Parents play a fundamental role in shaping children's development, including their dietary and physical activity behaviors. Yet family-centered interventions are rarely used in obesity prevention research. Less than half of childhood obesity prevention programs include parents, and those that do include parents or a family component seldom focus on sustainable change at the level of the family. The general absence of a family-centered approach may be explained by persistent challenges in engaging parents and families and the absence of an intervention framework explicitly designed to foster family-centered programs. The Family-centered Action Model of Intervention Layout and Implementation, or FAMILI, was developed to address these needs. FAMILI draws on theories of family development to frame research and intervention design, uses a mixed-methods approach to conduct ecologically valid research, and positions family members as active participants in the development, implementation, and evaluation of family-centered obesity prevention programs. FAMILI is intended to facilitate the development of culturally responsive and sustainable prevention programs with the potential to improve outcomes. Although childhood obesity was used to illustrate the application of FAMILI, this model can be used to address a range of child health problems.

**Keywords:** community-based participatory research (CBPR), obesity, family health, child health, ecological systems theory

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**WHAT ARE FAMILY-CENTERED INTERVENTIONS? ARE THEY EFFECTIVE?**

Terms used to describe or define interventions that include family members have been used inconsistently. Powerful protective factors for children’s healthy development and risk factors for maladjustment are rooted in the family (Masten & Coatsworth, 1998; Rothbaum & Weisz, 1994). Child and adolescent obesity provides a notable case in point. A large body of research documents the etiologic role that families play in shaping behaviors linked with obesity in children (Institute of Medicine, 2005). An important implication is that childhood obesity prevention programs need to be family-centered.

Family-centered interventions focus on the needs of children and adolescents while simultaneously targeting improved outcomes for parents and the entire family system. Furthermore, family-centered programs place a heavy emphasis on intrafamilial and contextual factors that define and govern daily life and influence family decision making. Although many obesity intervention programs include family members, they remain child-focused such that improved behavioral and health outcomes for children are the primary focus; family members are primarily engaged to support changes in children’s health behaviors. In this article we outline the Family-centered Action Model of Intervention Layout and Implementation (FAMILI), which was developed to facilitate the design and implementation of research-supported, culturally responsive, and sustainable family-centered programs.
both within and across disciplines. Intervention descriptors include family-based, family-sensitive, and family-focused. The term family-centered is used herein because, according to Dunst and colleagues, family-centered interventions foster the highest level of family involvement and empowerment (Dunst, Johanson, Trivette, & Hamby, 1991). More specifically, family-centered interventions address family needs and concerns, seek to promote wellness in all family members, empower parents, and address important contextual factors affecting families (Briar-Lawson, Lawson, & Hennon, 2001; Dunst et al., 1991). As such, family-centered interventions are adaptive and responsive to family needs and cultural values. To promote program viability and sustainability, family-centered programs and services should be integrated into service settings with established relationships with families, including health centers, schools, the Supplemental Nutrition Program for Women, Infants and Children (WIC), and Head Start (Hoagwood & Koretz, 1996).

A well-known example of a family-centered program is the Nurse-Family Partnership, or NFP. NFP is a nurse home-visitation program for at-risk (i.e., single, low income, <19 years old) pregnant women with no previous live births (Olds, 2002). Under NFP, nurses conduct home visits with women during pregnancy and for 2 years following birth and provide a range of individualized services designed to promote the use of prenatal care, responsive parenting, and positive transitions for mothers following birth. Nurse practitioners also seek to enhance parents’ informal social support network and use of community services.

An extensive body of research supports the effectiveness of NFP with positive outcomes noted for mothers and children (Olds, 2002). NFP coupled with other examples of family-centered programs, such as the Adolescent Transitions Program (Dishion, Kavanagh, Schneiger, Nelson, & Kaufman, 2002), highlight the flexible and tailored nature of family-centered programs, support the feasibility of incorporating family-centered programs into service settings such as home-health visitation programs and schools, and illustrate how the family system can be engaged in the intervention process at different points in the life cycle.

**OBESITY-RELATED INTERVENTIONS: ARE THEY FAMILY-CENTERED?**

Having outlined the nature and scope of family-centered interventions, it is pertinent to consider the extent to which childhood obesity interventions are family-centered. Although prevention programs are the focus of this article and the FAMILI model, obesity treatment programs are also considered to provide a more complete illustration of the obesity intervention literature.

In a recent review of randomized controlled trials (RCTs) of childhood obesity treatment programs, more than 70% of trials included parents or family members (Oude Luttikhuis et al., 2009). Furthermore, 40% of trials targeted parents and three trials focused exclusively on parents (Oude Luttikhuis et al., 2009). With regard to intervention content, treatment programs generally emphasize knowledge and skill acquisition covering topics such as the mechanics of energy balance, the caloric content of foods, menu planning, and meal preparation. Additional family-related topics include barriers to healthy eating and exercise, family communication strategies, and child management principles. A recent meta-analytic review of these programs supports the efficacy of childhood obesity treatment programs that include family members and address the family lifestyle (Oude Luttikhuis et al., 2009), although effect sizes tend to be small. In response to the small effects observed, it has been argued that treatment effects could be further enhanced by addressing broader family functioning, including family cohesion and family stress (Kitzmann & Beech, 2006), that is, by moving programs closer to a family-centered approach. Such reconfigured treatment programs also promise improved effectiveness with low-income or ethnic-minority families, populations that are underrepresented in obesity treatment research.

In contrast to treatment programs, the inclusion of parents and family members is less evident in obesity prevention programs. As outlined in a recent review of obesity prevention RCTs, only 40% of programs included a family component and only 5% of programs explicitly...
targeted behavioral change in family members (Stice, Shaw, & Marti, 2006). A meta-analysis of these programs indicates that the inclusion of family members in obesity prevention programs, as conceptualized to date, does not improve program effectiveness (Stice et al., 2006). Recent reviews of RCT and non-RCT interventions to promote physical activity among youth arrive at similar conclusions (Kahn et al., 2002; O’Connor, Jago, & Baranowski, 2009). Common strategies used in obesity prevention programs include joint parent–child exercise sessions and group educational sessions highlighting the benefits of healthy eating and physical activity and outlining behavior change strategies. Larger contextual factors affecting families and general family dynamics are rarely addressed.

In brief, childhood obesity treatment and prevention programs are seldom family centered. Although parents and families are involved in treatment programs, and to a lesser extent prevention programs, programs that include parents or family members largely focus on teaching parents how to create environments to support behavioral change in children. Factors that affect family lifestyles such as poverty, employment, family conflict and violence, housing instability, and neighborhood factors are rarely addressed (Kitzmann & Beech, 2006). Furthermore, few interventions are integrated into service delivery systems (a notable exception is programs directed at children aged 0 to 5 years; Campbell & Hesketh, 2007). In the majority of programs, parents or families are expected to attend specialized intervention sessions outside of their general daily routines (e.g., evening educational classes). Intervention practices like these restrict the engagement and active involvement of families and the potential to develop effective and sustainable family-centered programs in real-world settings.

**THE FAMILY-CENTERED ACTION MODEL OF INTERVENTION LAYOUT AND IMPLEMENTATION**

The general lack of attention given to the family system in obesity interventions for children stems in part from the frequently cited complications of recruiting and retaining families (Prinz et al., 2001). Such complications are particularly evident among economically disadvantaged families. In addition, obesity interventionists are rarely trained in child and family development. As a result, many are not familiar with theories of family development, accumulating research on family-centered interventions (Spoth, Kavanagh, & Dishion, 2002) and predictors of family engagement and retention in programs (Coatsworth, Duncan, Pantin, & Szapocznik, 2006; Harachi, Catalano, & Hawkins, 1997).

FAMILI was developed in response to these needs. Although we use the example of childhood obesity to illustrate the application of FAMILI, the model can be applied to a wide range of health outcomes. As illustrated in Figure 1, FAMILI encompasses a three-phase process that includes: (a) using theories of family development to generate research questions and conceptualize research programs that examine intrafamilial processes and the broader complexities of family life, (b) using a ground-up approach that emphasizes qualitative methods during the formative stages of research, and (c) using participatory or action-based research methods to empower parents and caregivers to foster healthy family lifestyles and establish systems-level change that reinforces family change.

**Objective:** Implement culturally-sensitive and sustainable programs to promote healthy family lifestyles.
Phase 1: Use Theories of Family Development to Frame Family-Centered Research and Practice

The first phase of FAMILI promotes the use of developmental theories to guide basic and applied research. One such theory is the family systems perspective (Cowan, Powell, & Cowan, 1998; Steiniglass, 1987). According to this perspective, child development is a function of biological and psychological characteristics of each family member, the quality of relationships between family members, and relationships between family members and institutions outside the family (e.g., peers, work, child care) that serve as sources of stress, support, models, and values (Cowan et al., 1998).

Family systems–derived interventions therefore address the entire family system and key sources of influence outside the family that affect families.

Theories of family development are rarely used to structure obesity-related research and intervention. A companion systems theory, Ecological Systems Theory (EST), has been widely endorsed and used in basic and applied obesity research. EST emphasizes the need to consider the contexts in which an individual is embedded to explain and modify human behavior (Bronfenbrenner & Morris, 1988). Although widespread application of EST in obesity research and public health has facilitated a movement away from interventions that exclusively target individual beliefs, attitudes, and behaviors, interventions for youth that are informed by EST are still largely child centered. That is, the resulting programs do not address the family ecology or the fundamental role families play in mediating children’s experience of the world. For this reason, Phase 1 of FAMILI encourages an exploration of alternate theories of behavioral change—particularly those that emphasize the family system.

One such example is the Family Ecological Model (FEM; Davison & Campbell, 2005). The FEM integrates the ecological model with a family systems perspective. As outlined in the FEM (shown in Figure 2), parents influence children’s physical activity and dietary behaviors as a result of their knowledge and beliefs related to diet, physical activity, and body weight. In turn, parents’ knowledge and beliefs influence the extent to which they model healthy and unhealthy behaviors, use feedback to shape children’s diet and activity behaviors, and facilitate children’s access to environments that promote healthy or unhealthy eating and physical activity.

Most importantly, the FEM model emphasizes that parenting practices and strategies specific to diet and physical activity are shaped by factors proximal to children and parents in addition to the contexts in which they live and interact. Specifically, parenting is shaped by (a) family demographics such as parents’ income, ethnicity, and education; (b) child characteristics such as children’s age, gender, perceived competencies, and weight status; (c) organizational characteristics such as parents’ job characteristics and work demands; (d) community characteristics, including access to healthy foods and recreational spaces; and (e) media and policy factors such as nutrition labeling and advertising food products to children. Using developmental theories such as the FEM will better orient research toward practice.

Phase 2: Use a Mixed-Methods Approach to Examine Factors Affecting Families That Are Relevant for Intervention Design

In Phase 2 of FAMILI, the broadly defined family processes and ecologies prescribed in theories from Phase 1 are examined in detail. Given the limited body of research in this area, early research of this nature should use qualitative methods, such as in-depth interviews and focus groups. This strategy will allow parents and family members to shape the research agenda, thereby ensuring that the knowledge generated is ecologically situated and reflects family preferences and experience rather than researcher assumptions. The pertinent factors that emerge through this process then can be examined quantitatively to validate and expand the initial findings.

Studies of this nature are particularly informative for the design of family-centered interventions. A recent study examining factors that constrain parents’ ability to encourage their children to be physically active illustrates the import of this approach (Davison, 2009). In a series of focus groups, White and African American parents of elementary school–aged children were asked to describe constraints to their ability to encourage active lifestyles among their children. Guided by the FEM, parents were encouraged to consider a broad range of factors that might affect their parenting. Parents identified constraints from all levels of the FEM, including work commitments, family members being unsupportive, having to care for children across a wide age range, children’s lack of self-confidence in physical activity, the conflicting role of home work, and the lack of access to affordable community-based programs.

A subsequent quantitative assessment of the identified constraints and parenting strategies specific to children’s physical activity revealed a number of pertinent findings (Davison, 2009). First, 96% of parents reported that it was important to support their children’s physical activity, suggesting that educational programs alone that highlight the importance of active lifestyles would be ineffective. Second, some barriers were reported by the majority of parents and could therefore be addressed.
across interventions designed for varying demographic groups. For example, the most frequently reported barrier across all demographic groups was the perception that homework directly competed with children’s time to be active and that homework was more important. Finally, a number of barriers were reported more frequently in some demographic groups than others, creating a profile of barriers for each group. Such information can be used to tailor programs to the needs of specific groups and to direct resources to the areas most needed.

**Phase 3: Use Participatory Methods to Develop, Implement, and Evaluate Family-Centered Interventions That Empower Parents and Caregivers to Establish Healthy Family Lifestyles**

Having identified important contextual factors that affect families, health practitioners and intervention scientists can then engage parents and family members as key stakeholders in determining which of these factors will be addressed and how to address them. This process forms the basis of Phase 3 of FAMILI.

Phase 3 draws heavily on participatory methods from the paradigm of community-based participatory research (CBPR; Israel, Schulz, Parker, & Becker, 1998). Community is defined broadly in this context to include all who are affected by the research results (Green & Mercer, 2001). In family-centered programs, family members are the primary “community” of interest. At the core of this methodology is the participation of members of the target population in the process of creating knowledge and using that knowledge to bring about action. CBPR has received increasing recognition by key public health institutions (e.g., CDC, IOM) and funding bodies (e.g., CDC, Robert Wood Johnson Foundation) because of its potential to address health disparities and reduce the gap between theory, research, and practice (Green & Mercer, 2001).
The advantages of using CBPR in the design and implementation of family-centered interventions are numerous (Israel et al., 1998; Turnbull, Friesen, & Ramirez, 1998). In particular, adopting a CBPR approach (a) enhances the validity of programs by seeking “local knowledge” and addressing the daily reality of families’ lives; (b) fosters family acceptance and ownership of programs, thereby increasing family engagement and retention; (c) empowers family members as key decision makers for programs that will affect them; (d) enhances trust and bridges the cultural gap between researchers and participating families leading to the creation of culturally sensitive programs; and (e) fosters the creation of sustainable programs as a result of explicit consideration given to the true realities of families, communities, and organizations. In addition, the evaluation of CBPR-based programs places a strong emphasis on stakeholder buy-in and engagement, empowers stakeholders to actively participate as equal partners in the evaluation process, and allows for continuous quality improvement while the program is ongoing without threatening the integrity of the program (Aubel, 1999). These factors collectively increase the likelihood of developing sustainable and efficacious family-centered programs (Israel et al., 1998; Wallerstein, 2006).

CBPR-based programs to address childhood obesity have recently been implemented in school (Belansky, Cutforth, Chavez, Waters, & Bartlett-Horch, in press) and community (Economos et al., 2007) settings. In the absence of published examples of CBPR-based childhood obesity interventions focusing on families, we draw on an example from adolescent health, namely the Collaborative HIV Adolescent Mental Health Project (CHAMP), to illustrate Phase 3 of FAMILI. CHAMP sought to reduce risky sexual behaviors among urban African American youth. Given the sensitive nature of the program, direct engagement of parents and other key stakeholders was crucial for its success (Baptiste et al., 2005). To address this need, a collaborative board with representative parents, adolescents, school staff, community members, and university-based researchers was established a year prior to the planned implementation of the program to oversee all aspects of program development, implementation, and evaluation. With guidance from the collaborative board, a mixed-methods community assessment was conducted to gather information about community needs that were prioritized and intervention approaches that were acceptable to parents, school personnel, and the community at large. A subcommittee of the collaborative board developed a curriculum to address the needs identified and iteratively revised curriculum content and format based on extensive feedback from parents.

The resultant program focused on building collective efficacy among parents to monitor youth and keep them safe, linking families with community-based resources to promote healthy sexuality, and developing strategies to facilitate parent–child communication about puberty and sexuality. Results from an RCT of the CHAMP program support its effectiveness in improving youth outcomes, including involvement in sexually risky situations and peer resistance skills (McBride et al., 2007), as well as family outcomes such as communication patterns around sensitive issues and supervision of youth (McKay et al., 2004).

Notwithstanding its positive contributions, a participatory approach brings with it a number of challenges, particularly when working intensively with family members (Turnbull et al., 1998). Specific challenges include the time and resources needed to build the necessary structures and community connections to foster greater community and family awareness and the substantial planning and capacity building that is necessary upfront, prior to program development and often prior to the receipt of funding (Strictland, 2006). In our National Institutes of Health–sponsored project (co-PIs K. K. Davison and J. M. Jurkowski), Communities for Healthy Living or CHL, we have encountered additional challenges not typically discussed in the literature.

The goals of CHL are to develop and pilot-test a family-centered obesity prevention program using CBPR. As such, CHL exemplifies the FAMILI model. CHL is governed by a community advisory board that is composed predominantly of low-income parents or primary caregivers of children enrolled in Head Start; additional board members include representatives from pertinent community-based agencies. Our greatest challenge to date has been meeting the diverse needs and interests of the board members. We have found that parents and organizational representatives have different needs and interests in terms of time of day to meet, how long to meet, and what they expect to gain from the meetings.

To meet the diverse needs of the board members, we devote the first half of board sessions to meeting with the parents only and the second half to meeting with the full advisory board. Meeting alone with the parent board members has cultivated their engagement in the project, with the majority of parents attending 90% or more of the meetings to date. Furthermore, it has provided greater flexibility in incorporating skill-building opportunities into the meeting sessions. Advisory board parents, and Head Start parents in general, have also participated in a range of participatory methodologies during the community assessment phase of the project, including focus groups, photovoice (Wang & Burris, 1997), and windshield surveys (i.e., leading a walking tour of their neighborhood;
Callan, 1971). What is more, following appropriate training, interested board parents have played an active role in recruitment, data collection, promotional activities, and (shortly) interpretation of the data, which collectively have enhanced the richness of the data collected.

The direct involvement of family members in the creation of programs that meet their needs is the center point of Phase 3 of FAMILI. The strategies outlined are examples of action plans to foster family involvement and buy-in. More detailed and concrete examples will be shared as the CHL program progresses. It is crucial that researchers and practitioners share details of the collaborative process and strategies used to engage parents and community partners so that a repository of evidence-based strategies in family-centered programs can be built and in turn used to guide modifications to the FAMILI model to improve its utility.

► SUMMARY AND CONCLUSIONS

In summary, given the essential and pivotal role that families play in shaping lifestyle behaviors among children, the prevention of obesity in youth populations requires a focus on families. Simply including family members in interventions is not sufficient, as exhibited by the disappointing results of obesity prevention programs that include a family component. Clearly, family-centered interventions that accommodate the ecologies of families and empower families in the process are needed.

The FAMILI model was developed to foster the creation of such programs. FAMILI is an action-oriented, process model that is anticipated to lead to more effective and sustainable family-centered programs. FAMILI does not adopt a typical standardized intervention format. Given the variation in contextual factors that affect families, it is unrealistic to expect that standardized, pre-established interventions will enjoy equal efficacy and effectiveness over time, across settings, and for diverse ethnic groups. Accordingly, FAMILI is intended to structure the “how” rather than the “what” of intervention design. A limitation in one light, this design feature of FAMILI also is one of its fundamental strengths.

REFERENCES


