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Prenatal Material Hardship and the Internal Locus of Control over the Prevention of Child Obesity: A Progress Report

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Poverty-related disparities in early child obesity have substantial public health consequences, including adverse effects on child well-being and increased later obesity. Determining the best ways to help families to engage in healthy behaviors required to prevent obesity is key to reducing disparities in early child obesity. Social determinants of health (SDH), which include access to adequate food, energy and housing, contribute to a family's ability to establish healthy behaviors. Pregnancy is a unique time of transition, and can increase a woman's vulnerability to hardships. Therefore, it is critical to address material hardships during pregnancy and infancy. Understanding how hardships affect parenting attitudes and behaviors is vital for developing obesity prevention strategies in high-risk communities.

In the June 2016 issue of *Academic Pediatrics,* we used data from the Starting Early Trial,[1] a primary care-based early child obesity prevention intervention designed for low-income Hispanic families beginning in pregnancy, to examine associations between prenatal material hardships and locus of control over the prevention of child obesity.[2] We found that hardships were associated with lower prenatal internal locus of control. Internal locus of control or one's sense of personal control over life outcomes, is a potential key mediator related to later obesity-promoting behaviors. We found that prenatal food insecurity was independently associated with a lower sense of control and that experiencing greater hardships was associated in a dose-dependent manner.

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We are now submitting a progress report regarding effort made in the field since we completed our study.[2] Our findings represent one potential mechanism for how SDH may contribute to poverty-related disparities in early obesity. Since our study, researchers using the Avon Longitudinal Study of Parents and Children, a United Kingdom pre-birth cohort, found that higher prenatal internal locus of control was associated with healthier child eating, sleeping and behavior.[3] This study supports that prenatal attitudes effect later parenting and child behaviors. However, this study did not focus on low-income families with material hardships. Since accounting for hardships may be critical for obesity prevention, prospective studies are needed among high-risk groups.

Addressing SDH during pregnancy and infancy both broadly to improve health outcomes and specifically in the context of obesity prevention, could be facilitated by primary care through interventions designed to buffer the adverse effects of poverty-related risks. Since our study, researchers have highlighted how primary care could serve as a platform for addressing health consequences of poverty-related SDH. Benefits include: 1) frequent prenatal and pediatric visits, which provide regular access to pregnant women and infants on a population scale; 2) ability to build on pre-existing provider relationships; 3) using existing infrastructure to lower cost and decrease need for additional transportation; 4) frequent contact with difficult to reach populations.[4]

Two approaches exist to address the child health outcomes of poverty-related SDH: 1) primary prevention approaches, which are applied universally to promote optimal growth and development and prevent problems before they arise; and 2) secondary/tertiary prevention approaches for families with risk factors or problems identified by screening. The traditional way of managing SDH is secondary/tertiary prevention. Since our report, the American College of Obstetricians and Gynecologists[5] and the American Academy of Pediatrics (AAP) published new recommendations to incorporate SDH screening into standard care. In response, some primary care sites are screening for SDH; those with identified needs are referred for assistance.[6] The AAP has focused on mitigating the adverse impact of food insecurity by recommending screening, and calling for interventions to help food insecure families obtain community services and cope with existing hardships.[7]

A key question in incorporating screening and interventions is how to best account for heterogeneity in risk and resilience factors in low-income populations. One approach has been the integration of primary and secondary/tertiary prevention. For example, Healthy Steps integrates behavioral health specialists into pediatric primary care to offer universal developmental screenings, counseling and referrals. Since our study, some Healthy Steps programs have been adapted to provide maternal mental health services for those with identified depression while providing the standard program for all families regardless of risk.[8] Another new initiative, Smart Beginnings, is a tiered-intervention model.[4] The foundational components are Read Out and Read and the Video Interaction Project which are delivered universally through primary prevention of adverse developmental outcomes. As a second level, families screening positive for SDH or emerging behavioral problems receive additional home-based services through the Family Check-up Program. In prenatal care, group-visit models providing primary prevention have improved social support and perinatal outcomes for low-income women,[9] and can be readily adapted to a tiered-model in

which women with identified hardships are connected to additional services. No programs to our knowledge have created a tiered-model of primary and secondary/tertiary prevention to address poverty-related disparities in child obesity.

Our Starting Early Trial focused on primary prevention of child obesity through a group-based intervention coordinated with well-child visits. Group content incorporated social learning theory important for adult behavior change, which included interactive demonstrations and active practicing of skills.[1] Intervention mother-infant pairs have higher exclusive breastfeeding, greater infant physical activity, and less early introduction of complementary foods than controls receiving standard care.[1,10] Our data linking hardships and locus of control suggest that given relationships between SDH and key potential mediators of child obesity, integrated models combining primary and secondary/tertiary prevention are needed. Child obesity prevention will likely need to combine health care programs with public health efforts to address the complex, multifactorial challenges faced by low-income families. Programs like Starting Early could provide an infrastructure for helping promote healthy infant feeding in the context of food insecurity and decreasing food insecurity by linking families to community services, including the Supplemental Nutrition Assistance Program for Women, Infant and Children (WIC) and the Supplemental Nutrition Assistance Program (SNAP). Subsequent adaptations are exploring the feasibility and impact of these modifications. Group interventions beginning during pregnancy that incorporate primary and secondary/tertiary prevention, by providing support of healthy habits for all families and tailoring the intervention and adding services for those that screen positive for SDH, can optimize population-level outcomes and greatly reduce morbidity related to early child obesity.

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What's new

Prenatal social determinants of health are associated with potential key mediators related to child obesity-promoting behaviors. Innovative primary care-based interventions that combine primary and secondary/tertiary prevention may be needed to address the heterogeneity of risk that exists in low-income communities.