the pediatrician, 'Is she too thin?' She says, 'No,' she says she's fine for her weight.

Ethical Approval

This study was approved by the Human Subjects boards at UTSW and UT Health School of Public Health.

Conflict of interests

None

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