Practical Applications of Life Course Theory and the Social Determinants of Health: Addressing Health Disparities in Maternal and Child Health

By:
Rebecca Sink Brown

November 11, 2011

A paper presented to the faculty of The University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Master of Public Health in the Department of Maternal and Child Health Chapel Hill, N.C.

Approved By:

Anita M. Farrell
(First Reader)

[Signature]

(Second Reader)
Abstract

Health inequities among different racial and ethnic groups are a troubling concern for professionals and the public alike. In the field of Maternal and Child Health, the gap in health outcomes between African Americans and Caucasians is significant. African American women and babies in the United States consistently have poorer outcomes in rates of infant mortality, preterm birth, and low birthweight. While the factors that lead to such inequities have been widely researched, reviews on successful community programming to combat these disparities are few. This article will review and analyze three promising programs that address health disparities in maternal and child outcomes. In doing so, I hope to show the importance of evaluation and review to help guide further programming.

Introduction

The discourse on racial and ethnic disparities in maternal and child health (MCH) outcomes is rich. There is a wealth of literature on what disparities exist, and multiple theories as to the causes. Many explanations stem from life course theory and the social determinants of health. Life course theory states that individuals are born with, exposed to, and consequently accumulate throughout their lives certain risk and protective factors that determine their overall health (1). The social determinants of health are specific social factors that are believed to lead to favorable or poor health outcomes. These poor outcomes overwhelmingly affect racial and ethnic minority populations (2, 3, 4). The social determinants of health that most often lead to poor outcomes include racism, poverty, low socioeconomic
status, lack of access to resources whether financial, physical, or emotional, lack of power, and an overall social landscape of discrimination and inequity (5, 6).

For those working in the field of Maternal and Child Health, these social determinants of health are believed to disproportionately affect the health of mothers and babies in minority populations leading to significant health disparities. While the research base on the theories and causes of poor maternal and child health outcomes is broad, the research on programming to reduce or eliminate such disparities is less extensive. This is a dire problem. Theory and causation are only pertinent if put into action and used to make changes and improvements to the current landscape. In this review, promising programmatic approaches to reducing and/or eliminating health disparities in MCH outcomes, specifically infant mortality, low-birthweight, high-risk pregnancies, and preterm birth will be discussed. In doing this, I will articulate the successes and challenges of such approaches, as well as recommendations for further programmatic research.

**Health Disparities in Maternal and Child Health**

Research around health disparities in maternal and child health is expansive. Numerous studies have focused on the problem of health disparities among different ethnic groups and how this phenomenon manifests in society. Health disparities exist domestically and internationally. In the United States, maternal and child health disparities begin at preconception and exist through the postpartum period and include inequities in access to adequate medical care, including family planning, prenatal and obstetrical care, infant and maternal mortality, preterm
birth, low birth weight, exposure to intimate partner violence, and the ability to initiate and sustain breastfeeding (6-Bloom).

Historically, health disparities are particularly marked between African American and Caucasian women, though more current research is being conducted on differences among other ethnic groups as well (7, 8). And while poor maternal and child health outcomes in the United States have marginally decreased in the past ten years, the gap between African Americans and Caucasians is not narrowing significantly. For example, in 2000, the infant mortality rate (IMR) for Caucasian women in the United States was 5.7 deaths per 1,000 live births, whereas the rate for African American women was 13.59 (9). The most recent IMR rates (2007) for Caucasian and African American women are 5.63 and 13.31 respectively (10). Across the board, African American women and babies live with poorer maternal and child health outcomes when compared to Caucasians.

But, those of us in MCH already know this. The conversation on disparities is all around us. We know there is a problem. The Healthy People 2020 agenda (HP 2020) includes improving the health of mothers, infants, and children as one of its goals (11). We even understand what needs to be done. HP 2020 outlines goals to reduce infant mortality, low birth weight, and preterm birth, and increase favorable health behaviors such as breastfeeding and the regular intake of folic acid by women of childbearing age, especially those in the preconception period.

The problem seems to be in the how. Even though HP 2020 gives intervention resources, the large majority focus on reducing tobacco use and other individual-level interventions aimed at changing health behavior.
In contrast, the life course perspective conveys that health status, behaviors, and attitudes are influenced not just by the individual but also by one’s community and society at large. Building upon the ecological model, life course theory is more inclusive of all the factors—individual, familial, communal, and societal—that influence health status (12). Therefore, interventions must be aimed at not only improving health behavior at the individual level but also must incorporate the community perspective, including changes at the societal level (i.e. policy) as well.

**Life Course Theory and the Social Determinants of Health**

Life course theory is a modern foundational theory with broad applications in public health. Research on LCT in public health continues to grow, and a great deal of this literature focuses on health disparities. In 2003, Lu and Halfon postulated that the combination of two previously hypothesized concepts: the *cumulative pathways* mechanism and the *early programming* mechanism, were a better basis for describing the shortfalls in birth outcomes of many racial and ethnic minorities than either mechanism alone (13).

The *cumulative pathways* mechanism or “*weathering hypothesis*”, originally conceptualized by Geronimus in 1992, states that over time, the health of African American women deteriorates as a result of years of exposure to detrimental social, economic, and cultural factors (14). In turn, these factors, including poverty, stress, lack of education, and racism lead to poor health outcomes for the woman and her infant if she becomes pregnant.
Alternatively, the early programming mechanism, described by Barker (1990) is believed to shape health outcomes in utero and at critical early life periods, essentially mapping a course for life from conception forward (15).

Lu and Halfon melded these two concepts into what is now known as life course theory (LCT) and combined the longitudinal nature of cumulative pathways with the point-in-time concept of early programming. Life course theory proposes that health outcomes are a result of an individual’s genetic makeup, his or her environment and social surroundings, as well as exposure to certain risk factors during sensitive times in life. Experiences during these critical periods, whether positive or detrimental, are believed to then further shape an individual’s health, in combination with what tools one is born with and what social and cultural environment they are exposed to. Essentially, this model of development focuses on multiple determinants as factors of health status and integrates the socio-ecological perspective.

As Geronimus described with the weathering hypothesis, certain determinants are particularly influential to one’s health status (14). Social risk factors, such as poverty, lack of education, stress, low socioeconomic status, exposure to environmental toxins, discriminatory policies, and intergenerational attitudes, beliefs, and values, all shape an individual’s biological health. The World Health Organization defines the social determinants of health as “the conditions in which individuals are born, grow, live, work, and age.” (5). Social determinants are largely responsible for many of the health disparities that exist between and among
various cultural groups, such as between African Americans and Caucasians in the United States.

In this review, three promising applications of life course theory using the social determinants of health to address maternal and child health disparities will be discussed. The criteria for what is considered promising will be detailed in the Methods section.

**Methods**

The research on health disparities is extensive yet only around ten applicable programs using the specific language of “life course theory-based” and “maternal and child health” have been evaluated in peer-reviewed journals. I will focus on programs that used both life course theory and the social determinants of health as a basis for affecting change in maternal and child health outcomes. Programs addressing maternal and infant mortality, preterm birth, and low birthweight were of particular interest. Additionally, as life course theory uses the foundation of the individual in the community, programs that incorporated a community-building structure were chosen.

Reviews of the PubMed database included the following terms: “life course theory and maternal and child health”, “life course theory and infant mortality”, “maternal and child health and social determinants of health”, and “life course interventions in maternal and child health”. It should be noted that there are a number of programs that have websites and media articles detailing their interventions, but for the purpose of this review, only peer-reviewed journals were reviewed, to assure validity of program information. Supplemental and background
information for programs and interventions was obtained in some cases from websites or other sources. Based on the introduction of life course theory into the literature, I reviewed articles from the year 2003 to 2011.

Results

Genesee County, Michigan: Racial and Ethnic Approaches to Community Health (REACH) Program

In Genesee County, Michigan, one of the foundational elements of the REACH program is that no one individual is capable of improving the health of the community, but that many individuals and groups, with varying knowledge, are necessary to bring about change (16). The program’s philosophy is that individuals from academia, public health, and those at the grassroots have alternative ways of thinking and different ideas about what should be the community’s priorities, but each group is necessary to bring about a change in the whole community. The operating presumption is that when these partnerships are cohesive, all of the resources necessary are available to improve health. Additionally, the inclusion of all members of these groups instills an ownership of the process that is essential for program sustainability.

The basic program objectives of the REACH program were to reduce racism, create a more receptive and effective perinatal healthcare system, and facilitate community mobilization, all in an effort to reduce infant mortality. Specifically, in Genesee County, African American infant mortality and the disparity in rates of infant death between African Americans and Caucasians was of paramount concern.
The overall themes of program action were derived from more than a year of discussions among community and partnership focus groups facilitated by the REACH program. The model used a “bench” and “trench” method of collaboration, meaning that those on the “bench” (public health professionals, policy makers, and community leaders, etc.) were just as important to the knowledge-building process as those in the “trenches” (community residents) (16, pps. 326-328).

In order to reduce racism, several educational workshops inviting professionals and community members were conducted and evaluated for effectiveness. The six Undoing Racism workshops, which reached 195 community participants showed immediate results, with 62% of those surveyed stating their beliefs about racism had been changed “significantly” as a result of the session, and 69% of respondents expressing a change in their knowledge of racism. Additionally, Healing Racism workshops impacted an additional 25 community members, and upon future offerings of the workshop, one organization began requiring its supervisory staff to participate. The Healing Racism series is designed to inform individuals about the different types of racism, and move them through a process of understanding about themselves and their community with regard to racism.

To create a more effective perinatal health system in Genesee County, several projects were implemented. One project involved the creation of a lay health advocate team. This team worked in combination with degreed health workers (social workers, nurses, and nutritionists) to provide intensive prenatal care and case management to eligible women who were low-income and sustained at least one social risk to health. These risks included single and/or teen parenting, low
education, depression, history of abuse or neglect, and heightened risk for HIV/AIDS. The lay health advocates followed women through pregnancy and sometimes up to the child’s 2nd birthday.

Second, members of several community organizations participated in the Fetal Infant Mortality Review (FIMR) team, a Federal program that is designed to elucidate systemic problems affecting infant mortality and make recommendations for changes to perinatal health system policies and procedures to better serve high-risk residents (16).

One local hospital conducted a survey of women’s experiences with racism and their use of prenatal care services. Both participants from the REACH program and non-participants were surveyed. Overall, REACH participants were more knowledgeable about racism and its impact on daily life in the United States, and had better self-reported physical and mental health status than non-participants. Oddly though, better self-reported health was associated with higher levels of experiences of racism, which the researchers hypothesize may demonstrate a heightened understanding of racism combined with strengthened coping mechanisms instilled by involvement in the REACH project (17).

Lastly, to foster community engagement several projects were created. Two adolescent education and mentoring programs, designed to improve self-image, strengthen life-skills, and increase knowledge of ethnic heritage were implemented. An existing job development and training center combined with WIC services to provide counseling, healthy cooking demonstrations, and education on child health problems in a “one stop shop” environment. The African Culture, Education, and
Development Center opened to provide community members a place to learn more about African American history in the United States. Other projects such as a media billboard campaign, asset mapping, creation of a fitness program, and the “Black Unity Spiritual Togetherness” retreats were also designed to instill and build social capital in the community.

As a testament to its overall community success, the Genesee County REACH grant was renewed for an additional five years of funding from the CDC in 2008, and several projects, initially implemented in 2002-2003 as parts of the greater REACH program, are considered “institutionalized” (18). The county-wide program has also been designated as a “Center of Excellence in the Elimination of Health Disparities” by the CDC.

The Magnolia Project

The Magnolia Project was created in Jacksonville, Florida, in 2000, with two main objectives of 1) increasing community awareness of the problem of infant mortality in the community, and 2) increasing healthy behaviors among women enrolled in the program (19). The focus of the Magnolia project was specific to women in the preconception period who were at high risk of becoming pregnant, based on several criteria. The purpose of focusing on women during the preconception period was to reduce participants’ risk of poor birth outcomes should they become pregnant in the future, either during or after the intervention. Those considered at high-risk of becoming pregnant were women who had a previous poor birth outcome (either infant or fetal death, or low-birthweight and/or
premature infant), had a previous child before the age of 15 years old, women of childbearing age (15-44) without regular access to healthcare, those abusing substances, those with a history of mental health or psychosocial concerns, those with a history of casual, high-risk, or unprotected sex, and those who had been referred to child protective services (20).

The specific intervention practices were to 1) provide outreach, education, and supportive services to women in the preconception period in need of well-woman care and further prenatal care (if she became pregnant while enrolled), 2) increase availability and access to case management, care coordination, well-woman, and prenatal care for at-risk women, and 3) to provide health education specific to certain risk factors identified through the community’s Fetal and Infant Mortality Review.

Community activities enacted as part of the Magnolia project were the initial development of the community consortium that then created the concept for the Magnolia Project, the creation of a community council made up solely of African American women, co-sponsorship of the community annual health conference, which reached more than 300 participants each year, and the implementation of a professional/provider conference on racial disparities in birth outcomes in Jacksonville and Duval County.

Overall, the intervention reached 222 at-risk women and proved to be successful in reducing risks and decreasing poor birth outcomes. Before receiving case management services through the project, the cohort of women, most of whom were single and African American, had a low birth weight percentage of 27.6%,
whereas after the rate dropped by 11% (p = 0.066, statistically significant). The comparison group on the other hand, had an increase in low-birthweight, from 13.1% to 16.3% (not statistically significant). Additionally, the infant mortality rate for the intervention participants dropped from 81.3% to 35.7%, whereas the comparison group’s IMR actually increased (from 27.2% to 37.5%). Lastly, the intervention group had lower post-case management STD contraction rates than did their comparison group (10.84% vs. 16.7%).

Overall, while The Magnolia Project was more individually focused than community partnership focused, it integrated both concepts to achieve successful maternal and infant outcomes for an at-risk population and to create ownership of the problem in the community, its overall impact, and potential solutions.

**Contra Costa Health Services**

Contra Costa Health Services (CCHS), in Contra Costa County, California, developed a Life Course Initiative (LCI) in 2005, to improve community health and reduce racial and ethnic inequities in maternal, infant, and birth outcomes (21). This 15-year initiative was created to identify ways to better apply the social determinants of health to practices at the Family Maternal and Child Health Programs (FMCH) at Contra Costa Health Services and better serve community members, especially those living in the highest risk areas. The initiative was designed to bring about an organizational and community paradigm shift around health, specifically maternal and infant health.
CCHS worked with several community agencies, developing partnerships to provide services that would address all areas of the social determinants of health including transportation, housing, and social services, among others. Additionally, in an alternative take on community focus groups, a Photovoice project was conducted, to allow the community to identify the concerns and problems they believed should be addressed with regard to improving MCH outcomes. Photovoice offers community members an opportunity to document their surroundings through photography. The aim of Photovoice is to 1) encourage citizens to reflect on their community’s strengths and concerns, 2) evoke, through photography, education of a community and start a conversation around what the community’s problems are, and 3) engage policymakers (22). Through this activity, the Life Course Initiative was further shaped, as practical strategies were determined based on the needs expressed by community members.

The specific activities created through the LCI include the creation of educational materials and training sessions to inform FMCH staff, public health leaders, policymakers, and community members about the initiative. One activity, the Life Course Game, invited participants to practice using a common language around the LCI and what the concepts of the initiative mean. In the information sessions, individual behavior was discussed, and the importance of engaging in healthy behaviors was emphasized, but one unique feature was always present. Specifically in sessions with public health and other community leaders, the frame of discussion focused around what the community was or was not doing to provide an environment for healthy people, especially women and children. This frame was
essential in bringing about a change in the status quo for Contra Costa Health Services.

At the individual level, the first major concern that the community and CCHS team determined was a vital area of focus was financial stability and security. Out of this came the Building Economic Security Today (BEST) program. BEST offers individual support to families enrolled in FMCH’s home visiting program, financial education to WIC clients, and asset development education for all clients. CCHS believes addressing financial stability is vital to addressing health disparities since it is a foundational determinant of inequity (23). Additionally, CCHS hopes to achieve some of the following outcomes: to increase both staff and clients’ understanding of the health-wealth connection, to increase clients’ understanding of asset development and knowledge of available resources, and to increase the community’s understanding of the health-wealth connection and how it relates to health disparities, as well as build the community’s desire to create partnerships to address the issue of financial sustainability. As of September 2011, the BEST program is still successfully providing valuable financial education to clients. For example, 95% of participants felt more confident handling their money as a result of taking a BEST class (24).

In combination with the services that Contra Costa Health Services already provides, the integration of the Life Course Initiative is intended to bring about change in thinking around the life course perspective and how the community works to help or hinder health in its citizens. Additionally, the use of the LCI is intended to address the major concern of financial instability among at-risk
individuals in the community and in doing so to improve the health status of the community as a whole.

Discussion

These three programs differ somewhat in their approach to life course theory and the social determinants of health. Each program has a different focus, but all intend to achieve better maternal and child health outcomes, and reduce racial and ethnic disparities in their communities. Additionally, all three integrate the concept that with combined individual motivation, community mobilization, and policy development, health status can be improved. The process of improving health is an individual, community, and societal concern. Without the involvement of all three entities, defining the issues is without meaning and addressing the issues will be fraught with roadblocks. Individuals must come together to define the health issues and then, as a community must engage in resolving those problems and facilitating policy change.

What makes these programs successful is open to interpretation. The statistics speak for themselves, but the innovation of each program to change the status quo, to reframe thinking around what affects health is what is successful in my eyes. So much of the literature focuses on the problems and the causes of poor maternal and child health outcomes. But there is limited documentation on the solutions. Each of these programs aims to offer innovative approaches, while ameliorating negative attitudes and behaviors in individuals and gaining the trust and engagement of the community. It cannot be done by one process alone.

Involving the community in defining the problem and identifying and measuring
need, whether it be the lack of preconception care, infant mortality in high-risk neighborhoods, or lack of asset-building resources, is paramount to coming to a solution. Each of these programs achieves that, and does so while integrating the basic tenets of life course theory and the social determinants of health.

As our thinking around life course theory and the social determinants of health continue to evolve, it is vital to remember that in order for programs to remain successful they must be rigorously evaluated. One concern I had in conducting this research was the sheer volume on the “what”- the problems that cause poor maternal and child health outcomes. But, wouldn’t our research dollars be better spent evaluating the innovative approaches that are trying to facilitate change? It was alarming that I had such a difficult time finding articles evaluating the effectiveness of such programs, even though many of these programs do exist.

I realize in public health, evaluation becomes an after thought to the science of uncovering mysteries. My recommendation is to invest our minds in uncovering solutions, not continuing to focus on the problem. My hope is that life course theory-based programs will one day get as much attention as such programs as the Nurse-Family Partnership and Centering Pregnancy, and that such evaluation with help this movement to grow in whatever direction is best for it. What Lu and Halfon gave us is invaluable to this field and we should not waste the opportunity to innovate and create change.
References


4. Morello-Frosch, R., & Shenassa, E. (2006). The environmental “riskscape” and social inequality: Implications for explaining maternal and child health disparities. *Environmental Health Perspectives, 114*(8), 1150-1153.


