



Journal of Health Disparities Research and Practice
Volume 10, Issue 1, Spring 2017, pp. 143-166
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Exploring the Life Course Perspective in Maternal and Child Health through Community-Based Participatory Focus Groups: Social Risks Assessment

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ABSTRACT

Little is known about the patterns of risk factors experienced by communities of color and how diverse community contexts shape the health trajectory of women from the early childhood period to the time of their pregnancies. Thus, we conducted a focus group

study to identify social risks over the life course that contribute to maternal and child health from the perspective of community members residing in low income urban areas.

Ten community-based participatory focus groups were conducted with residents from selected communities in Tampa, Florida, from September to November 2013. We used the life course perspective to illuminate and explain the experiences reported by the interviewees.

A total of 78 residents participated in the focus groups. Children and adolescents' health risks were childhood obesity, lack of physical activity, and low self-esteem. Women's health risks were low self-esteem, low educational level, low health literacy, inadequate parenting skills, and financial problems. Risks during pregnancy included stress, low self-esteem, inadequate eating patterns, lack of physical activity, healthcare issues, lack of social support, and lack of father involvement during pregnancy. Multiple risk factors contribute to maternal and child health in low income communities in Tampa Bay. The intersection of risk factors in different life periods suggest possible pathways, cumulative, and latent effects, which must be considered in future longitudinal studies and when developing effective maternal and child health programs and policies.

Keywords: Community-based participatory research, life course perspective, maternal and child health, focus groups, risk factors

INTRODUCTION

There is ample evidence of the increased burden of adverse maternal and child health outcomes among socially and economically disadvantaged populations in the United States. However, important gaps remain concerning the specific patterns of risk and protective factors that are prevalent in communities of color and how those factors shape maternal and child health in those settings (Avison, 2010; Blane, Netuveli, & Stone, 2007; Braveman & Barclay, 2009; Gilman & McCormick, 2010; Mishra, Cooper, & Kuh, 2010). Particularly, little is known regarding how minority populations experience risk factors over the course of their lives (Krieger, 2005). Few studies have been conducted with socio-economically disadvantaged communities in which attempts were made to capture the perspective of community residents on the issues that were most relevant for mothers and children in their own localities. Community needs assessment surveys, for example, typically use a priori categories that may miss important realities faced by women of color. Though a qualitative inquiry approach with participatory methods could compensate for the deficit in capturing the community perspective, this is rarely conducted as part of needs assessments. On the other hand, it also is important to guide the inquiry with the appropriate theoretical frameworks that synthesize what is already known on racial disparities in maternal and child health in the United States, so that knowledge can be broadened.

The life course perspective (LCP) in maternal and child health (MCH) has been recommended as a theoretical framework of choice to explain racial and ethnic disparities and inequalities in MCH (Bernstein & Merkatz, 2010; Mishra et al., 2010; Misra, Guyer, & Allston, 2003). The LCP proposes that MCH disparities are determined by the synergistic interaction of risk and protective factors over the life span of individuals, which are also influenced by family and community contexts (Lu et al., 2010). Risks are factors that increase the likelihood that a harmful health event will occur in a given population during a specific time period, whereas

protective factors do the opposite. Elder and colleagues (2009) proposed at least five defining principles: (1) The principle of *life span development* states that health is a lifelong process that can only be fully understood within the context of experiences across the lifespan of a person; (2) the principle of *timing* suggests that our health is shaped not only by the exposures we receive but also by when we are exposed (critical or sensitive periods of development vs. non-critical), the duration (long vs short term, single vs multiple times) and sequencing of such exposures (distal, intermediate, and proximal effects); (3) the principle of *human agency* emphasizes the role of personal control & behavior in health & illness; (4) the principle of *linked lives* is the notion of interdependent lives; and (5) the principle of *historical time and place*, which highlights the ways in which period, cohort, and contextual factors influence the life course (environmental and social determinants of health). Assessing how these principles operate in the life of a community is not an easy task because it is necessary to glean insight directly from community residents. Health trajectory emerges as a useful construct to describe change in health status over time (Henly, Wyman, & Findorff, 2011). Shared health trajectories can be constructed by gathering insight from community residents through the use of participatory techniques.

The paucity of data regarding the community perspective constitutes an obstacle to development of effective community-based programs to address racial disparities in maternal and child health (Makosky Daley et al., 2010). In this context, participatory focus groups could be used to explore the realities of racial and ethnic minorities in low income communities, while adopting the LCP framework to organize the community insights regarding different life periods. Participatory focus groups are a form of community-based participatory research (CBPR), well-suited to gather the community perspective (Alio, Lewis, Scarborough, Harris, & Fiscella, 2013; Makosky Daley et al., 2010; Minkler, Blackwell, Thompson, & Tamir, 2003; Parrill & Kennedy, 2011). Thus, we conducted this participatory focus group study to identify social risks that contribute to the health of women and children from the perspective of community residents.

METHODS

This study was conducted as part of a larger mixed-methods CBPR project that was conducted in five zip codes (omitted for confidentiality) in Hillsborough County, Florida, USA. Hillsborough County has the second highest count of infant deaths for the state of Florida, with 388 infant deaths annually (2010-2012 average), second only to Miami-Dade County (434 infant deaths per year). However, Miami-Dade has an infant mortality rate (IMR) of only 4.7, whereas Hillsborough demonstrates an IMR that is clearly above the state average (7.9 per 1000 live births) and the Healthy People 2010 target (i.e., no more than 6 per 1,000 live births) (Florida Department of Health, 2013). The black/white disparity is exacerbated in Hillsborough County, where infants born to African Americans die at an infant mortality rate of 13.9, whereas the IMR for white babies is significantly lower at 5.5 infant deaths per 1,000 live births (Florida Department of Health, 2013). The City of Tampa has a population of 335,709 inhabitants and is part of the Tampa-St. Petersburg-Clearwater Metropolitan Area (2.9 million residents). It is the second largest metropolitan statistical area (MSA) in Florida, and the fourth largest in the Southeastern United States (U.S. Census Bureau, 2013). Within Tampa, there are impoverished neighborhoods that we selected as our target area. The targeted community was located within urban neighborhoods encompassing five zip codes in Tampa, Hillsborough County, FL (omitted for confidentiality). The estimated population for the target areas was 110,451 inhabitants (U.S.

Census Bureau, 2013). The majority of residents (60.0%) are blacks, followed by 18.3% whites, 12.1% Hispanics and 9.6% are other racial/ethnic groups (Salihu, Mbah, Jeffers, Alio, & Berry, 2009). Around 56.0% of all births are to black mothers who typically are young, unmarried, undereducated, and Medicaid-eligible (Salihu et al., 2009). Compared to the rest of the county, families in the project area tend to be poorer, with half the county median income and double the unemployment rate.

Capitalizing on an existing community-academic partnership (Salihu et al., 2011), we created a Community Advisory Board (CAB) comprised of eight community volunteers who represented the racial/ethnic diversity of the target community. CAB members were nominated community leaders who were connected with local organizations. Many of them had participated in previous CBPR efforts and collectively possessed expertise in community engagement, including the planning and conduct of focus groups (Alio et al., 2013; Salihu et al., 2011; Salihu et al., 2009; Salinas, Smith, & Armstrong, 2011). CAB members served as gatekeepers between the academic researchers and the larger community. To ensure methodological rigor and develop a shared view of the research process, CAB members participated in bi-weekly CBPR training sessions and completed an online Human Subjects Protection certification course (National Institutes of Health, 2011).

A total of ten participatory focus groups were conducted by CAB members during September to November, 2013. Recruitment was conducted by CAB members primarily through flyers and social networks (e.g., word of mouth, email, Facebook groups). We invited individuals who could provide adequate insight into the community context based on the following criteria (purposive sampling): (a) residency of five years or more in any of the target zip codes, (b) interested in sharing their views about mothers and infants in the community, (c) female or male adults (fathers or mothers), as well as children 12 years or older with parental consent for separate adolescent groups, (d) English or Spanish language preference. The distribution of focus groups was: one with adults from each of the five target zip codes, one comprising male/fathers only (mixed zip codes), two in Spanish for Spanish speakers (mixed zip codes), and two comprising adolescents (mixed zip codes). Residents interested in participating in one of the focus group sessions called the phone number provided and community research staff supplied information about the study and responded to any questions. Informed consent was obtained from participants. Incentives of \$10 were deemed acceptable and non-coercive as compensation for their participation in the focus groups. Participants' sociodemographic characteristics were monitored to minimize overrepresentation of any particular subgroup. The focus groups were conducted in private room facilities at designated community locations at a time of convenience for the community residents. The study was approved by the Institutional Review Board of the University of South Florida (IRB#: Pro00010288).

Focus groups were facilitated by trained community moderators with the exception of Spanish focus groups that were facilitated by one bilingual USF doctoral student with qualitative research experience. Community co-moderators and graduate students from the USF College of Public Health took detailed field notes. A questioning route was used. First, participants were asked to tell in two or three words what came to mind when they heard the words healthy family and gave examples of their choice. Then, based on the examples presented, they were asked to think about the major factors that may be causing health problems in the community. The LCP in MCH considers at least three life periods when health needs and vulnerability to threats vary significantly: childhood, pregnancy, and the women's adulthood period before or between

conception (preconception or interconception period). For this reason, the following set of key questions was presented to focus group participants: (a) what makes it difficult for children and adolescents in this community to be at their best health?, (b) what makes it difficult for women/mothers to be at their best health?, (c) during pregnancy particularly, what makes it difficult for pregnant women to be at their best health? The facilitators then provided a summary of examples and asked for any additional feedback. Although there were additional questions on men's health and elderly, they were excluded from the analysis due to prioritization of project resources toward MCH populations.

Focus groups were audiotaped and transcribed verbatim, except in one group where only field notes were taken. Transcription was performed by a trained community member who was familiar with the local colloquialisms. Any identifying information such as names, age, gender, places, or locations mentioned during the discussion were deleted from transcripts to maintain confidentiality. Trained CAB members supervised by academic researchers hand-coded printed transcripts, using flipcharts for annotations, sticky notes, and scissors (Krueger & Casey, 2000). Thematic analysis involved reading textual data individually and in groups while reflecting on the study aims, followed by coding of meaningful categories. Community members were divided in groups of two or three by focus group zip codes to provide direct insight in the creation of thematic codes and interpretation from the community perspective. Then, in plenary, categories were listed and discussed for contrast and comparison across FG transcripts, which resulted in identification of concurrent themes across focus groups. Given the interest in the overall community as a whole, there was no separate analysis by zip code, language, gender, or age of the focus group participants. The process was concluded by selecting illustrative quotes. Exact quotes were put in double quotation marks, while paraphrased statements were indicated by single quotation marks. Hand-written notes were preserved digitally with MaxQDA software to maintain a record of the analysis (VERBI, 2007). The focus groups findings were presented in two community forums conducted in July 2014 for member check validation.

RESULTS

A total of 78 residents participated in the focus groups (Table 1). The majority of focus group participants were adults. The two focus groups conducted with children 12 to 18 years of age represented 10.3% of the participants. The majority of participants were female, non-Hispanic, and Black. Issues that affect maternal and child health in the community were mentioned frequently across focus groups and organized around the three life periods considered (Tables 2-4): children's and adolescents' health, women's health in general (preconception period), and maternal health during pregnancy. Some factors cut across life periods, whereas other factors were discussed with particular emphasis for one or two life stages.

Table 1. Sociodemographics (N=78)

<i>Characteristics</i>	<i>%</i>
Age	
12-18 years of age	10.3
19-40 years of age	46.1
41 and older	43.6
Gender	
Male	38.7
Female	61.3
Ethnicity	
Hispanic or Latino	20.5
Not Hispanic or Latino	79.5
Racial Categories	
American Indian/Alaska Native	2.6
Asian	2.6
Native Hawaiian or Other Pacific Islander	2.6
Black or African American	61.5
White	25.6
More than One Race	5.1

Factors that affect the health of children and adolescents

Salient factors that affected the health of children and adolescents (Table 2) were childhood obesity, lack of physical activity, low self-esteem, ineffective parenting, teenage parenthood, school and community violence, and drug use. Obesity was identified by adults and confirmed by child participants as a problem in the community. Factors associated with childhood obesity were unhealthy diets, lack of physical activity, and overuse of technology. Physical activity and diet were extensively discussed and frequently mentioned together, which suggests that the community is aware of their synergistic effects on the lives of families. Participants discussed specific barriers that prevent children from being physically active, including excessive use of technology (screen time), excessive chores, or lack of recreational spaces. For example, one adolescent stated *“They don’t want to go outside as much. They just want to stay in and play like videogames and stuff like that.”* Notably, obesity was mentioned as an issue that affects individuals in the community from childhood and/or adolescence to adulthood, which is in agreement with the life span development principle and obesogenic trajectories (Dixon, Pena, & Taveras, 2012).

Overuse of TV and digital technology (portable devices such as cellphones, tablets and portable video games) was portrayed as having negative effects on the health of children not only by reducing time for physical activities, but also by channeling inappropriate messages, and advice to parents to monitor the content of screen time was offered. One adult summarized: *“What they watch on TV also, because there’s a lot of these cartoons they be for real, they be having sex, all type of stuff, and the little kids might not know exactly what that is. They are*

going to mimic whatever they see. So, if they see oh the two little kids in the bed playing together, they going to think, oh it was on TV, that was okay. So that's why you got to really monitor." This particular aspect highlights the importance of linked lives in which the risk exposures affecting children depend on the interaction with parents. At the same time, our society is living in a historical period in which children have unparalleled access to digital technology and the internet, posing unique challenges for this generation and their parents' struggle to compete with an ever changing world.

A female adolescent added that she often had no time to exercise because of excessive school work or caregiving responsibilities, highlighting the need for more designated time to exercise: *"having no more time to exercise, stress with school work, and taking care your brothers and sisters."* The scarcity of community resources for recreation and education was believed to prevent children and adolescents from physical exercise. One adolescent discussed the lack of recreation for the youth in his community: *"We don't have enough of these. We used to have a Boys and Girls club in [location omitted], we don't have that no more, that's gone. We used to have a baseball field, we don't got...nowhere for them to go and do now."* This aspect of the physical environment clearly resonates with place-based risk patterns noted in the LCP.

Contemporary diets and highly processed foods were credited as having a major impact on teenagers' obesity. Based on participants' insights, unhealthy diets appear to be another aspect of linked lives proposed by the LCP. Although diet may be seen as behaviorally determined and thus, an aspect of human agency, children have less control over what they eat compared to adults. For example, one male participant discussed his views about how childhood obesity is caused by not only volume but also processed foods: *"eating a lot of food today. It's got genetic engineering type stuff, you wonder why these kids acting all crazy, and the stuff they put in the food today."* Participants also recognized that the content of diet, specifically high-caloric intake, was implicated in childhood obesity and that parents have an important role in the selection of foods children eat. One adult participant noted: *"Parents let them eat all the sweets they want."* Another female participant echoed: *"They'll throw 'em some donuts, throw 'em some cookies. You know, throw 'em some chips."*

One personal factor for children (related to human agency principle) that we found was low self-esteem. Low self-esteem was noted as a barrier that impaired ability to communicate problems and feelings: *"their self-esteem and everything is torn all down. Then they come home and they don't know how to really express themselves with their parents and sit down and talk with them"*. The reasons for low self-esteem among children were discussed broadly and with a degree of ambiguity. In tandem with the LCP's synergistic role of risk factors, we theorize that low self-esteem may be related to other issues mentioned by participants, such as obesity in childhood (due to body image and discrimination by peers) and the behavior of the parents. For example, one male participant indicated, however, that the lack of fathers in the home as a parental role model for the children could play a role (*"Not a lot of fathers in the homes no more"*), but it was also determined by the household conditions (*"but also it reflects back on the hygiene of the mother, how they're keeping their household also."*). Another participant mentioned that not having a male present in the child's life may be a factor because the child will lack initiative and motivation to pursue things in life: *"First, they don't know how...Most of them don't have fathers to give them that drive and that push and that initiative. Because if you've got a good father in the house and he goes to work, he come home and work out, your son's going to look at that, he want to be just like his father. But if you ain't nowhere around, he ain't got no*

motivation, and then his uncles ain't doing anything. His brothers... His brother going to do what he doing...So they need the drive and initiative, they need a man there to give them initiative and focus."

Ineffective parenting styles were noted as major issues for the health and well-being of children and adolescents, which was also related to the other factors previously mentioned. One adult observed that parents today do not teach children responsibility and respect: *"when we were coming up we couldn't do anything, run the street and come in any time we wanted, we had a certain time to come in. We had chores that we had to do around the house. But now the kids now they don't have any chores, they don't do anything but run the street. So I think it's the parents' responsibility to see that that child is brought up with respect to the family."* On the other hand, some adolescents presented a contrasting view when they discussed how too much responsibility, such as needing to step into a parental role for their family, has been a detriment to their education and well-being: *"That was the last time for us to like move our grades up, and I'm like focused on my grades and stuff. And then when I go home I'm tired and then my dad wants me to go back there and mow the lawn."* Absent fathers were especially concerning to adolescents that had to step up and play a parenting role in the family, which *"takes the focus off school."*

Participants also noted that lack of effective parenting practices as a theme for children's health, which highlights the need for more education about parenting children of all ages. The importance of education and additional supports for parents was also highlighted for women's health (See women's health section regarding the lack of education and health literacy). A female emphasized the need for parenting education, especially for younger parents: *"For young parents, other than just going through Lamaze class or whatever, if they took a class, or that it would be mandatory for them to take a parenting class!"* Some participants also noted that the lower the parents' education level and the younger the parents, the lower their ability to raise their children. This issue alluded to mistimed transitions, when teenagers become parents. One participant voiced: *"Young parents or a lot of parents, uneducated parents just do things to their own preference, and just blatantly disregard whatever the pediatrician is saying."*

Teenage parenthood was noted as an important factor that can affect the health of children. Participants discussed teenagers having children as a major problem and how teen pregnancy is not only an inopportune time for teenage parents but also for grandparents who have to absorb dual responsibilities of caregiving. One participant explained: *'People are so much younger these days. That's having babies and grandma younger, too. So, a lot of times grandma don't know nothing. I mean she don't, you know, just hadn't learned. We have babies raising babies, you know...A lot of times it doesn't matter how much you have, sometimes your mentality still doesn't afford you to be able to know that you have a value and that you should take care of yourself.'*

Violence in the form of bullying and community violence were also noted as important risk factors that affected the health of children. A few adolescent participants mentioned that children in the community were bullied and characterized it as a well-known problem with little action. For example, one teenager indicated *"A lot of kids get bullied and nobody really knows about it, and a lot of kids get bullied, people know about it and nobody still do anything."* Another participant noted that violence at the community level is an important barrier for healthy living: *"You know, we used to play on the street or play in the backyard, but it's dangerous now"*

because you don't know when a drive-by shooting is going to come." This is an example of a contextual factor that must be considered throughout the life course.

Finally, drug use, particularly underage use of marijuana, was mentioned by participants as being an important risk for adolescents: *"I would say addiction because you see a lot of young people smoking weed...I mean, and they don't even care, they walking down the street smoking."*

Table 2. Factors that affect children's and adolescents' health

Low self-esteem	<i>"... their self-esteem and everything is torn all down. Then they come home and they don't know how to get...really express themselves with their parents and sit down and talk with them."</i>
Intimate partner violence, school, and community violence	<p><i>"In addition to the violence [domestic] is that in the community, you know, we used to play on the street or play in the backyard, but it's dangerous now because you don't know when a drive-by shooting is going to come."</i></p> <p><i>"I would say bullying. His comment triggered the thought of bullying, you know. A lot of kids get bullied and nobody really knows about it, and a lot of kids get bullied, everybody know about it and nobody still do anything. And if it's too many people bullying, then, you know. What do you do then, you know?"</i></p>
Drugs and alcohol abuse	<p><i>"I would like to say, this is not popular, but drugs and alcohol is one of the major problems in our community. Because when you get in with drugs and alcohol you cannot have a healthy body, and you cannot be healthy, even involved with your kids, because they going to see this."</i></p> <p><i>"They don't care. Drinking. You see a lot more people, young people drinking. Addiction."</i></p> <p><i>"I would say addiction, again. Because you see a lot of young people smoking weed...I mean, and they don't even care, they walking down the street smoking."</i></p>
Lack of support system and male involvement.	<p><i>"takes the focus off school."</i></p> <p><i>"Not a lot of fathers in the homes no more."</i></p> <p><i>"First, they don't know how...Most of them don't have fathers to give them that drive and that push and that initiative. Because if you've got a good father in the house and he goes to work, he come home and work out, your son's going to look at that, he want to be just like his father. But if you ain't nowhere around, he ain't got no motivation, and then his uncles ain't doing anything. His brothers... His brother going to do what he doing. You know what I mean? So that's, they need the drive and initiative, they need a man there to give them initiative and focus."</i></p>
Obesity determinants: unhealthy diets, lack of physical activity, overuse of technology	<p><i>"This much technology and stuff, like they don't want to go outside as much. They just want to stay in and play like videogames and stuff like that."</i></p> <p><i>"What they watch on TV...Right, because there's a lot of these cartoons they be for real, they be having sex, all type of stuff, and the little kids might not know exactly what that is, but like you said, they going to mimic whatever they see. So, if they seeing that, they see oh the two little kids in the bed playing together, they going to think, oh it was on TV, that was okay. So that's why you got to really monitor."</i></p>

152 Exploring the Life Course Perspective in Maternal and Child Health through Community-Based Participatory Focus Groups: Social Risks Assessment
Salinas-Miranda et al.

	<p><i>“... like having more time to exercise and not... less stress with school work and like take care your brothers and sisters.”</i></p> <p><i>“We need something where guys can do something outside. Like activities, like sports, and like having people talk to you about, like how to control your stress and how to have a better life and be healthy.”</i></p> <p><i>“keep them out of trouble.”</i></p> <p><i>“Recreation. We don’t have enough of these. We don’t have...We used to have a Boys and Girls club in [location omitted], we don’t have that no more, that’s gone. We used to have a baseball field, we don’t got...nowhere for them to go and do now.”</i></p> <p><i>“...eating a lot of food today. It’s got genetic engineering type stuff, you wonder why these kids acting all crazy, and the stuff they put in the food today.”</i></p> <p><i>“Parents let them eat all the sweets they want.”</i></p> <p><i>“They’ll throw ‘em some donuts, throw ‘em some cookies. You know, throw ‘em some chips.”</i></p>
Parenting	<p><i>“Because you know what, when we were coming up we couldn’t do anything, run the street and come in any time we wanted, we had a certain time to come in. We had chores that we had to do around the house. But now the kids now they don’t have any chores, they don’t do anything but run the street. So I think it’s the parents’ responsibility to see that that child is brought up with respect to the family.”</i></p> <p><i>“That was the last time for us to like move our grades up, and I’m like focused on my grades and stuff. And then I have to... and then when I go home I’m tired and then my dad wants me to go back there and mow the lawn.”</i></p> <p><i>“Babies raising babies.</i> <i>“People are so much younger these days. That’s having babies and grandma younger, too. So, a lot of times grandma don’t know nothing. I mean she don’t, you know, just hadn’t learned. We have babies raising babies, you know...A lot of times it doesn’t matter how much you have, sometimes your mentality still doesn’t afford you to be able to know that you have a value and that you should take care of yourself.”</i></p>

Factors that affect the health of women in general (preconception and interconception period)

Women’s health risks (Table 3) were low self-esteem, stress, low health literacy, inadequate parenting skills, low educational level, financial problems, and lack of healthcare facilities or access to care.

A predominant factor was chronic stress, which was discussed in at least eight of the focus groups and commonly in relationship to women’s mental and physical health. One participant explained how stress interacts with women’s health and childrearing: *‘Sometime I’ll be so stressed real bad that I don’t know what to do. When you be stressed out, it takes you through a lot. Right now I’m very stressed, so I really can’t focus right now’*. Stress was both a factor that contributed to health issues as well as the result of ongoing health issues: *‘I’m going through lots of health issues myself. I’m going through a whole lot’*. Another source of stress was

childrearing grandchildren: *“You are trying to raise children, and either trying to raise your grandchildren, your stress will take you through a lot.”* Another participant illustrated how stress works in a synergistic fashion with other factors such as depression and poor nutrition: *“And I’ll go back to stress and depression. When you’re depressed, a lot of times you overeat. It depends on what depression does to you. And when you’re stressed, sometimes you won’t eat and you won’t eat properly because you’ll want to eat sweets and stuff that’s just going to help you get some energy.”*

Low self-esteem was again frequently mentioned across at least five of the focus groups as an important problem for women (low self-esteem was also mentioned for children). One female participant noted: *“Even when people have money, you know, there’s still a lot of times women still have this lack of self-esteem. You know, it’s like they haven’t learned of their worth or their value.”* Because of the concurrent nature of this risk factor, we theorize that there may be a self-esteem pathway that starts in childhood and continues in adulthood (in tandem with lifelong processes) and may result in poor health trajectories. Because focus groups cannot assess longitudinal relationships, we recommend its inclusion in future longitudinal studies to determine the factors that influence its occurrence and perpetuate low self-esteem.

With regard to women’s health in general, some participants highlighted that few healthcare facilities existed in the community, with those services available offering very limited choices, and some services such as dental care completely absent. For example, one participant noted: *“Yeah. The most thing for me is like the dentist, it’s hard. And, then they tell you: ‘well you can go down to [center name omitted] and you can get this here’. And then when you get there, it’s a bunch of hoops you have to jump through. And, it’s not exactly what it’s all said to be when you get there . . .”* Participants also noted the high cost of health care and that inadequate medical coverage limited the use of needed healthcare services: *“The lack of financially being able to go to the doctor, because the doctor’s appointments are very expensive these days if you don’t have proper medical insurance.”*

Low educational level was another important theme for women’s health. Indeed, women’s education is an important determinant of their health and their children’s, which is related to income poverty and constrained job opportunities. It also stresses the importance of an LCP on the social determinants of health (e.g. education over the life span). Nevertheless, focusing only on improving schooling is not sufficient to address the major health challenges facing women from socio-economically disadvantaged communities (Kickbusch, 2001). Other factors such as health literacy and economic development are also needed. In this regard, financial problems were believed to limit preventive healthcare utilization and lead to adoption of unhealthy behavioral patterns, such as unhealthy eating or missing regular healthcare visits. Both education and income were mentioned in the focus groups as mutually influencing issues that act synergistically to influence behaviors and produce poor health. One female participant explained: *“My people are on fixed incomes. And so, that determines the amount of money that they have to spend on nutrition and health care, so that they go to the cheaper things, which aren’t necessarily as healthy, and they forego unnecessary...well...preventive health care, you know, because they can’t afford it.”* An important aspect to note is that low educational attainment and income poverty have been associated with a lack of parenting knowledge and skills (Perkins, Finegood, & Swain, 2013), which were mentioned as important determinants of children’s health in the previous section.

Finally, another factor credited with causing health problems in the community was lack of adequate health knowledge and limited ability to seek appropriate healthcare information, which CAB members adequately referred to as health literacy. Health literacy, a specific form of literacy and an important determinant for social and economic development, should also be considered in relation to the women's educational attainment (global literacy) (Kickbusch, 2001). Low health literacy limits women's ability to navigate the healthcare and social service systems and results in limited access to supports available (e.g. parenting programs). This situation stresses the importance of implementing specific strategies to improve health literacy in conjunction with educational attainment. One participant summarized: "*Lack of [health] knowledge...that's one of the things may make it difficult is that folks just really sometimes don't seek that knowledge and don't seek care.*" We consider that adequate health knowledge was a construct related to health literacy, or the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions. Low academic achievement and lack of knowledge about health issues hinder the ability of residents to seek and evaluate healthcare resources. Again, this aspect of low health literacy resonates with the fact that knowledge about parenting was also an important issue for the health of children and also teen pregnancy was a factor that hindered parents' ability to get proper education. We theorize that low parental health literacy and lack of adequate parenting knowledge are related to limited parental education and the financial constraints that result from low wages.

Table 3. Factors that affect women during preconception and interconception

Stress	<i>“And I’ll go back to stress and depression. When you’re depressed, a lot of times you overeat. It depends on what depression does to you. And when you’re stressed, sometimes you won’t eat and you won’t eat properly because you’ll want to eat sweets and stuff that’s just going to help you get some energy.”</i>
Low self-esteem	<i>“Even when people have money, you know, there’s still a lot of times women still have this lack of self-esteem. You know, it’s like they haven’t learned of their worth or their value.”</i> <i>“And there are situations that cause women’s self-esteem to really go down, because of those kind of situations. It makes you feel bad about yourself and how you made a mistake, or stuff like that. You know, it makes you just feel pretty much [down]”</i>
Intimate partner violence, school, and community violence.	<i>“I think it’s the violence. Some of these women, like they get abused by, you know, the man, and they don’t know how to recover from it. They just take it all in, and it’s like ‘hey, oh well’.”</i>
Lack of support system and male involvement	<i>“A lack of support, especially when you don’t have the support of the man.”</i>
Healthcare-related factors.	<i>“Yeah. The most thing for me is like the dentist, it’s hard. And, then they tell you: ‘well you can go down to [center name omitted] and you can get this here’. And then when you get there, it’s a bunch of hoops you have to jump through. And, it’s not exactly what it’s all said to be when you get there . . .”</i> <i>“The lack of financially being able to go to the doctor, because the doctor’s appointments are very expensive these days if you don’t have proper medical insurance.”</i> <i>“My people are on fixed incomes. And so, that determines the amount of money that they have to spend on nutrition and health care, so that they go to the cheaper things, which aren’t necessarily as healthy, and they forego unnecessary...well...preventive health care, you know, because they can’t afford it.”</i> <i>“Lack of [health] knowledge...that’s one of the things may makes it difficult is that folks just really sometimes don’t seek that knowledge and don’t seek care.”</i>

Factors that affect the health of pregnant women

Risks during pregnancy (Table 4) included stress, low self-esteem, inadequate eating patterns, lack of physical activity, healthcare issues, lack of social support, and lack of father involvement during pregnancy. Some factors, such as low self-esteem, diet, and physical inactivity, and healthcare issues appeared also during childhood and women’s health in general discussions, suggesting that these factors continue to be present and may cause cumulative effects on the health of residents.

The connection of continuous stress during pregnancy was evident across focus groups. One participant explained that sources of stress included worrying about children, financial stressors, and relationship concerns. These stressors exert a strong negative influence on the health of pregnant women. One participant noted: *‘You have some pregnant women who are married and some who are not married. And so they have the burden of working and if they got children already, they got to be taking care of them. And they got to take care of all of the other financial obligations and upkeep of the house while carrying the baby. And that sometimes*

happens even if they're married, sometime they be in that situation. You get a lot of stress on you and you have to carry that on you." In this regard, one participant explained the unique situation of pregnant women, whose worries about pregnancy, labor, and childbearing can be further intensified by everyday stressors: *"I was going to say just worrying about everything. Women worry about a lot, but pregnant women worry about every single thing down to, like, you know, being able to provide, and labor, too."* Moreover, negative feelings in relationship to unintended pregnancies were portrayed as important stressors that affect the health of women and their pregnancies: *"I think a lot of women that are pregnant who don't want to be pregnant. So really wanting the baby can make it difficult if you don't want that baby, and you got nine months that you have to tolerate it."* We theorize that unwanted pregnancy and teen pregnancy interact as added stressors for many young women in this community.

The lack of support system and male involvement were also noted as factors that contribute to stress in pregnancy. The participants believed that many pregnant women lacked an adequate support system, which was commonly discussed in the context of relationship issues with the baby's father or other partner. Participants highlighted inadequate relationship support as a stressor for pregnant women, especially for women receiving no help from the father. One participant indicated: *"Especially if he's not really your man, then it's really a problem. That can make it real hard, because he is going home after he come over to do whatever. He going home or he ain't coming back after he found out you were pregnant."* Another participant echoed: *"A lack of support, especially when you don't have the support of the man."* Specifically, regarding father involvement during pregnancy, another participant said: *"to help with that child, you know you're going to have a child, and to help support that pregnant woman and encourage her that 'I'm going to be here with you all the way', even in the delivery room. I think that's important."* Another facet of male involvement was childrearing and the challenges faced by single mothers trying to raise children without support.

In a similar fashion to children's and women's health in general, participants were also concerned about the dietary patterns of pregnant women. One woman noted: *"The things they eat. You can catch females that are pregnant, eating peanut butter and pickles and all kind of stuff. You know, just got to watch the way you eat when you're pregnant, I guess."*

Another participant also commented that low self-esteem continues affecting pregnant women: *"And there are situations that cause women's self-esteem to really go down. It makes you feel bad about yourself and how you made a mistake, or stuff like that. You know, it makes you just feel pretty much [down]."* Assuming that low self-esteem was an ongoing issue since childhood for some women, we theorize that some women may suffer exacerbation of their stress and low self-esteem during pregnancy.

One community-wide problem noted by participants was the prevalence of intimate partner violence and tolerance of expressions of violence at the interpersonal and community level. For example, one participant observed: *"I think it's the violence. Some of these women, like they get abused by, you know, the man, and they don't know how to recover from it. They just take it all in, and it's like 'hey, oh well'."*

Participants mentioned the use of drugs and alcohol abuse as major problems that affect women's health and have repercussions on future generations (*linked lives principle*). One community member explained: *"I would like to say, this is not popular, but drugs and alcohol is one of the major problems in our community. Because when you get in with drugs and alcohol*

you cannot have a healthy body, and you cannot be healthy, even involved with your kids, because they going to see this.”

The participants also pointed out that some women do not attend to prenatal care or seek help too late, which may be related to the issue of low health literacy mentioned in the women’s health section. One participant commented: *‘They don’t take care of themselves. They wait ‘till they get a certain stage, then they want to run to the doctor when they should’ve been going all along.’* Participants also voiced their frustrations about problems pregnant women in the community may face with their health insurance: *“And now there’s a new thing with pregnant women, if they’re pregnant, the medical insurance coverage, and not being able to have affordable care. Because they have this new thing now if a woman is working and she’s single or whatever, if the company offers insurance, they have to take the company’s insurance and not use Medicaid. That’s a new thing as of this month. Which, company insurance is very expensive, so if they got to pay all that insurance and take care of their family, they might as well quit working.”*

Table 4. Factors that affect the health of women during pregnancy

<p>Stress</p>	<p><i>“You have some pregnant women who are married and some who are not married. And so they have the burden of working and if they got children already, they got to be taking care of them. And they got to take care of all of the other financial obligations and upkeep of the house while carrying the baby. And that sometimes happens even if they’re married, sometime they be in that situation. You get a lot of stress on you and you have to carry that on you.”</i></p> <p><i>“I was going to say just worrying about everything. I think, you know. Women worry about a lot, but pregnant women worry about every single thing down to, like, you know, being able to provide, and labor, too.”</i></p> <p><i>“I think a lot of women that are pregnant who don’t want to be pregnant. So really wanting the baby can make it difficult if you don’t want that baby, and you got nine months that you have to tolerate it.”</i></p> <p><i>“Sometime I’ll be so stressed real bad that I don’t know what to do. When you be stressed out, it takes you through a lot. Right now I’m very stressed, so I get that stress out. I really can’t focus right now. I’m going through lots of health issues myself. I’m going through a whole lot. You are trying to raise children, and either trying to raise your grandchildren, your stress will take you through a lot. And, you know, it really does make it hard on you with the health issue.”</i></p>
<p>Lack of support system and male involvement</p>	<p><i>“Especially if he’s not really your man, then it’s really a problem. That can make it real hard, because he is going home after he come over to do whatever. He going home or he ain’t coming back after he found out you were pregnant”</i></p> <p><i>“. . . to help with that child, you know you’re going to have a child, and to help support that pregnant woman and encourage her that ‘I’m going to be here with you all the way’, even in the delivery room. I think that’s important.”</i></p>
<p>Obesity determinants: unhealthy diets, lack of physical activity, overuse of technology</p>	<p><i>“The things they eat. You can catch females that are pregnant, eating peanut butter and pickles and all kind of stuff. You know, just got to watch the way you eat when you’re pregnant, I guess.”</i></p>
<p>Parenting</p>	<p><i>“Young parents or a lot of parents, uneducated parents just do things to their own preference, and just, you know, just blatantly disregard whatever the pediatrician is saying.”</i></p> <p><i>“For young parents, other than just going through Lamaze class or whatever, that if they took a class where, or that it would be mandatory for them to take a parenting class!”</i></p>
<p>Healthcare-related factors</p>	<p><i>“They don’t take care of themselves. They wait ‘till they get a certain stage, then they want to run to the doctor when they should’ve been going all along.”</i></p> <p><i>“And now there’s a new thing with pregnant women, if they’re pregnant, the medical insurance coverage, and not being able to have affordable care. Because they have this new thing now if a woman is working and she’s single or whatever, if the company offers insurance, they have to take the company’s insurance and not use Medicaid. That’s a new thing as of this month. Which, company insurance is very expensive, so if they got to pay all that insurance and take care of their family, they might as well quit working.”</i></p>

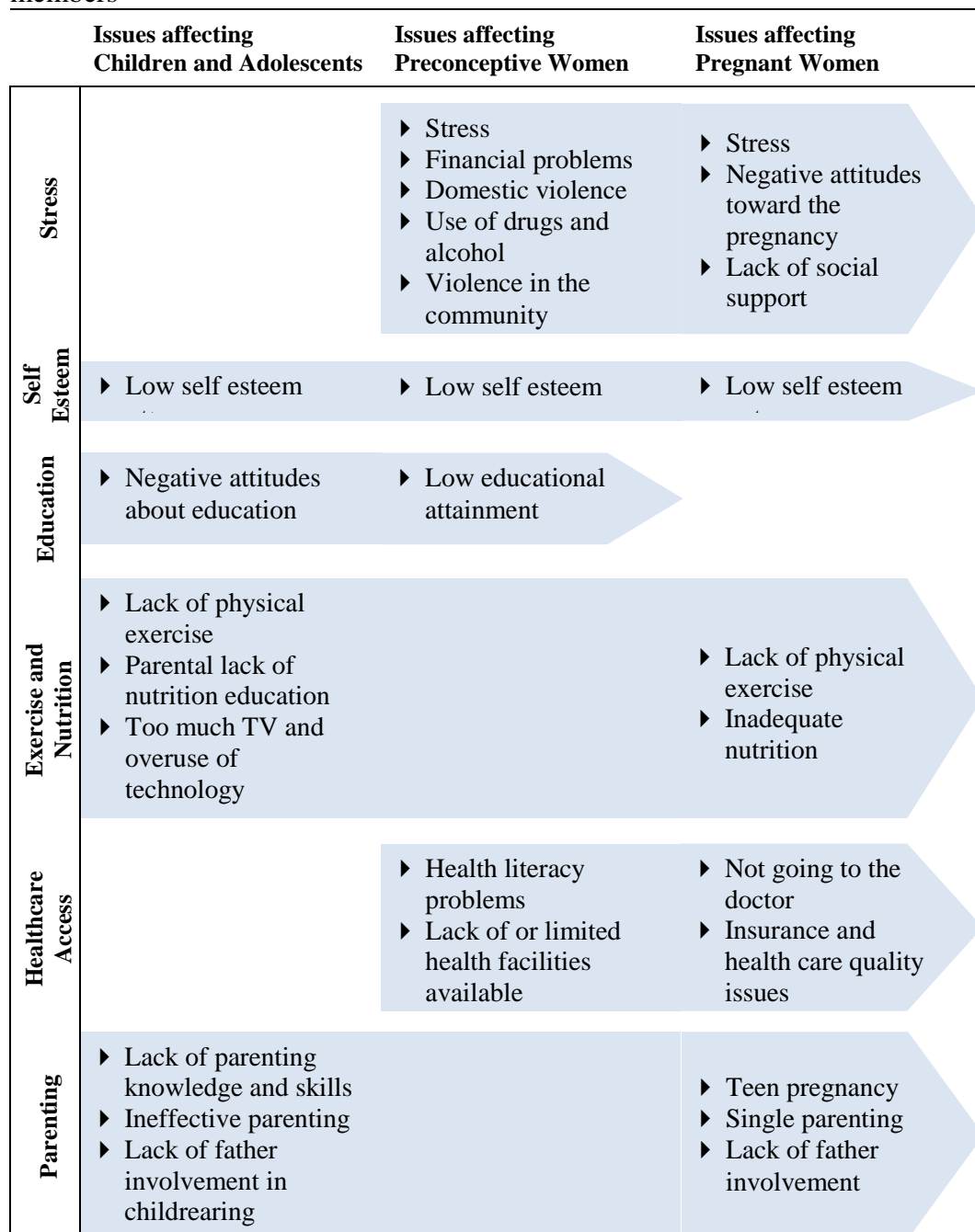
DISCUSSION

Using the Life Course Perspective (LCP) as a theoretical framework, we conducted a Community-Based Participatory Research (CBPR) study that explored maternal and child health

159 Exploring the Life Course Perspective in Maternal and Child Health through Community-Based Participatory Focus Groups: Social Risks Assessment
Salinas-Miranda et al.

(MCH) issues and associated determinants that affect health across the life span through focus groups. To close the knowledge gaps regarding the causal pathways most relevant for women residing in communities of color, it is necessary to glean insight directly from individuals residing in neighborhoods with a higher proportion of racial/ethnic minorities (Salihu et al., 2011). By using participatory focus groups to develop questions guided by the LCP, our study expanded conceptualizations of risk factors across the life span by eliciting the shared realities in communities of color. We were also able to identify factors (Figure 1) that are more relevant for the different life periods based on the perspective of community members and potential cumulative pathways of factors that may continue to exert their negative effects in a continuous manner (e.g. low self-esteem, diet). Latent effects and critical period effects are not possible to infer through this type of study, but we generated several hypotheses that can be tested in future studies. Our findings support the life course tenet that adverse birth outcomes are caused not only by exposure to risk factors during pregnancy, but by cumulative exposure throughout the individual's life (Lu & Halfon, 2003).

Figure 1. Possible pathways of maternal and child health issues identified by community members



The LCP integrates not only the types of exposures that can explain racial and ethnic inequalities and disparities, but also the element of time (longitudinal focus, rather than cross-sectional only). The principle of life span development (Elder & Giele, 2009) was supported by the presence of risk factors across life periods that could result in obesity. Factors such as unhealthy diet could be theoretically linked as part of lifelong processes that shape the health

trajectories of minority populations. For example, unhealthy diet among pregnant women may be explained by unhealthy dietary patterns acquired from childhood and transmitted by parents. The principle of timing is also possible, since we were able to identify risk factors that are known to have adverse effects during critical periods of development, such as stress, use of substances, and domestic violence. Particularly, health is shaped not only by the exposures we receive but also by when we are exposed (critical or sensitive periods of development vs. non-critical), the duration (long vs. short term, single vs. multiple times) and sequencing of such exposures (distal, intermediate, and proximal effects). Based on the literature of adverse childhood experiences, harmful exposures during critical periods of development such as early childhood and adolescence are likely to result in adverse health outcomes for the adult (Anda et al., 2006; Brown et al., 2010; Brown et al., 2009; Dong et al., 2005; Dube et al., 2006; Salinas-Miranda et al., 2015).

The principle of human agency was exemplified on the role of personal control & behavior (for example, choosing not to play sports vs video games). However, behavioral change is the result of reciprocal relationships among personal factors (e.g., mental schemas, cognitive and emotional), environment, and attributes of the behavior itself. Aside from genetic predispositions and idiosyncrasies, however, behavioral patterns are largely shaped by the social environment. Our study indicates that children's behaviors are largely shaped by parental influences and also that factors influencing children's health are likely to affect adults as well.

The principle of linked lives or the notion of interdependent lives was evident through intergenerational linkages. Prenatal health could be seen as the result of the health trajectories of women. Conversely, prenatal health also sets the stage for the future health trajectories of the mother and their children. The health of children is heavily influenced by parental factors. Parenthood and childrearing also exert influence on mothers' and fathers' health, as indicated by comments where childrearing was considered a stressor, and how ineffective parenting or the lack of fathers affected the lives of adolescents. Dysfunctional interpersonal relationships with partners or spouses also could bring sources of risk (domestic violence) and/or lack of protection (lack of social support). Aside from the immediate family, individual lives are also connected through the wider social network in their communities and through organizations. The presence of bullying and community violence suggests effects on health beyond the immediate family network. Thus, another way to look at linked lives is by assessing the social environment.

Lastly, the principle of historical time and place highlights the ways in which period, cohort, and contextual factors influence the life course health trajectories. This principle alludes to the social determinants of health, which are the "conditions in which people are born, grow, live, work and age." Unless significant societal events happen (social disruption, migration, or acculturation changes), living conditions tend to remain relatively constant during long periods of time for individuals residing in particular communities. Thus, the social determinants found in this study (stress, violence, low income, low education, etc.), which are prevailing in this particular community, are likely to have cumulative and synergistic effects on the current population cohorts.

Because health status changes are due to the interaction between internal (vulnerability and resilience) and external factors (risk and protective exposures) with physiological regulatory mechanisms (Ramsay & Woods, 2014), it is important that we devise interventions that reduce vulnerability, increase resilience, and also reduce risk and increase protection. We recommend that future studies adopt retrospective or prospective approaches to life course histories of

women and their children attending community programs. Assessing the sequence of health status changes over the life course could explain health differences across populations. Instrument refinement and improvement of information systems will be necessary. Lu and colleagues have noted that current stress screening in prenatal programs does not capture the chronic stressors prevalent in the everyday lives of African American women, such as discrimination, institutional racism, poverty, housing problems, and other community risk factors that can negatively affect health (Lu & Halfon, 2003). Our study identified multiple sources of chronic stress experienced by women in low income communities, which may play important roles in perpetuating the disparities in birth outcomes (Lu & Halfon, 2003).

The emergence of stress, depression, and low self-esteem as important themes for women in general, pregnant or parenting women, as well as children, indicates the need for greater investment in community mental health programs to improve reproductive health outcomes. As long as African American women grow up and live in communities that cause them to experience greater cumulative stress starting from early life, disparities in birth outcomes are likely to continue (Lu & Halfon, 2003). Low self-esteem during childhood and adolescence has been associated with poor health, criminal behavior, and worse economic prospects (Boden, Fergusson, & Horwood, 2007; Trzesniewski et al., 2006). Family violence, community violence, drugs and alcohol use add to the spectrum of chronic stress experienced throughout the life course in these communities, and have well-documented linkages with adverse pregnancy outcomes (Chambliss, 2008; Jasinski, 2004; Lu, 2010). Such risks affect children as well, with a consequential intergenerational effect. Improving the quality of prenatal care and expanding healthcare access over the life course should be a priority area, as recommended by other life course researchers (Lu, 2010). However, nine months of prenatal care cannot reverse the effects of early life chronic social stressors and cumulative risk factors (Lu & Halfon, 2003). Thus, prenatal programs may better improve birth outcomes if they began pre-conceptually and address social and behavioral factors as a vital part of women's health over the entire life course (Lu & Halfon, 2003).

Lack of parenting knowledge and skills also emerged as a strong theme, which stresses the importance of strengthening education and additional supports for parents in socially disadvantaged communities. Full-day, year-round early childhood education programs staffed with high quality teachers have also been recommended (Lu, 2010). It is also critical that reproductive medicine providers utilize the window of opportunity during each clinical encounter to screen for intimate partner violence in order to facilitate appropriate counseling and referral to community services. Maternal and child health professionals should dedicate efforts to enhance the integration and coordination of family-centered services to support caregivers in order to help reduce stress and increase family support services across the life span (Lu & Halfon, 2003). Yet, the current system for family support service delivery remains fragmented (Lu, 2010).

Strengthening African American families and communities and strengthening father involvement in African American families should be a priority for MCH programs. Lack of father involvement emerged as an important theme for children and adolescents, as it did for pregnant women. Approximately half of all low-income African American children grow up in single-mother families with little or no father involvement, putting them at greater risk for poor developmental outcomes (Lu et al., 2010). More studies are needed to examine life course factors that affect fathers.

Physical health, including obesity, physical activity and diet, emerged as important themes. For children, in particular, overuse of technology was a hindrance to physical activity. Many participants also suggested that a lack of community resources, such as recreational facilities, limits children's participation in physical activity. Further investment in community infrastructure, economic development, accessible and safe parks and recreational facilities, are important strategies to improve physical and mental health in the community (Lu et al., 2010).

Our findings should be interpreted in the context of certain limitations. Self-selection bias may have been a factor because those community members who chose to participate in the focus groups may have been more interested in the topic than those who did not participate. Due to the qualitative nature of the study, results are not generalizable. Additionally, this manuscript does not address the factors that protect and enhance health toward optimal potential, but these factors were also collected and will be fully discussed in a forthcoming article. Despite the limitations, we successfully mobilized the community to understand the most relevant MCH issues to be prioritized. These focus groups helped us and the community develop a subsequent needs assessment survey and design an intervention that was specifically targeted to the community members' needs.

In summary, several recurring socio-behavioral factors contribute to health outcomes across the course of women, pregnant women, and their children's lives in low income communities. This information can be useful to community program planners to establish linkages among community resources to tackle factors that affect health throughout the life course. This study provided greater understanding of the life course social disadvantage that disproportionately burdens mothers and their babies living in the target neighborhoods from the perspective of women, men and adolescents living in the community.

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164 Exploring the Life Course Perspective in Maternal and Child Health through Community-Based Participatory Focus Groups: Social Risks Assessment
Salinas-Miranda et al.

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Salinas-Miranda et al.

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166 Exploring the Life Course Perspective in Maternal and Child Health through Community-Based Participatory Focus Groups: Social Risks Assessment
Salinas-Miranda et al.

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