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Impact of Coalition Building to Promote Maternal Infant Health Equity in the District of Columbia, Maryland, and Virginia

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Abstract

The health of women and babies is critical to creating a healthy world. Stratified data shows the overwhelming rates at which Blacks are affected more than Whites. Literature has shown that leveraging partnerships and community engagement are critical components of decision-making and can positively impact the health of communities. Through a direct observational study, the Community Coalition Action Theory was used to analyze the current structure of the March of Dimes Maternal Infant Healthy Equity Coalition. The study aimed to identify strengths and gaps and subsequently provide recommendations to advance the coalition work and promote maternal and infant health equity in the community. Thirty-eight hours of observation revealed the lead agency's longstanding history and robust team of coalition members uniquely positioned themselves to address maternal and infant health equity in the service area. The observational study revealed there were no formalized bylaws guiding the work. Elements of the Community Coalition Action Theory's associated constructs: processes, structures, assessment and planning, implementation strategies, and outcomes can be improved. By making a few modifications using published toolkits designed for coalitions, the March of Dimes Maternal Infant Health Equity Coalition can continue to build efforts using evidence-based coalition effectiveness strategies to improve local maternal and child health outcomes among racial and ethnic minority groups.

Keywords*:* Community engagement, coalition building, community coalition action theory, health equity, health disparities, maternal health, infant health, maternal mortality, infant mortality, preterm birth, health promotion

Chapter 1: Introduction

Maternal and child health is a global issue, and the health of women and babies is critical to creating a healthy world (Centers for Disease Control, 2014). Yearly, approximately 700 women die due to pregnancy, or a complication related to pregnancy, in the United States (CDC 2022a). There use four commonly used health indicators to measure and assess the health of mothers and babies during the first year of life: maternal mortality rate[1], pregnancy-related mortality ratio[2], premature birth[3], and infant mortality rate[4] (World Health Organization, 2022; CDC, 2022b; March of Dimes, 2022). According to the Office of Disease Prevention and Health Promotion (ODPHP, n.d.), maternal deaths, preterm births, and infant deaths have been linked to the Healthy People 2030 national objectives to help create a healthy world. The United States has struggled with maternal and infant mortality rates for years despite medical advancements and spending billions on maternity care each year; however, what is more, alarming are the disparities among race and ethnicity (Declercq & Zephyrin, 2020; Kasthurirathne et al., 2018; Weinstein et al., 2017). More than half of pregnancy-related deaths are preventable with no difference in racial or ethnic background; however, African Americans are disproportionately affected, and one approach to reducing health disparities involves using community engagement through coalition building (Petersen et al., 2018; Declercq & Zephyrin, 2020; Hankerson et al., 2018; Morales-Alemán et al., 2018; Plescia et al., 2008).

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[1] Maternal mortality is defined as "death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes." (WHO, 2015, p. 1069). The maternal mortality rate is maternal deaths per 100,000 live births during a given year per 100,000 live births (Hoyert, 2021).

[2] Pregnancy-related death is defined as "death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death" (WHO, 2015, p.1069). The pregnancy-related death rate is number of pregnancy-related death per 100,000 live births in a given year (CDC, 2022b).

[3] Preterm birth is "when a baby is born too early, before 37 weeks of pregnancy have been completed" (CDC, 2022c).

[4] Infant mortality is the "death of an infant before his or her first birthday" (CDC, 2002d). The infant mortality rate is number of infant deaths for every 1,000 live births (Murphy et al., 2021).

Specific Aims

The purpose of this study was two-fold, first, to examine the significant social determinants of health among African Americans leading to increased maternal and infant mortality. Secondly, to explore community engagement through coalitions in decision-making on maternal and child health equity and best practices for forming a coalition centered on health equity. I partnered with the March of Dimes Chapters in the District of Columbia, Maryland, and Virginia to meet the following aims:

- Aim 1: Examine the significant determinants of racial and ethnic disparities among African Americans leading to increased maternal and infant mortality.
- Aim 2: Examine the importance and impact of community engagement through coalitions.
- Aim 3: Identify critical components, theoretical frameworks, evaluation methodologies, and best practices to build coalitions centered around health equity.
- Aim 4: Assess the current structure of the coalition strengths and gaps using the identified components in Aim 3.

Partner Organization

March of Dimes is one of the largest non-profit organizations that addresses the health of moms and babies (March of Dimes, 2022). For the past 80 years, March of Dimes has been crucial in improving maternal and child health in their communities. March of Dimes' District of Columbia, Maryland, and Virginia Chapters recently established the Maternal and Infant Health Equity Coalition. The charge of the coalition is to address maternal and infant health disparities throughout the region to achieve health equity. The idea behind creating the coalition represented a cross-state effort to improve the health outcomes for moms and babies in DC, Maryland, and

Virginia. Across the region, while there are pockets of relative wealth, prosperity, and opportunity compared with much of the country, these advantages are not evenly enjoyed by everyone or reflected in health and quality of life. There are significant disparities in income, educational and employment opportunities, and access to quality health care and housing in communities in each jurisdiction (D.C. Department of Health, 2018; Russell et al., 2018). These underlying conditions have contributed to poor health indicators in some communities. The coalition would provide opportunities for collaboration, networking, and collective impact.

Objectives

Coalition characteristics include collaborating with multi-sectoral partners to work towards a common goal and expanding resources (Butterfoss & Kegler, 2012; Janosky et al., 2013). Using three components of the March of Dimes National Strategy 1) racism and unequal treatment, 2) increasing access to higher quality care, and 3) strengthening economic security, the Maternal Infant Health Equity Coalition established five objectives to address these. The five objectives are 1) to enhance the quality of interstate perinatal data-sharing, 2) to improve care coordination by mapping resources available to pregnant people at the intersection of DC, Maryland, and Virginia, 3) To improve and share best practices across similar subregions contained in the greater DMV (i.e., rural-rural, urban-urban connectivity) 4) inform and involve the community in efforts to make DC, Maryland, and Virginia safer places to deliver babies and 5) to drive policy change that will eliminate the racial and ethnic disparities, and ultimately to achieve health equity in birth outcomes. In doing so, the March of Dimes staff and volunteers can assess the community's most pressing needs and collectively develop strategies to impact health outcomes related to their National Framework.

Chapter 2: Background

Disproportionate health status among minority populations compared to the general population is a chronic public health problem. Research shows that health disparities take on many forms, including chronic diseases leading to poorer health outcomes, ultimately affecting the quality of life and well-being (Howell, 2018; Smedley et al., 2003). Stratifying data by race and ethnic background shows African American communities are disproportionately affected by maternal and infant mortality. Furthermore, underscoring significant health inequities leading to adverse health outcomes in the U.S. and the District of Columbia, Maryland, and Virginia are no different (Declercq & Zephyrin, 2020; Howell, 2018).

Maternal Mortality

In 2019, the U.S. maternal mortality rate (see Footnote 1) was 20.1 deaths per 100,000 live births, with the assumption of leading causes being "other cardiovascular conditions, infection or sepsis, cardiomyopathy, other non-cardiovascular conditions, and hemorrhage based on the recent average trend from 2016-2018" (Hoyert, 2021; CDC, 2022b). According to recent data, from 2018-2020, the average maternal mortality rate for Maryland was 18.6 per 100,000 live births, and in Virginia was 22.3 per 100,000 (CDC, 2022e). From 2016-2018, significant racial and ethnic disparities existed in the pregnancy-related mortality rate (see Footnote 2) for African Americans (41.4) was three times more than for Whites (13.7) (CDC, 2022b). In 2019, the maternal mortality rate for Black women was 44.0, which is 2.5 times more than White women (17.9) and 3.5 times more than Hispanic women (12.6) (Hoyert, 2021). According to a recent report, four in five pregnancy-related deaths are preventable, meaning at least some chance of death can be avoided by "one or more reasonable changes to patient, community, provider, facility, and/or systems factors" (Trost et al., 2022). Underlying causes vary by race

and ethnicity, and the leading causes of death among Black women are cardiac and coronary conditions, cardiomyopathy, and embolism. These outcomes are associated with multiple factors like access to care, quality of care, chronic illnesses, structural racism, and implicit biases (Declercq & Zephyrin, 2020; Institute of Medicine, 2002; Kasthurirathne et al., 2018).

Preterm Birth

Although preterm birth (see Footnote 3) happens unexpectedly, it is the leading cause of infant mortality and morbidity among Black infants (Ely & Driscoll, 2021). In 2019, Black infants (237 per 1,000 live births) were four times more likely to die compared to White infants (56.9 per 1,000 live births) (Ely & Driscoll, 2021). Premature babies are at an increased risk of health problems such as breathing, feeding difficulties, developmental delays, and hearing and vision issues leading to the need for extensive care, longer stays in the hospital, and face subsequent long-term health effects (CDC, 2022c). Various factors, such as multiple gestations, smoking, obesity, maternal age, and more, trigger preterm birth (March of Dimes, 2018). In 2020, 10.1% of live births were preterm, with Blacks (14.2%) disproportionately affected compared to Whites (9.2%). Preterm birth rates are the same and slightly below average in the March of Dimes' coalition coverage area: Maryland (10.1%), the District of Columbia (9.8%), and Virginia (9.6%) (CDC, 2022f). Data stratified by race and ethnicity show the continued disproportionate rate of preterm births affecting Black infants in the District of Columbia (13.2%), Maryland (12.8%), and Virginia (13.2%) when compared to White infants in the same areas (6.9%, 8.7%, 8.5%) respectively (CDC, 2022f).

Infant Mortality

In 2019, the U.S. infant mortality rate (see Footnote 4) was 5.6 deaths per 1,000 live births, of which congenital disabilities, preterm birth, sudden infant death syndrome, injuries,

and maternal complication were the leading causes, respectively (Ely & Driscoll, 2021). Stratified data shows that Black infants had the highest mortality rate (10.6) and were two times more likely to die compared to White infants (4.5) (Ely & Driscoll, 2021). The infant deaths in the March of Dimes' coalition coverage areas are nearly similar: the District of Columbia was slightly below the U.S. rate at 4.96 per 1,000 live births, with both Maryland and Virginia slightly above the national average at 5.8 deaths per 1,000 live births (Ely & Driscoll, 2021). However, stratifying data by race and ethnicity depicts the full story of health inequities among infants. Black infants in Maryland (8.6) and Virginia (9.9) are more than two times more likely to die compared to White infants (3.8, 4.8), respectively (CDC, 2022f). Due to suppressed data in the District of Columbia, we can only see that Black infants born in 2019 died at a rate of 9.0 per 1,000; likewise, based on the national trend, it is assumed that Black infants are dying at similar rates when compared to White infants (CDC, 2022g).

Impact on Health

With advancements in medical care and billions spent each year, the question remains, why are Black mothers and babies still dying at astonishingly disproportionate rates to Whites? According to the University of Wisconsin Population Health Institute County Rankings Model (2021), health behaviors such as diet and exercise, alcohol, and smoking only account for 30% of health outcomes, whereas 70% of health outcomes are related to social and economic factors (40%), physical environment (10%) and clinical care (20%). Petersen and colleagues (2019) note that "differences in proportionate cause of death among Black[s] might reflect differences in access to care, quality of care, and prevalence of chronic disease" (pp.763), so the disparities go well beyond behavioral factors like diet and alcohol use (Howell, 2018).

Although maternal and infant mortality is multifaceted, it is critical to understand the specific risks, including upstream determinants explained through an ecological perspective which conceptualizes health broadly and accounts for "multiple levels of influence" such as individual, interpersonal, organizational, community, and policy factors (NIH, 2005). Literature has shown that leveraging partnerships and community engagement are critical components of decision-making and can positively impact the health of communities[5] (CDC, 2011). Without collaborative partnerships between healthcare providers, hospitals, local organizations, or community engagement to address the associated risk factors, including social, behavioral, and health, African American communities will continue to deal with astonishingly high maternal and infant mortality rates.

Chapter 3: Methods

One objective of this study was to understand the importance and impact of community engagement and coalitions in decision-making on maternal and child health equity. A researcher first conducted a literature review to examine the effect of community engagement through coalition building on health equity and identify best practices for coalition building on health equity. Search efforts to gather data include using the University of Nebraska Medicine's Leon S. McGoogan Health Sciences Library to access the following academic databases: APA PsycInfo, CINAHL, Embase, and Scopus. The researcher limited the literature review to the following criteria to ensure relevancy:

a. Description of a community-based prevention intervention targeting at least one racial or ethnic minority group
b. Utilization of a coalition

[5] See CDC (2011), chapter 3, for details on successful examples.

c. Peer-reviewed literature and other credible public health institutions

d. Published from 2001 - present

e. English language

After the initial pull, one researcher reviewed the title and abstracts, looking for the following keywords: community coalition, community engagement, and health equity. After Title and Abstract review, full articles were downloaded and read thoroughly by the researcher to determine the value of community engagement through coalitions, characteristics, theories, and best practices. Additionally, the researcher examined articles to assess if studies included evaluation, assessment methodologies, lessons learned, challenges, and limitations. Articles that did not address health disparities of at least one racial or ethnic minority group using a coalition were deemed insufficient from review.

Design

The researcher conducted a direct observational study to utilize findings from the literature review of community engagement through coalitions, the identified critical components, the value of combining resources, and the theoretical frameworks that partnerships can use to promote health equity. Furthermore, the study aimed to assess the strengths, weaknesses, and opportunities, thereby providing formative feedback to help advance the coalition work and promote maternal and infant health equity in the community. Using an observational study approach was appropriate for flexibility in design and the opportunity to understand a complex issue in real-time (Crowe et al., 2011; Rezigalla, 2020). Observing individuals in their natural environment can provide greater insight into structures and processes that are otherwise not accessible from other data collection methods allowing for in-depth analysis (Morgan et al., 2017; Rezigalla, 2020).

Data collection and analysis

Data collection of the Maternal Infant Health Equity Coalition[6] occurred from March 2022 to September 2022. Data consists of observations of weekly meetings with March of Dimes staff, Mallory-Mpare, and Tiffany Carter, bi-monthly co-chair planning meetings, and quarterly full coalition meetings. All observation material, including agendas and field notes, were collected and thoroughly reviewed by a researcher and assessed against the 14 constructs based solely on the definition to avoid ambiguity and interpretational bias.

Chapter 4: Results

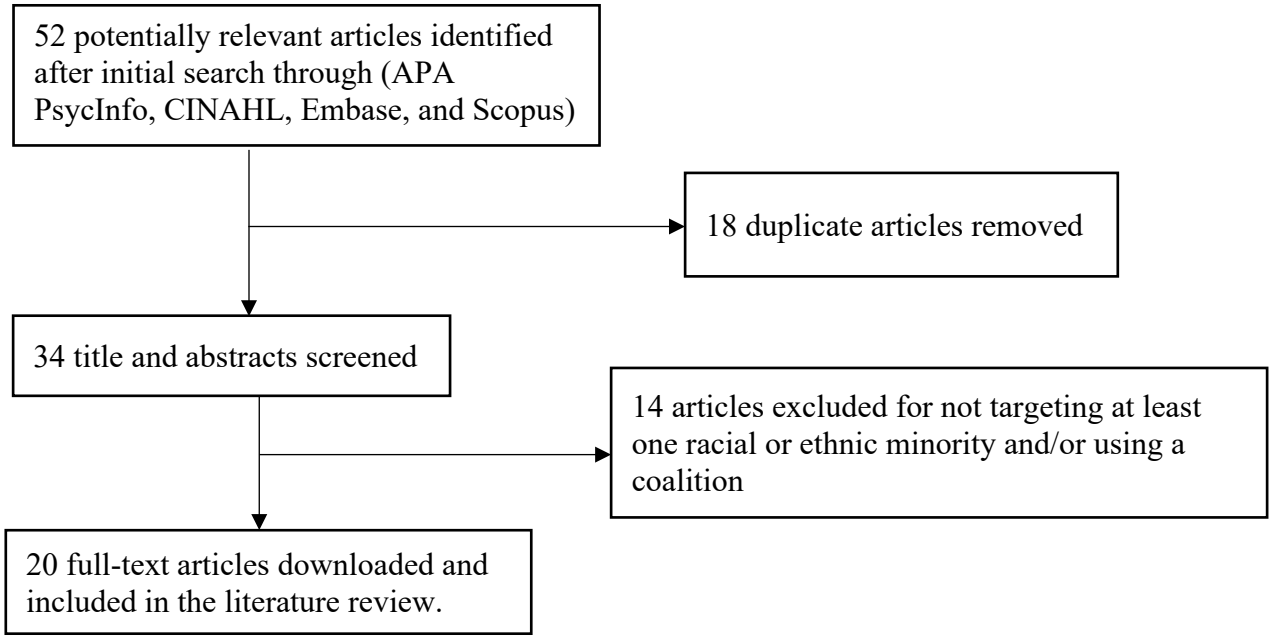
Literature Review

A researcher conducted a literature review to 1) examine the impact of community engagement through coalition building on health equity and 2) identify best practices for coalition building on health equity. Figure 1 illustrates the process and results of the literature review, the number of databases searched, and the number of articles included and excluded in the study.

[6] See Appendix A, Table 1 for coalition membership list

Figure 1

Flow diagram of article identification based on inclusion and exclusion criteria.



Health promotion is a core function of public health that aims to address the health and social conditions that influence health outcomes, and community engagement has been a critical function (Flood et al., 2015). Community engagement over the years has proven effective in promoting positive health outcomes. The CDC's *Principles of Community Engagement* highlights the importance of the community and collaborating with key members to improve public health and describes nine principles[7] crucial to success (CDC, 2011). Coalitions are one avenue of community engagement defined by Cohen and colleagues (2002) as "a union of people and organizations working to influence outcomes on a specific problem" (pp. 144). This shared space allows for a collective voice, combining resources and building capacity for collective action. In addition, coalitions can achieve greater reach within the community and accomplish

[7] See CDC (2011), specifically Chapter 2, for a breakdown of these nine principles.

more than a single organization can. Butterfoss and Kegler (2012) note that "the best coalitions bring people together, expand resources, focus on issues of community concern, and achieve better results than any single group could achieve alone" (pp. 310). Creating community coalitions over the past several decades has gained traction and been implemented to address health outcomes like violence prevention, obesity and physical activity in older adults, and even oral health (Cheadle, Atiedu et al., 2018; Cheadle, Egger et al., 2010; Dudovitz et al., 2017; Hawkins et al., 2008).

Researchers have documented that socioeconomic status is an indicator of health outcomes. Furthermore, race and ethnicity are contributing factors to education, income, and occupation. Literature has reported that minorities tend to have poorer access to resources leading to disproportionate health outcomes compared to Whites (Kasthurirathne et al., 2018; Smedley et al., 2003; Williams et al., 2016). Coalitions have also been successful in affecting community-level changes addressing health inequities among racial and ethnic backgrounds, such as African Americans (Hankerson et al., 2018; Morales-Alemán et al., 2018; Plescia et al., 2008), Latinos (Grieb et al., 2016; Luque et al., 2011), Asian Americans (Bailey et al., 2011; Cohen et al., 2013; Trinh-Shevrin et al., 2011) and Asian Indians (Kavathe et al., 2018).

Theoretical Framework

Acknowledging the importance of taking a systems approach to address health outcomes is critical to success. While many collaborative models and theories have demonstrated efficacy using a systems approach, according to a recent scoping review, the Community Coalition Action Theory (CCAT) was the most referenced and used as the theoretical basis of this direct observational study (Kegler et al., 2020). The CCAT theory was developed through research and

comprised of 14 constructs and 23 associated propositions used to describe three stages of a coalition: formation, maintenance, and institutionalization (Butterfoss and Kegler, 2012).[8]

Direct Observational Study

The researcher included thirty-eight hours of observation. Thirty-one weekly meetings with the lead organization March of Dimes Directors, Mallory Mpare and Tiffany Carter, to debrief, organize next steps, and assist in facilitating action items. Four bi-monthly co-chair coalition planning meetings to debrief and plan for the whole coalition meeting and two entire coalition meetings. Attending meetings provided the opportunity to examine the structure and processes of the Maternal Infant Health Equity Coalition in real-time and provide an assessment against the theoretical framework. All observation material, including agendas and field notes, were thoroughly reviewed and categorized into the 14 constructs of CCAT, as seen in Appendix C, Table 1, which details the constructs, corresponding definitions, and my assessment.

Despite being in the maintenance stage of the coalition, the direct observational study noted several constructs were missing according to the constructs and propositions of CCAT. The unmet constructs include process, structures, assessment and planning, implementation of strategies, and community change outcomes. Although the theory does not explicitly identify vital components of a coalition, Butterfoss & Kegler (2012) agreed that "recruiting and mobilizing coalition members, establishing organizational structure, building capacity and planning for action, selecting and implementing strategies, evaluating outcomes, refining strategies, and approaches" must take place to ensure effectiveness (pp. 170).

Propositions 6, 7, and 8 are related to coalition membership and stress the importance of recruiting and mobilizing members of diverse expertise, perspectives, and organizations

[8] See Appendix B, Table 1, for a list of the 14 constructs and associated 23 propositions

committed to the issue. In the case of the Maternal Infant Health Equity Coalition, there is a diverse array of members and organizations; however, geographical representation of their service area was absent, leaving major unanswered questions like where is Maryland's involvement? Is this a cross-state collaboration? The process construct correlates to propositions 9 through 11. The study revealed there were no documented standard operating procedures for training or orientation of new coalition members nor any mention of methods for addressing inevitable conflict. Conflict can lead to counterproductive activities such as avoidance of activities, turnover, and difficulties recruiting members, so it would be beneficial to consider developing an organized formal standard operating procedure to address these challenges to advance the coalition's work. The study revealed that decision-making was unilateral, and members did not appear to have an influence closely related to satisfaction and participation (Butterfoss & Kegler, 2002, pp. 173).

The final highlight of the assessment is the lack of assessment and planning, implementation strategies, and outcomes. Assessment and planning directly relate to proposition 19. Literature notes that extensive assessment and planning can take up to two years to develop and up to five years to implement. Many fail to produce quality plans that contribute to the success of implementation (Butterfoss & Kegler, 2002, pp. 173). The observational study identified assessment and planning need improvement. As posited by proposition 20, implementation strategies are more significant when using a social-ecological model and target interventions at multiple levels of influence to create change. Conversely, the observational study did not reveal any specific implementation strategies, but there was mention of addressing community-level issues and policies at the organizational and policy-making levels.

Chapter 5: Discussion

With the critical need to improve reproductive, prenatal, and postpartum care among racial and ethnic minorities to address the disparities, it is fitting to do so with community engagement through a coalition based on the literature. The Maternal Infant Health Equity Coalition established by the March of Dimes has excellent potential to improve maternal and infant health disparities in their service area. A recent study by West et al., 2022, highlighted racism as a primary theme to the inequities in maternal health social support services in Boston, which has implications no matter the state due to the historical context of slavery and racism affecting the African American population.

Summary of Findings

The direct observational study aimed to analyze the current structure of the March of Dimes Maternal Infant Healthy Equity Coalition with the Community Coalition Action Theory to identify strengths and gaps and provide recommendations for increasing participation, evaluation, and sustainability. One of the significant strengths of this coalition is the lead agency's longstanding history of research, education, advocacy, and programs, uniquely positioning them to tackle the charge of addressing maternal and infant health equity. Furthermore, the pooled members and networks established in working relationships over the years add to the robust team of individuals committed to working on creating health equity in the service area. While some processes and structures are in place, including a vision and mission statement, the observational study revealed no formal bylaws guiding the coalition, which would benefit formalizing the coalition and provide clarity on rules, roles, and responsibilities. Although coalitions can be informal or formal, proposition 16 posits that coalitions "are more likely to engage members, pool resources, and assess and plan well when formalized rules, roles,

structures and procedures" exist and are more likely to be sustained over time (Butterfoss & Kegler, 2002, pp. 175). Additionally, positive relationships among the member, one free of conflict or one with conflict resolution management strategies in place, along with membership influence in decision-making, are associated with increased member engagement, satisfaction, and overall climate (Butterfoss & Kegler, 2002, pp. 173).

Through this observational study, I was able to strengthen foundation public health competencies: 1) *discuss the means by which structural bias, social inequalities, and racism undermine health and create challenges to achieving health equity at organizational, community, and societal levels, 2) apply awareness of cultural values and practices to the design or implementation of public health policies or programs, and 3) propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health.* Additionally, I was able to strengthen maternal, and child health competencies: *1) examine how the major determinants of health and disease affect the MCH populations at the local, state, national, and global levels, and 2) develop rigorous projects to improve health and to reduce inequalities and inequities of MCH populations.*

Limitations

There are several limitations to be considered when interpreting these results. First, observation hours were limited only to the weekly planning meetings with the lead agency, bi-monthly co-chairs meetings, and quarterly full coalition members during the observation timeframe. Additionally, using a direct observational study approach limits generalizability and increases observer bias. Second, this study did not include any interviews with coalition members, which could strengthen the study to validate the support the assessment of the coalition findings.

Despite limited research on maternal health and infant health equity-specific coalitions, a few community-based collaborations have joined forces for a common goal to address issues impacting maternal and infant health issues (Clark et al., 2011; Cornell et al., 2009; Truiett-Theodorson et al., 2015). Therefore, with evidence-based research to support coalition effectiveness in addressing racial and ethnic disparities, the March of Dimes Maternal Infant Health Equity Coalition can continue to build efforts using these strategies to improve local maternal and infant health outcomes. Furthermore, with limited research in the maternal child health space, there is an opportunity for further research to be conducted on long-term outcomes and attributing changes to coalition initiatives.

Recommendations

The first recommendation would be to review and conduct a stakeholder analysis to analyze who is missing from the current membership. Despite a cross-state collaboration, there were significant gaps in partnerships, including a lack of co-chair representation in Maryland and gaps among partners in the coalition service area. To advance the impact of the coalition, collaborating with members of the Maternal Mortality Review Committees in each state is recommended. Doing so would help identify prevention strategies specific to data, as they take a comprehensive look at each death and its circumstances and make recommendations to prevent future deaths. A second recommendation would be to take time to develop a robust assessment plan and implementation strategies and logically link them to the planned community, social and health outcomes. To help create an assessment plan and implementation strategies, I recommend consulting with the various toolkits available to public health practitioners, like the ones developed by the University of Kansas, the Centers for Disease Control and Prevention, and the Society for Public Health Education. Lastly, I would recommend taking the Coalition

Effectiveness Inventory developed by Butterfoss to gain perspective on members' thoughts since the development and implementation of the coalition and use this to evaluate progress annually.

In conclusion, although there are numerous influential factors to maternal and infant mortality, without addressing the complexities of socioeconomic status, context, and clinical and individual risk factors, the health of moms and babies will continue to be at risk. Developing a coalition of this magnitude with the largest non-profit organization to serve as the lead agency is a unique opportunity to gather the appropriate stakeholders to tackle the health disparities in maternal and infants and help achieve health equity among moms and babies.

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Appendix A

Table 1

Coalition Membership List

Identity	Organization	Title	Coalition Role	State
1	UnitedHealthcare Community Plan of Virginia	Maternal Child Health Program Manager	Co-chair	State
2	Eastern Virginia Medical School (EVMS)	Associate Professor	Co-chair	Virginia
3	Eastern Virginia Medical School (EVMS)	Director	Co-chair	Virginia
4	Virginia Department of Medical Assistance Services (DMAS)	Maternal and Women's Health Program Operations Analyst	Member	Virginia
5	Virginia Department of Medical Assistance Services (DMAS)		Alternate Member	Virginia
6	Virginia Department of Health (VDH)	Population Health Data Division Director	Member	Virginia
7	Virginia Department of Health (VDH)	MCH Epidemiology Lead	Member	Virginia
8	Virginia Hospital and Healthcare Association (VHHA)		Alternate Member	Virginia
9	Virginia Neonatal Perinatal Collaborative (VNPC)	Executive Director	Member	Virginia
10	Birth Supporters United	CDP	Member	Virginia
11	DCPQC	Senior Manager, Public Policy & Community Engagement	Co-Chair	District of Columbia
12	DCPQC	Perinatal Quality Collaborative-Project Manager	Co-Chair	District of Columbia
13	Mary's Center	Vice President, Nursing	Member	District of Columbia
14	Mary's Center	Perinatal & Family Health Program Manager	Member	District of Columbia
15	Urban Baby Beginnings	Founder & Executive Director	Member	District of Columbia

Identity	Organization	Title	Coalition Role	State
16	Birth in Color, RVA	Executive Director, Maternal and Reproductive Justice Advocate	Member	Virginia
17	Southeastern Virginia Health System	Marketing Manager	Member	Virginia
18	Hampton Roads Community Health Center	Certified Application Counselor	Member	Virginia
19	Minus 9 to 5	Executive Director	Member	Virginia
20	Consortium of Infant and Child Health (CINCH)	Director	Member	Virginia
21	CHKD/EVMS	Associate Professor - Pediatrics	Member	Virginia
22	Eastern Virginia Medical School (EVMS)	Assistant Professor - OB/GYN	Member	Virginia
23	Lead-Safe and Healthy Housing	Chief	Member	Virginia
24	Department of Energy & Environment	Associate Professor, Department of Family and Community Health Nursing	VA Board Liaison	
25	Government of the District of Columbia	Director	Member	Virginia
26	Virginia Department of Medical Assistance Services (DMAS)	Maternal and Child Health Manager · Virginia Department of Medical Assistance Service	Alternate Member	Virginia
27	VCU Health	Marketing and Community Relations Manager, Amerigroup	Member	Virginia
28	Strategy & Growth | Optum Advisory Services	Medical Director, Commercial and Specialty Business	Member	Unknown
29	Anthem Health Insurance	MCH Manager, DMS	Member	Unknown

Appendix B

Table 1

CCAT constructs and propositions

Construct	Proposition
Stages of development	*Proposition 1:* Coalitions develop in specific stages and recycle through these stages as new members are recruited, plans are renewed, and/or new issues are added. *Proposition 2:* At each stage, specific factors enhance coalition function and progression to the next stage.
Community context	*Proposition 3:* Coalitions are heavily influenced by contextual factors in the community throughout all stages of development
Lead agency/convener group	*Proposition 4:* Coalitions form when a lead agency/convener responds to an opportunity, threat, or mandate. *Proposition 5:* Coalition formation is more likely when the lead agency/convener provides technical assistance, financial or material support, credibility, and valuable networks/contacts. *Proposition 6:* Coalition formation is likely to be more successful when the lead agency/convener enlists community gatekeepers who thoroughly understand the community to help develop credibility and trust with others in the community.
Coalition membership	*Proposition 7:* Coalition formation usually begins by recruiting a core group of people who are committed to resolving the health or social issue. *Proposition 8:* More effective coalitions result when the core group expands to include a broad constituency of participants who represent diverse interest groups, agencies, organizations, and institutions
Processes	*Proposition 9:* Open and frequent communication among staff and members helps make collaborative synergy more likely through member engagement and pooling of resources

Construct	Proposition
	Proposition 10: Shared and formalized decision-making helps make collaborative synergy more likely through member engagement and pooling of resources. *Proposition 11:* Conflict management positive organizational climate, ensures that benefits outweigh costs, and achieves pooling of resources, member engagement, and effective assessment and planning. *Proposition 12:* The benefits of participation must outweigh the costs to make the pooling of resources, member engagement, and effective assessment and planning more likely. *Proposition 13*: Positive relationships among members are likely to create a positive coalition climate.
Leadership and staffing	*Proposition 14:* Strong leadership from a team of staff and members improves coalition functioning and makes the pooling of resources, member engagement, and effective assessment and planning more likely. *Proposition 15:* Paid staff who have the interpersonal and organizational skills to facilitate the collaborative process improve coalition functioning and increase the pooling of resources, member engagement, and effective assessment and planning.
Structures	*Proposition 16:* Formalized rules, roles, structures, and procedures make the pooling of resources, member engagement, and effective assessment and planning more likely.
Pooled member and external resources	*Proposition 17:* The synergistic pooling of member and community resources prompts effective assessment, planning, and implementation of strategies.
Member engagement	*Proposition 18:* Satisfied and committed members will participate more fully in the work of the coalition.

Construct	Proposition
Assessment and planning	*Proposition 19*: Successful implementation of effective strategies is more likely when comprehensive assessment and planning occur.
Implementation of strategies	*Proposition 20:* Coalitions are more likely to create change in community policies, practices, and environments when they direct interventions at multiple levels.
Community change outcomes	*Proposition 21:* Coalitions that are able to change community environments, policies, and practices are more likely to increase capacity and improve health/social outcomes.
Health/social outcomes	*Proposition 22:* The ultimate indicator of coalition effectiveness is the improvement in health and social outcomes.
Community capacity	*Proposition 23:* By participating in successful coalitions, community members/organizations develop capacity and build social capital that can be applied to other health and social issues.

Note: Adapted from Butterfoss, F & Kegler, M.C. (2002). Toward a Comprehensive Understanding of Community Coalitions: Moving from Practice to Theory in R. J. DiClemente, R. A. Crosby, and M. C. Kegler (Eds.), *Emerging Theories in Health Promotion Practice and Research,* (pp.164-165). Jossey-Bass. https://fhs.thums.ac.ir/sites/fhs/files/user31/Ralph%20J.%20DiClemente%2C%20Richard%20A.%20Crosby%2C%20Michelle%20C.%20Kegler%20-%20Emerging%20Theories%20in%20Health%20Promotion%20Practice%20and%20Research_%20Strategies%20for%20Improving%20Public%20Health-Jossey-Bass%20(2002).pdf

Appendix C

Table 1

CCAT Constructs, Definitions, and Assessment of Maternal Infant Health Coalition from March 2022 – September 2022

Construct	Construct Definition	Met / Unmet	Assessment Notes
Stages of development	Formation, maintenance, and institutionalization can be recycled as new members are recruited, issues are added, or changes in directions.	Met	Based on definitions of the theory, the coalition is in the maintenance stage, which involves sustaining member involvement and creating synergy around the health issue. As new members join, the coalition will have a continuous feedback loop from formation, maintenance, and institutionalization.
Community context	Specific factors that influence coalition function	Met	Historical duplication of efforts in each state in the service area influenced the development of the coalition. It became the foundation for collaboration to address the health of moms and babies.
Lead agency/convener group	Main organization convening a coalition	Met	March of Dimes

Construct	Construct Definition	Met / Unmet	Assessment Notes
Coalition membership	The core group of people committed to addressing health or social problems within the community	Met	See Appendix A
Processes	Standard operating procedures: include communication, problem-solving, decision-making, conflict management, orientation, training, planning, evaluation, and resource allocation.	Partially Unmet	There was discussion around potential resource funding and allocation for stipends at an annual summit for keynote speakers. On the other hand, there were no documented standard operating procedures for the training or orientation of new coalition members. Additionally, evaluation components were missing.
Leadership and staff	Paid staff or volunteers dedicated to facilitating the collaborative efforts	Met	Mallory Mpare, Director, Maternal Child Health Tiffany Carter, Director, Maternal Infant Health
Structures	Formal rules, roles, processes, and procedures, including vision and mission statements, goals, and objectives.	Partially met	A mission, vision, and objectives for the coalition were present. However, the study found no established formal rules, roles, processes, or bylaws

Construct	Construct Definition	Met / Unmet	Assessment Notes
Pooled member and external resource	The resources that are contributed or elicited as in-kind contributions, grants, donations, fund-raisers, or dues from member organizations or external sources ensure effective coalition assessment, planning, and implementation of strategies	Met	Coalition members' extensive and diverse knowledge, skills, expertise, and perspective are equivalent to in-kind contributions.
Member engagement/ Collaborative synergy	Satisfaction, commitment, and participation (roles and expectations)	Met	Positive engagement was present; however, since interviews were not conducted as part of this study, satisfaction could not be assessed. Bi-monthly co-chair meetings occurred with all co-chairs in attendance. Quarterly coalition meetings held with over 75% in attendance
Assessment and planning	Detailed plan of activities and strategies related to the goal of the coalition	Partially met	The observational study identified the priority health issue, and the affected population was determined through a survey collected by the lead agency. Additionally, coalition goals and objectives were established; however, the researcher noted detailed action activities and strategies were not documented to support the mission and intent of the coalition.

Construct	Construct Definition	Met / Unmet	Assessment Notes
Implementation of strategies	Specific actions to be taken using the social-ecological model	Partially met	The researcher observed discussions around multiple levels of influence; however, formalized specific strategies implemented to create changes were not.
Community change outcomes	Measurable changes to increase capacity and outcomes	Unmet	The researcher observed discussion around developing outcomes changing community environments, policies, or practices that would constitute measurable changes in increased capacity.
Health/social outcomes	Measurable changes in health status	Unmet	Measurable changes in the maternal death rate, preterm births, and infant deaths would be the ultimate indicators of success; however, no observed data around the direct population-level change from the impact of the coalition's initiatives linked to outcomes.
Community capacity	Building and sustaining capacity in terms of resources, partnerships, and funding	Unmet	As the researcher, no plans for sustainability, such as securing funding to expand the work, plans for expanding organizational or community ties, nor an increase in coordinated efforts were identified and documented.

Note: Adapted from Butterfoss, F. & Kegler, M. (2012). A Coalition Model for Community Action. In M. Minkler (Ed.), *Community Organizing and Community Building for Health and Welfare* (pp. 309-328). Ithaca, NY: Rutgers University Press. https://doi.org/10.36019/9780813553146-019