Translating family-based behavioral treatment for childhood obesity into a user-friendly digital package for delivery to low-income families through primary care partnerships: The MO-CORD study

Lauren A. Fowler  
Washington University School of Medicine in St. Louis

Sarah E. Hampl  
Children's Mercy Hospital, Kansas City, MO

Meredith L. Dreyer Gillette  
Children's Mercy Hospital, Kansas City, MO

Amanda E. Staiano  
Pennington Biomedical Research Center, Baton Rouge, LA

Chelsea L. Kracht  
Pennington Biomedical Research Center, Baton Rouge, LA

Follow this and additional works at: https://digitalcommons.wustl.edu/open_access_pubs

Please let us know how this document benefits you.

Recommended Citation

https://digitalcommons.wustl.edu/open_access_pubs/10909

This Open Access Publication is brought to you for free and open access by Digital Commons@Becker. It has been accepted for inclusion in Open Access Publications by an authorized administrator of Digital Commons@Becker. For more information, please contact vanam@wustl.edu.
Authors
Lauren A. Fowler, Sarah E. Hampl, Meredith L. Dreyer Gillette, Amanda E. Staiano, Chelsea L. Kracht, Andrea K. Graham, Sherri Gabbert, Kelly Springstroh, Fanice Thomas, Lisa Nelson, Aubrie E. Hampp, Jordan A. Carlson, Robinson Welch, Denise E. Wilfley, and The MO-CORD Study Group
Translating Family-Based Behavioral Treatment for Childhood Obesity into a User-Friendly Digital Package for Delivery to Low-Income Families through Primary Care Partnerships: The MO-CORD Study

Lauren A. Fowler, PhD,1,i Sarah E. Hampl, MD,2 Meredith L. Dreyer Gillette, PhD,2,ii Amanda E. Staiano, PhD,3 Chelsea L. Kracht, PhD,3,iii Andrea K. Graham, PhD,4 Sherri Gabbert, PhD,1 Kelly Springstroh, MS,1 Fanice Thomas, PhD,1 Lisa Nelson, MA,5 Aubrie E. Hampp, MSc,1 Jordan A. Carlson, PhD,2 Robinson Welch, PhD,1 Denise E. Wilfley, PhD,1 and The MO-CORD Study Group*

Abstract

Background: Significant gaps exist in access to evidence-based pediatric weight management interventions, especially for low-income families. As a part of the Centers for Disease Control and Prevention’s Childhood Obesity Research Demonstration project 3.0 (CORD), the Missouri CORD (MO-CORD) team aims to increase access to and dissemination of an efficacious pediatric obesity treatment, family-based behavioral treatment (FBT), among low-income families. This article describes the MO-CORD team’s approach to translating FBT into a digital package for delivery to low-income families through primary care practices.

Methods: Using digital technology, the primary care setting, and existing reimbursement mechanisms, the MO-CORD team is developing a scalable user-centered design informed treatment package of FBT. This package will be implemented in primary care clinics and delivered to children (5–12 years) with obesity from low-income households in rural and urban communities. The digital platform includes three main components: (1) provider and interventionist training, (2) interventionist-facing materials, and (3) family-facing treatment materials. User-centered design techniques and continuous iterative stakeholder feedback are utilized to emphasize tailoring to a low-income population, along with scalability and sustainability of the digital package.

Conclusions: The MO-CORD project addresses the critical need to increase access to obesity treatment for children from low-income households and establishes a platform for future large-scale (i.e., nation-wide) dissemination of evidence-based pediatric weight-management interventions. This study determines whether the digital FBT package can be implemented within real-world settings to create a system by which children with obesity and their families can be effectively treated in primary care settings.

1Department of Psychiatry, Washington University School of Medicine, St. Louis, MO, USA.
2Center for Children’s Healthy Lifestyles & Nutrition, Children’s Mercy Hospital, Kansas City, MO, USA.
3Pennington Biomedical Research Center, Baton Rouge, LA, USA.
4Northwestern University, Feinberg School of Medicine, Chicago, IL, USA.
5Freeman Health System, Joplin, MO, USA.

*The MO-CORD Study Group details are provided in Acknowledgments section.
iORCID ID (https://orcid.org/0000-0002-9240-7267).
iiORCID ID (https://orcid.org/0000-0002-2508-2175).
iiiORCID ID (https://orcid.org/0000-0002-5467-0849).
Keywords: dissemination; evidence-based treatment; family-based behavioral treatment; pediatric obesity; primary care; technology; training

Introduction

Reducing pediatric obesity is a public health priority, though access to obesity treatment for those in need is limited. Effective pediatric weight-management interventions (PWMIs) exist, such as family-based behavioral treatment (FBT), an intensive multicomponent behavioral intervention that focuses on successive behavioral changes using family support. Still, widespread access to evidence-based PWMI remains a significant challenge for children from low-income households, who are disproportionately affected by obesity. Major obstacles to implementing FBT identified by key childhood obesity stakeholders included cost-related constraints and a lack of providers trained to deliver obesity treatment.

In line with calls for more research and outreach among low-income and economically marginalized communities, and particularly among children with obesity from low-income households, there is an urgent need for scalable pragmatic PWMI that harnesses multiple levels of influence (i.e., individual-, policy-, and provider/health system-levels) to increase access to care among this population and uptake of PWMIs among health systems. The Missouri Child Obesity Research Demonstration Project 3.0 (MO-CORD) aims to promote dissemination and implementation of an evidence-based PWMI for children with obesity from low-income families in rural and urban Missouri using a multilevel intervention (i.e., family-level intervention is FBT, provider strategies are trainings in obesity care, system strategies utilize a new Medicaid benefit for obesity care).

Individual-Level: FBT

FBT for childhood obesity is an intensive multicomponent behavioral intervention that has been developed and tested over the past 40 years by Drs. Epstein, Willfley, and colleagues. FBT is consistent with U.S. Preventive Services Task Force (USPSTF) recommendations of 26 hours of individualized intensive intervention delivered for up to 12 months. FBT provides a family-centered comprehensive approach to behavior change, including improvements in nutrition/dietary behaviors, promotion of physical activity, and reduction of sedentary behaviors (e.g., sedentary screen time). FBT is designed to help both parents/caregivers and children build and establish lasting changes in these behaviors by applying self-regulatory skills, behavioral economics, and social learning theory principles to the practice of weight maintenance behaviors across multiple socioenvironmental contexts (e.g., home, school, community, and work). FBT has served as a platform for many advances in childhood obesity treatment, such as the utility of the widely used Traffic Light Plan for diet and physical activity, inclusion of parents as active targets of weight loss, a focus on increasing lifestyle exercise, reduction of sedentary behaviors, the improvement in diet quality, and the use of a socioenvironmental approach to weight loss maintenance.

Despite the established efficacy of FBT, underserved families face numerous barriers to treatment that hinder both initial and continued attendance and engagement with a family-focused lifestyle program. Research incorporating existing or emerging digital technologies shows significant potential for technology to increase the uptake and reach of PWMIs, addressing barriers to access, decreasing attrition, and improving adherence to interventions. Importantly, technology adjuncts to FBT have been shown to be feasible in children from low-income households, and a recent meta-analysis suggests that technology-based/assisted treatment approaches for childhood obesity are effective.

Although possession and knowledge of use of technology to facilitate health information are not universal, households that have limited access to health care, for example, low-income households, are more likely to rely solely on mobile devices for communication and Internet access, suggesting the potential for mobile devices to be a viable method for service delivery, particularly when that service does not rely heavily on data usage. A digital treatment platform that can be accessed through any mobile or Internet-enabled device and provides easy access to digitized treatment materials and resources to support families in FBT (e.g., having mobile access to daily behavior tracking logs can reduce barriers to tracking and improve adherence) can also facilitate a continuous relationship between the provider delivering the treatment and the family outside of in-person treatment sessions, improving adherence and sustained engagement with treatment.

Policy Level: Cost Coverage of FBT

At the policy level, inadequate insurance coverage and reimbursement for childhood obesity treatment prevent children and families from obtaining affordable care, which may exacerbate obesity disparities among children from low-income households. In Missouri, a state plan amendment by the Missouri HealthNet Division (Medicaid) is planned to become effective in September 2021, providing reimbursement to providers of intensive behavioral treatment and medical nutrition therapy for patients with obesity. Importantly, the Missouri Medicaid benefit (MMB) will cover the minimum of 26 contact hours for 2–12 months of behavioral treatment for obesity recommended by the USPSTF. This state plan amendment has the potential to provide affordable access to obesity treatment for all eligible youth enrolled in Medicaid in Missouri and serve as a model for other state and...
commercial payers. Nevertheless, for the policy change to 
increase access to care for those populations most in need, 
there will need to be increased availability of obesity care 
services, comprehensive and cost-effective training of 
health professionals to diagnose and treat, and the estab-
lishment of a recognized FBT referral and care coordination 
system. Therefore, scalable solutions are needed to develop 
a workforce of primary care providers (PCPs) trained to 
screen and refer children with obesity to FBT and inter-
ventionists trained to deliver FBT, as well as a model for 
streamlining care coordination.

**Provider/Health Systems Level: Colocation Model 
and Digital Training Package**

Colocation is a model of coordinated health care that can 
facilitate care coordination and reduce fragmented care that 
can occur through multiple providers and offices by hav-
ing a behavioral health care interventionist, such as a social 
worker or psychologist, within the same location as the PCP. 
Primary care offers an optimal setting for timely continuous 
delivery of evidence-based PWMI by capitalizing on the 
established and ongoing relationship between PCPs and 
families and is associated with improved outcomes.

Colocation addresses an important gap; however, there 
are further obstacles to implementing PWMI at the pro-
vider and clinic/health systems levels. These include lim-
ited training for providers to diagnose and treat obesity 
and the lack of effective widely available training and 
certification processes for behavioral interventionists to 
provide PWMI. Established behavioral health intervention-
ist training in FBT involves a 2-day in-person work-
shop with education, interactive role-playing, simulations, 
treatment practice with pilot patients, and ongoing super-
vision by a specialist. To maximize feasibility and dis-
semination, many of these in-person training components 
(e.g., didactic components and role plays) could be adapted 
to a digital (i.e., web-based) platform. Indeed, digital 
training platforms are being consistently used by others in 
psychological and behavioral health treatment, as doing 
so reduces financial burdens to attend training, increases 
reach, and facilitates scalability of the training in the fu-
ture. Online education for providers can provide novel and 
highly scalable training and supervision, increasing the 
number of trained providers available to screen and diag-
nose obesity and deliver FBT.

The planned 2021 expansion of the MMB for FBT 
provides the impetus for addressing major barriers to 
providing evidence-based treatment for obesity. This pol-
icy innovation, paired with a colocation model and digital 
treatment package, could make an impactful change on 
increasing access to and uptake of PWMI in Missouri, 
with opportunities for translation on a national scale.

**Present Project**

The MO-CORD project capitalizes on innovative ap-
proaches at the individual (digital supports), provider/
health system (digital training and colocation model), and 
policy level (MMB) to package FBT, an evidence-based 
PWMI, in a user-friendly digital format with an emphasis on 
digital components for dissemination to health care sys-
tems to use with their patients to increase access to care for 
children with obesity from low-income households. The 
MO-CORD project has three phases: (1) package FBT 
behavioral health care interventionist training and patient 
treatment materials in a user-friendly digital format with 
an emphasis on applying user-centered design methods 
(i.e., iterative feedback from multisector stakeholders) to 
inform the package (~2 years); (2) conduct a multisite 
pilot implementation study in urban (Children’s Mercy 
Hospital in Kansas City, MO) and rural (Freeman Health 
System in Joplin, MO) primary care clinics (~2 years) 
targeting children 5–12 years old with obesity receiving 
Medicaid and a caregiver (detail on which can be found 
elsewhere) to examine implementation outcomes including 
the effectiveness of the intervention on child and parent 
weight outcomes; and (3) optimize materials and future 
implementation efforts by incorporating lessons learned in 
the first two phases into a dissemination and sustainability 
plan (~1 year).

This article describes the approach for phase 1 in an effort 
to promote transparency and reporting in all phases of re-
search projects, prevention of study duplication, timely 
dissemination of research designs, and improved interpre-
tation of research results. This project incorporates feedback 
among many levels of implementation, and utilizes a user-
centered design approach to package FBT training and pa-
tient resource materials for feasible deployment. The digital 
intervention package includes all required elements for 
delivering FBT in pediatric primary care.

**Methods**

Our methods are designed to increase the workforce 
trained to deliver FBT using a scalable digital training 
platform and to increase access to intervention supports for 
families during FBT.

**Intervention and Training Package**

The intervention package is based on FBT, which is an 
effective standardized behavioral intervention that has 
been developed and rigorously tested over the past 40 
years. Consistent with the MMB and the evidence base 
for FBT, the project’s FBT package contains a mixture of 
group and individual sessions with a trained interven-
tionist (face-to-face either in-person or offered remote 
through videoconferencing). Families are eligible for FBT 
based on an initial referral from their PCP and Medicaid 
prior authorization. In the first 6 months, each family will 
receive a total of 4 hours of individual family assessment 
with their behavioral health provider and 22 hours of FBT 
within a group setting (2–10 families). Families will also 
receive 1.75 hours of individualized medical nutrition 
therapy by a registered dietitian (RD) for the first 6 months.
After the first 6 months, families will be reassessed by their PCP and can then qualify for an additional 3 hours of treatment in the final 6 months if they meet specified Medicaid benchmarks for improved weight status (i.e., decrease in BMI percentile or weight stabilization).24

Training. Providers from each discipline (i.e., FBT interventionist, RD, and PCP) will be provided with discipline-specific digital (i.e., online) training in addition to overall training about the care of children with obesity as follows and outlined in Table 1. More detail on the availability of providers and type of clinics targeted in the implementation trial is detailed elsewhere.31

FBT interventionists. Licensed behavioral health care interventionists who are embedded within and employed by the health system, including social workers, professional counselors, RDs, marriage/family therapists, and psychologists, serve as the FBT interventionists. These interventionists may be best equipped for the complexity of the families with obesity and are covered by the MMB, thus contributing to long-term sustainability. Interventionists in this project are trained through an online training platform that may qualify for continuing education credits and replicate in-person FBT training, including knowledge check quizzes and a final test. For the purpose of the MO-CORD study, interventionists are supervised by trained FBT supervisors and receive additional training outside of the platform, as appropriate to the status of their family progress in treatment. The FBT supervisors will also review interventionists’ delivery of FBT and provide feedback through audio recordings, while directing interventionists to additional materials within the digital platform, as needed. The supervision process will be reviewed and modified for dissemination, with FBT supervisors providing additional feedback to ensure the training platform is operating efficaciously.

Registered dietitians. A 2-hour training for RDs will be available in both an in-person and web-based format using the intervention materials. Consistent with the expectations for the MMB, RDs are required to show competence in delivering care for children with obesity through either national weight management certification or hours of clinical experience, along with demonstration of ongoing continuing education hours.

Primary care providers. PCPs are guided through a series of live and prerecorded webinars on a variety of issues related to the evaluation and management of children with obesity. These webinars will be hosted in partnership with the American Academy of Pediatrics’ (AAP) Institute for Healthy Childhood Weight (IHCW). Additional training sessions will be held on different topics, including new clinical information, reducing weight bias, and study progress.

Digital FBT Platform

Our use of a digital platform provides opportunities to thoroughly assess competency (described hereunder) and facilitate effective administration of the intervention.32 As given in Table 2, the digital platform will perform three major functions: (1) facilitate interventionist training, (2) provide interventionist resources (e.g., program materials), and (3) provide resources for families (e.g., handouts and helpful websites including videos and games).

Outside of these main purposes, the intervention-facing portal also includes a dashboard that shows each family currently enrolled in FBT and their most recent use of the platform. Interventionists use the dashboard to track family progress with weight goals, including inputting weekly weight change to help families visualize their progress in a graph format during sessions.

The digital platform has been programmed by the 3C Institute (Durham, North Carolina), a digital health

| Table 1. Description of Intervention Personnel, Training, and Role in Intervention |
|---------------------------------|---------------------------------|-------------------------------|-------------------------------|
| Description | Interventionist | Dietitian | Primary care provider |
| Medicaid benefit coverage | Full coverage | Full coverage | Full coverage |
| Training mode | Online training platform | Online and in-person, 2-hours total | Online, six to eight webinars |
| Other requirements | Certification in FBT through online training platform; supervision | Professional certification in addressing obesity in children; continuing education | Identification and referral of children with obesity to specialized care |
| Services | Delivery of FBT | Medical nutrition therapy for the evaluation and management of childhood obesity | |

FBT, Family-based Behavioral Treatment.
Interventionist training platform. The interventionist training aims to be cost-effective, scalable, and ready for national certification and credentialing so that interventionists across the nation can be trained and certified in FBT. The digital platform has narrated training videos with interactive and didactic components to assist in content delivery.

Interventionist resource center. The interventionist resource center is for interventionists to access treatment materials (e.g., session outlines and handouts), clinical vignettes, and responses to frequently asked questions that illustrate common therapist–patient scenarios, existing online tools to help families learn FBT concepts, and additional instructional videos on how to deliver FBT outside of the training course. Also included are resources specific to working with low-income, urban, and rural families, including resources on how to adapt FBT program recommendations to account for the unique barriers faced by families (e.g., food insecurity and lack of safe outdoor physical activity spaces in their communities), as identified from stakeholder feedback, described hereunder. Any supplemental training materials will be uploaded into the interventionist’s resource center. Additional training may include informational videos on navigating difficult patient scenarios, recommendations for outside resource referral, and didactic lectures on FBT concept delivery. Given the high need for contextually and/or culturally relevant treatment for low-income populations, the training will also contain material that can help providers address context-specific or culturally relevant issues for low-income populations, both rural and urban.

Family resource center. The family resource center refers to the two interactive portals accessible by parents and children separately that include materials and resources specific to the parent or child. The portals can be accessed online or on a mobile device and these portals serve to further support families in FBT and complement face-to-face treatment sessions. Materials provided in the family resource center will include but not be limited to: a digital resource center with information relevant to families (e.g., budgeting, meal planning, and grocery shopping guides), psychoeducational materials (e.g., resources on dealing with bullying and parenting skills such as communication and problem solving), and a food and activity reference guide. The types of resources included will be informed by findings from the stakeholder interviews and surveys, such as emphasis on visuals over text, attention to

<table>
<thead>
<tr>
<th>Table 2. Description of Online Platform Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>User Functions</strong></td>
</tr>
<tr>
<td><strong>Delivery</strong></td>
</tr>
<tr>
<td><strong>Content</strong></td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
</tr>
<tr>
<td><strong>Other features</strong></td>
</tr>
</tbody>
</table>

| **Interventionist** | **Families** |
| **Family resource center** | **Interventionist resource center** |
| | Educational videos from the research team |
| **Dashboards** | • Treatment materials digitally delivered • Psychoeducation materials that complement treatment. Examples: food and activity reference guide |
| **Digital video recording library** | • Aids for self-monitoring of behavior, including diet, activity, and reward system |
| **Training materials** | • Digital resource center, examples: information regarding local food pantries, cooking videos, recipe banks, and parenting videos |
| **Interactive and didactic components** | • Chat feature with interventionist |
literacy/numeracy, and recognition of limited disposable income (e.g., food pantry locator based on zip code). Perceived acceptance of the platform will be evaluated postintervention. Usability and feasibility will be examined for children and caregivers using function-use data collected through the platform.

**User-Centered Design and Engagement of Key Stakeholders**

The MO-CORD project employs a user-centered design approach that involves receiving iterative feedback from multisector stakeholders to increase uptake and sustainability of the intervention at the patient, provider, and clinic levels. User-centered design approaches can result in more acceptable and effective interventions and increase the successful implementation of evidence-based interventions when translated to “real-world” settings. User-centered design can be particularly important for the translation of psychosocial intervention components to digital platforms. Figure 1 shows the multiple levels of input that are informing the packaging and refinement of the FBT package and digital platform.

The success and sustainability of the intervention will be optimized by involving those who will be delivering the intervention (i.e., providers and interventionists), receiving the intervention (i.e., children aged 5–12 years with obesity and their caregivers from low-income households in urban and rural communities in Missouri), and other key stakeholders who will be impacted by implementation of the intervention (e.g., payers, providers, and community-based organizations that serve low-income families) in the development of the digital package. Modifications and refinements to the intervention for children, caregivers, and interventionists proposed by key stakeholders will be implemented in content and design (e.g., ensuring food examples are culturally appropriate, dietary advice is budget conscious, and materials are at an appropriate health literacy level), and systematically tracked and recorded. The core curriculum will remain the same as previously used and as demonstrated to be efficacious. The implementation of the digitally translated user-informed intervention package will be evaluated in phase 2 of the MO-CORD project, including examining intervention effects on child and caregiver weight. Furthermore, to understand potential effects of UCD-informed modifications on the fidelity of the intervention, fidelity will be monitored and systematically evaluated through audio recordings of treatment sessions, intervention checklists, and interviews in phase 2 of the study.

As shown in Figure 1, the digital platform will be designed by a multidisciplinary research team and digital package design team, and will be informed by patient and provider perspectives from the implementation pilot sites. Semistructured interviews will be conducted with caregivers from families in rural and urban communities who meet eligibility criteria for Medicaid and have a child with obesity (n = 40 caregivers, 20 interviews per site). The focus of the interviews will be to identify factors that could support or hinder a family’s engagement and success with the FBT program. In addition, interviews with FBT-trained interventionists who have experience working with a variety of families will be conducted to identify barriers to FBT program implementation for low-income families, as well as families from rural and urban communities and the unique barriers they may face. Finally, pediatric providers from both sites will be interviewed to identify the barriers faced by patients and their families that may prevent them

---

**Figure 1.** Stakeholder feedback to inform the intervention package of FBT in the MO-CORD Study. This figure demonstrates the continuous, iterative feedback from key stakeholders will be obtained at multiple levels to advise the development of the FBT intervention package. FBT, family-based behavioral treatment; MO-CORD, Childhood Obesity Research Demonstration project, the Missouri team.
from enrolling and successfully participating in FBT. Information gathered from these key stakeholders will inform the packaging of training materials, interventionist resources, and family resources based on the existing FBT program.

In addition, the package will be informed by feedback from site-specific community advisory boards, which comprise family representatives from low-income households; community leaders; representatives from community organizations that focus on health, literacy, poverty, transportation, and human service needs for the community; and providers in the respective areas involved in the pilot trial (i.e., Kansas City and Joplin). Payer advisory board members (e.g., representatives from managed care organizations with Medicaid, select associations with expertise in coverage) will provide additional input on the final packaging of training materials from a system-uptake and billing perspective.

To build capacity for long-term success and dissemination beyond the pilot intervention’s two communities, an existing statewide collaborative body, the Healthy Weight Advisory Committee (HWAC), will work hand in hand with the research partners and community representatives to provide input into the implementation and dissemination of this intervention. The HWAC comprises the MO-CORD study investigators, representatives from statewide organizations, patient representatives, community organization representatives, providers, and interdisciplinary researchers. The focus of their feedback will be the acceptability of the digital package from the representative stakeholder perspectives. Input from the HWAC and community advisory boards will be incorporated into early-stage development of the treatment package as well as later stage iterative refinements to and optimization of the package.

Discussion

The MO-CORD project aims to increase accessibility of FBT, an evidence-based pediatric obesity treatment, among low-income families. The proposed project will package FBT into a user-friendly format using an interactive digital platform that will serve to train interventionists and provide interventionist families with resource materials. The result of this project will be a digital tool that is ready to be disseminated to and implemented by other care systems across the United States, which could provide critical services to settings lacking in obesity treatment, and inform policy changes at the state level for improved access to pediatric weight management.

Strengths

There are many strengths of the proposed digital platform approach, including the use of an efficacious PWMI based on three decades of research.10 The PWMI also meets the USPSTF recommendations as a comprehensive treatment for childhood obesity,3 and is a reimbursable service through Missouri Medicaid. Second, the MO-CORD project utilizes a colocation model, which embeds the interventionist within pediatric patient-centered medical homes and leverages the established relationship between PCPs and families. Third, the emphasis on digital technology addresses many individual barriers to access to treatment and can be readily implemented by newly adopting health care systems. Digital packaging of patient and interventionist treatment materials minimizes cost and maximizes scalability/reach and sustainability. Furthermore, delivering digital training can overcome geographical, financial, and logistic barriers to interventionists to receive needed information, support, and feedback.

The MO-CORD project addresses several other barriers to care. For example, within some of the targeted communities, FBT services are not available outside of research studies, limiting sustainability of access to care. For the other targeted communities with FBT services available, there are no formal FBT referral and care coordination systems in place, and limited information on the availability of the services. This digital platform has the opportunity to be promoted by our key partners, including the AAP and Missouri Primary Care Association to become available to health care providers for delivering obesity treatment. This collaboration among multisector partners, including the AAP, is instrumental to launch a comprehensive response to the obesity epidemic.

Limitations

Although technology can be useful in addressing barriers to access, it also has potential limitations or challenges. If digital interventions are not developed to be contextually or culturally relevant, they can serve to perpetuate or even increase the digital divide.37 Engaging stakeholders throughout the development and refinements of the digital treatment package will be critical in minimizing these potential limitations. Population-specific challenges, such as rural bandwidth availability and data usage, may be important considerations when examining the ways in which technology can both facilitate and impede access to quality care among underserved families.

Conclusions

The MO-CORD project is borne of a critical need, in the face of the pediatric obesity epidemic, to enhance treatment access for children with obesity from low-income, urban, and rural households. The development of a digital intervention package with a user-centered design approach addresses essential gaps in care by providing training to providers and interventionists, treatment delivery support through digital portals, and patient-informed family resources. By engaging key stakeholders to inform the packaging of FBT, this study creates a tailored and rigorous intervention for addressing childhood obesity in primary care settings. The results of our study hold promise for significant implications for clinicians, payers, policy makers, and, above all, patients and families.
Acknowledgments

The authors thank the families, research staff, faculty, and institutions that are participating in the MO-CORD study.

The following institutions and investigators constitute the MO-CORD Study Group: 3C Institute: Melissa DeRosier, PhD, Steve Grothmann, Sarah Winn, Kim Pifer, Wes Sommer, Chris Helman, Morgan Hugel; American Academy of Pediatrics, Institute for Child Weight and Wellness: Alison Baker, BS, Jeanne Lindros, MPH; Freeman Health System: Lisa Nelson, MA, Paul Petry, DO, Cathy Brown; Golisano Children’s Hospital/University of Rochester Medical Center: Stephen Cook, MD; Kansas City Mercy Children’s Hospital: Sarah Hampl, MD, Meredith Dreyer Gillette, PhD, Jordan Carlson, PhD, Deborah Markenson, Kelly Dunlap; Northwestern University: Andrea Graham, PhD; Pennington Biomedical Research Center: Amanda Staiano, PhD, Chelsea Kracht, PhD, Natalie Malek, Robbie Bely, PhD, William Johnson, PhD, Lindsay Hall, MA; University at Buffalo: Leonard Epstein, PhD; Washington University in St. Louis School of Medicine: Denise Wilfley, PhD, Lauren Fowler, PhD, Sherri Gabbert, PhD, Shaina Costello, MA, Angela Lima, MA, Melissa Ramel, PhD, Fanice Thomas, PhD, Kelly Springstroh, MS, Aubrie Hampp, MSc, Robinson Welch, PhD; members of the collaborative advisory board and community advisory boards.

Funding Information

This manuscript was supported by the Centers for Disease Control and Prevention of the US Department of Health and Human Services (HHS) (award no. U18DP006425). The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by CDC/HHS, or the US Government. L.A.F. and F.T. are supported by grant T32 HL064584 and A.K.G. is supported by K01 DK116925 from the National Institute of Diabetes and Digestive and Kidney Diseases of the NIH. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

Author Disclosure Statement

No competing financial interests exist.

References


Address correspondence to:
Denise E. Wilfley, PhD
Department of Psychiatry
Washington University School of Medicine
660 S Euclid
St. Louis, MO 63110
USA
E-mail: wilfleyd@wustl.edu