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Chariesse A. Ellis Date

Influence of Doula and Midwifery Services on Pregnancy Outcomes for Black Women in the United States: A Structured Literature Review

By

Chariesse A. Ellis

Master of Public Health

Hubert Department of Global Health

____ [Chair's signature]

Usha Ramakrishnan, PhD

Committee Chair

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Chariesse A. Ellis
Master of Public Health

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Thesis Committee Chair:
Usha Ramakrishnan, PhD

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Abstract

Background Black women in the United States face tremendous racial/ethnic disparities in accessing effective high-quality pregnancy care and experience high rates of poor birth outcomes, including but not limited to, cesarean section, pain medication use, postpartum depression, preterm birth, low birthweight, and maternal and infant mortality. Continued labor support (CLS) doula and midwifery services have been associated with improved maternal and infant birth outcomes. The utilization of doulas and midwives has become increasingly more common as a pathway to mitigate the impact of racial and socioeconomic disparities within the healthcare system on a Black women's birthing experience and her pregnancy outcomes.

Methods A structured literature review of peer reviewed articles was conducted using electronic databases PubMed, JSTOR, MEDLINE and PsychINFO published between the years 1990-2021. Articles were screened for the exposure of interest: pregnant Black/African American women who utilize doula and midwifery services and the outcome: maternal and infant pregnancy outcomes.

Results 9 total articles were included for review and synthesis. Interventional and observational studies were included for analysis. Articles identified various birth and infant outcomes where doula and midwifery services improved outcomes: reduced cesarean sections, reduced use of pain medication during labor, increased initiation of breastfeeding, improved feelings of agency, knowledge, connectedness, and personal security, reduced preterm birth and low birthweight.

Conclusion Available literature indicates the importance of doula and midwifery services in reducing the impact of racial/ethnic disparities in obstetric care and improve birth outcomes for Black women in the United States. Future studies must investigate the impact of CLS services on high-risk women, non-binary self-identified Black women and women delivering twins.

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Introduction

The purpose of this thesis is to perform a literature review to explore the influence doula and midwifery services on pregnancy and infant outcomes for Black women in the United States through the review and synthesis of published peer reviewed articles in electronic databases. The aims of this review are threefold: (1) Define the role of midwifes and doulas before, during and after pregnancy (2) Identify the disparities in pregnancy outcomes Black women face in the United States (3) Demonstrate how utilizing doula and/or midwifery services can help to mitigate some of the adverse pregnancy and infant outcomes Black women face.

The Black Women's Burden

While giving birth should be one of the most tremendous and natural processes, for many Black women in the United States it can be a death sentence. Black women and their babies face exceptional challenges before, during and after pregnancy. According to the CDC, in 2016, a higher percentage of Black babies died before their first birthday than any other race category (Jerry, 2020). Additionally, the maternal mortality rate for Black women reflects the devastating impact of racism and discrimination in the United States healthcare system. In fact, the maternal mortality rate for Black women is three times higher than that of their non-Hispanic white counterparts (Jerry, 2020). The impact of racism and discrimination don't begin at conception, but instead are present throughout the life course manifesting as lack of access to family planning services, education inequality, housing and employment discrimination, chronic stress, internalized racism (Williams & Mohammad, 2013). Concurrently, these extrinsic factors work together to create the disparities we see in Black maternal and child pregnancy outcomes. Current research shows that women of color in the United States – especially those living in high poverty areas – experience disproportionately high rates of adverse birth outcomes, including cesarean delivery, preterm birth, low birthweight, and infant mortality (Thomas et. al, 2017).

These disparities in birth outcomes can be attributed to the sociopolitical factors along with the disproportionate burden of preexisting health conditions and risks faced by Black and Latina women. Research has shown even after adjusting for comorbidities, hospitals serving predominately Black populations have higher rates of severe maternal morbidity than hospitals serving predominately White populations. The disparities in infant and maternal health outcomes reflect the stark challenges women of color face in obtaining high-quality care (Thomas et. al, 2017).

A growing body of research has demonstrated that the provision of a continuous labor support system (CLS) like a doula and/or midwife has the potential to mitigate many of the barriers hindering Black women in receiving high-quality reproductive healthcare and improve overall birth outcomes for both mother and baby. Continuous labor support is the care, guidance, and encouragement provided by those who are with a pregnant woman in labor that aims to support labor physiology and mothers' feelings of control and participation in decision-making during childbirth (Kozhimannil et. al, 2017). According to DONA international, a doula is a trained professional who provides continuous physical, emotional, and informational support to a mother before, during and shortly after childbirth to help her achieve the healthiest, most satisfying experience possible. Certified Professional Midwifes (CPMs) are knowledgeable, skilled, and professional primary maternity care providers. They can offer expert care, education, counseling, and support to women for pregnancy, birth and the postpartum period (NACPM, 2014). Doulas and midwives can work privately or in concordance with a traditional obstetrician in a hospital or clinic. Unlike doulas however, midwives are certified healthcare providers and can conduct childbirth and provide primary care to women. Both doulas and midwives focus of a patient-centered birthing experience, empowering the women to be an active participant in birthing

decisions and improving communication between patient and provider. While women of color and low-income women are at greater risk of delivery-related complications and higher rates of adverse birth outcomes than white, privately insured women, having access to a doula has shown better birth outcomes, with lower cesarean delivery rates and higher breastfeeding initiation rates (Hans et. al, 2018). Additionally, evidence suggests that it is more than the emotional, physical, and informational support doulas give to women throughout the birthing process that accounts for the reduced need for clinical procedures during labor and fewer birth complications during labor, birth, and postpartum (Thomas et. al, 2017). Klaus and Klaus (2010) argue that the modern hospital birthing process tends to be highly interventionist, taking away decision-making from mothers, resulting in unwanted and unwarranted procedures. Medical providers sometimes overexert their power in decision-making during birth, recommending to mothers complaining of pain and discomfort into procedures to keep them compliant (Gruber et. al, 2013). A doula serves as a mother's advocate, providing a woman a sympathetic but informed ear for the choices that the birthing staff may ask her to make during the birthing process. Not only does the doula empower the decisions made by the mother, but she also helps to shift the patient-provider power dynamics back in the hands of the mother, allowing decisions made to be only in the interest of the mother and their child.

Patient-Provider Power Dynamics

Many elements such as communication, patient involvement in decision-making, and lack of perceived discrimination are important to consider when discussing patient-provider interactions in maternity care (Attanasio, 2016). Decisions around timing and mode of delivery, use of medication during labor, and other aspects of labor management, involve different levels of risks and benefits and therefore the involvement of patient opinions in decision-making is important.

However, in many cases, providers tend to hold a significant level of power around these decisions in the delivery room, leaving the pregnant woman vulnerable to abuse and manipulation during delivery. (Hodges, 2009; Pathak & Ghimire, 2020). This kind of abuse and manipulation manifests itself in the form of medical treatment without consent, omission of information, convoluted explanations of interventions, overriding one's refusal for treatment, and misrepresentation of medical situations and need for interventions (Hodges, 2009). A major contributor to the disparities in birth outcomes seen in black women is the disproportionate distribution of power between the patient and the provider. Historically, Black patients have experienced discrimination in healthcare settings, demonstrate higher levels of distrust in their providers compared to their non-Hispanic white counterparts and experience poorer communication with their providers (Cuevas et. al, 2016). Specifically in the context of prenatal, labor, and postpartum care, this destructive patient-provider relationship can lead to adverse birth outcomes and increased morbidity and mortality in Black women and their baby. Interpersonal care, such as the communication between physicians and patients and social concordance have been shown to be a significant aspect of quality care. Interpersonal care along with cultural health capital (i.e., cultural skills, attitudes, and interactional styles) influence patient-provider interactions and are essential for the development of trust (McLemore, et. al, 2018). When providers disregard the dimension of cultural capital when interacting with Black women, it leads to implicit bias and judgment and ineffective communication. Additionally, this can lead to Black women misunderstanding their choices, reducing their feeling of self-efficacy and power over the birthing process. The power providers exert over Black women's ability to contribute to decision-making during pregnancy influence the disproportionate rates of surgical procedures during pregnancy, lower use of antenatal steroids and medications. Doulas are able to bridge the

communication gap between patient and provider, balance the power dynamic and improve the women's feeling of autonomy over all pregnancy decisions.

Influence of Doula/Midwifery Services on Maternal and Child Health Racial Disparities

Introduction of doula and midwifery services perinatally, during birth and postpartum can mitigate the barriers Black women face to positive pregnancy experience. Evidence suggests that doula support may both lower maternal stresses, enhance women's self-efficacy regarding their pregnancy and ability to manage labor (Thomas et. al, 2017). Additionally, a doula's respect for the autonomy of the client and emphasis on positive goal setting during prenatal visits have been shown to increase women's empowerment and confidence regarding their ability to influence their own pregnancy outcomes (Gruber et. al, 2013; Thomas et. al, 2017). Studies conducted with low-income Black and Latina women in programs that included prenatal, labor, and postpartum support have shown lower rates of cesarean birth, increased breastfeeding initiation, and longer duration of breastfeeding (Hans et. al, 2018). While ample evidence has been shown that the support of a doula or midwife can benefit the postpartum outcomes in Black and low-income women, many women face barriers to accessing these services. Barriers include lack of information about services, lack of available services and cost (Thomas et. al, 2017). Moreover, the utilization of midwifery and doula services are disproportionately used by non-Hispanic white women. This suggests that the incorporation of doula and midwifery services in public health insurance plans, like Medicaid, could help increase utilization of these sources by Black women, provide incentive for more black women to become doulas and midwives and help address inequities in pregnancy outcomes. While a growing body of research is showing the benefits of doula and midwife services for all pregnant women, limited research exists on the direct benefits these services have for Black women in the United States, one of the most

vulnerable populations to adverse maternal and child health outcomes. The objective of this literature review is to identify and evaluate the current evidence available examining the influence of doula and midwifery services on several maternal and infant health outcomes before, during and after pregnancy among Black women.

Methods

Article Selection Criteria

The inclusion and exclusion criteria for identifying studies to be included in this review were determined apriori based on the objectives. The primary inclusion criteria for this review were peer reviewed scientific articles published in academic journals available online, between the publication years 1990-2021. The wide range for publication year was used to ensure that all available literature were identified. Articles were included if they were written in English and included one or more of the following keywords, “Doula”, “Midwifery” or “Continuous Labor Support” along with “Black women”, “African-American” and/or “Low-income” AND “Pregnancy outcomes”, “Postpartum complications” or “Maternal health outcomes”. Articles based outside of the United States were excluded because the objective of this focused on the experiences of African American women and the disparities in pregnancy outcomes they face because of 400+ years of slavery and oppression inflicted by the US government. Articles discussing the impact of non-trained continuous lay support (i.e., family members and friends) were also excluded as prior research has demonstrated that trained continuous support is more effective in reducing adverse pregnancy outcomes (Has et. al, 2018; Gruber et. al, 2013).

To identify the most relevant peer-reviewed articles for this literature review, searches were conducted using PubMed, JSTOR, MEDLINE and PsychINFO electronic databases. Peer-reviewed articles from scientific journals were the only ones included in the review. Review articles, commentaries and opinion pieces were also excluded from analysis. Newspaper articles and nonprofit organizations were used to help understand the scope of the disparities in maternal pregnancy outcomes that Black women face in the United States and to what extent the role that doulas and midwife’s play can mitigate these factors. The literature chosen for this review

focused on the experiences of cisgender, heterosexual women because of the limited research available on the impact of continuous labor support services on Black, transgender and nonbinary, self-identified women. Reference lists from selected articles were also used to find more relevant articles. For the purpose of this review and due to the limited time for data selection and analysis, only one person collected and screened data which was done independently without the use of any automation tools.

Database Searches

Literature searches were conducted using PubMed, JSTOR, MEDLINE and PsychINFO electronic databases. To guide the search in PubMed, the following MeSH terms were used to produce an exhaustive search of available literature: ("Doulas"[MeSH Terms] OR "Midwifery"[MeSH Terms] OR ("doula s"[All Fields] OR "Doulas"[MeSH Terms] OR "Doulas"[All Fields] OR "doula"[All Fields]) OR ("midwife s"[All Fields] OR "Midwifery"[MeSH Terms] OR "Midwifery"[All Fields] OR "midwife"[All Fields] OR "midwifes"[All Fields] OR "midwifing"[All Fields]) OR ("Midwifery"[MeSH Terms] OR "Midwifery"[All Fields] OR "midwives"[All Fields] OR "midwife"[All Fields])) AND ("black"[Text Word] OR "African American"[Text Word] OR "african-american"[Text Word]) AND ("Postpartum"[Text Word] OR "postpartum"[Text Word] OR "Postpartum Period"[MeSH Terms] OR "childbirth"[Text Word] OR ("gravidity"[MeSH Terms] OR "gravidity"[All Fields] OR "pregnant"[All Fields] OR "pregnant"[All Fields]) OR "pregnancy"[Text Word]). The following string of words were used to search literature in JSTOR, MEDLINE and PsychINFO: *Doula, Midwife, Black, African American, Postpartum complications, and pregnancy outcomes.* The sections of the literature that related directly to the research topic were synthesized and presented in the results section.

Results

Literature Review Results

The original search across all search engines yielded 100 results. After excluding publications that don't have full-text versions available, weren't in published in the United States and didn't focus on Black maternal pregnancy outcomes, the final yield was 44 articles (Figure 1 PRISMA flow diagram, 2020). The outcome of interest in this review is pregnancy and infant health outcomes. This includes, but not limited to cesarean delivery, postpartum hemorrhage, preeclampsia, postpartum depressive symptoms, rates of breastfeeding, infant outcomes: low-birthweight and preterm birth. An abstract review was conducted on the 44 articles to make sure they included the exposure, Black or African American women, and the outcome of interest. Articles were not excluded based on study type, studies chosen include qualitative, quantitative, randomized control trials and program evaluations.

After this process of elimination, 35 articles were excluded; 7 were excluded because they took place outside of the United States (Reason 1), 6 were excluded because they were newspaper articles or op-ed pieces (Reason 2), and the other 22 were excluded because they either didn't have the exposure (pregnant black women assisted by trained doulas/midwives) or the outcome (birth and infant outcomes) (Reason 3), leaving 9 articles for analysis (Figure 1 PRISMA flow diagram, 2020). The 9 chosen articles were then analyzed deeper and an abstraction table was constructed using Excel. A summary of the key characteristics and findings for the final set of 9 articles in Table 1. All selected studies were published between 2010-2019, most articles were published after 2016 (N=6), with two studies published in 2013 and one published in 2010. One study utilized a randomized control trial study design, one was a quantitative study, three were qualitative studies using both focus groups and in-depth interviews, three studies were program

evaluations, and the last article utilized propensity score modeling. The majority of studies focused on non-Hispanic Black, low-income, Medicaid funded pregnant women (N=6). Due to lack of research done on the impact of doula and midwifery services on African American women, some articles were included that didn't specifically focus on this population. To be included, the article must have at least been a nationally representative sample, to still accurately

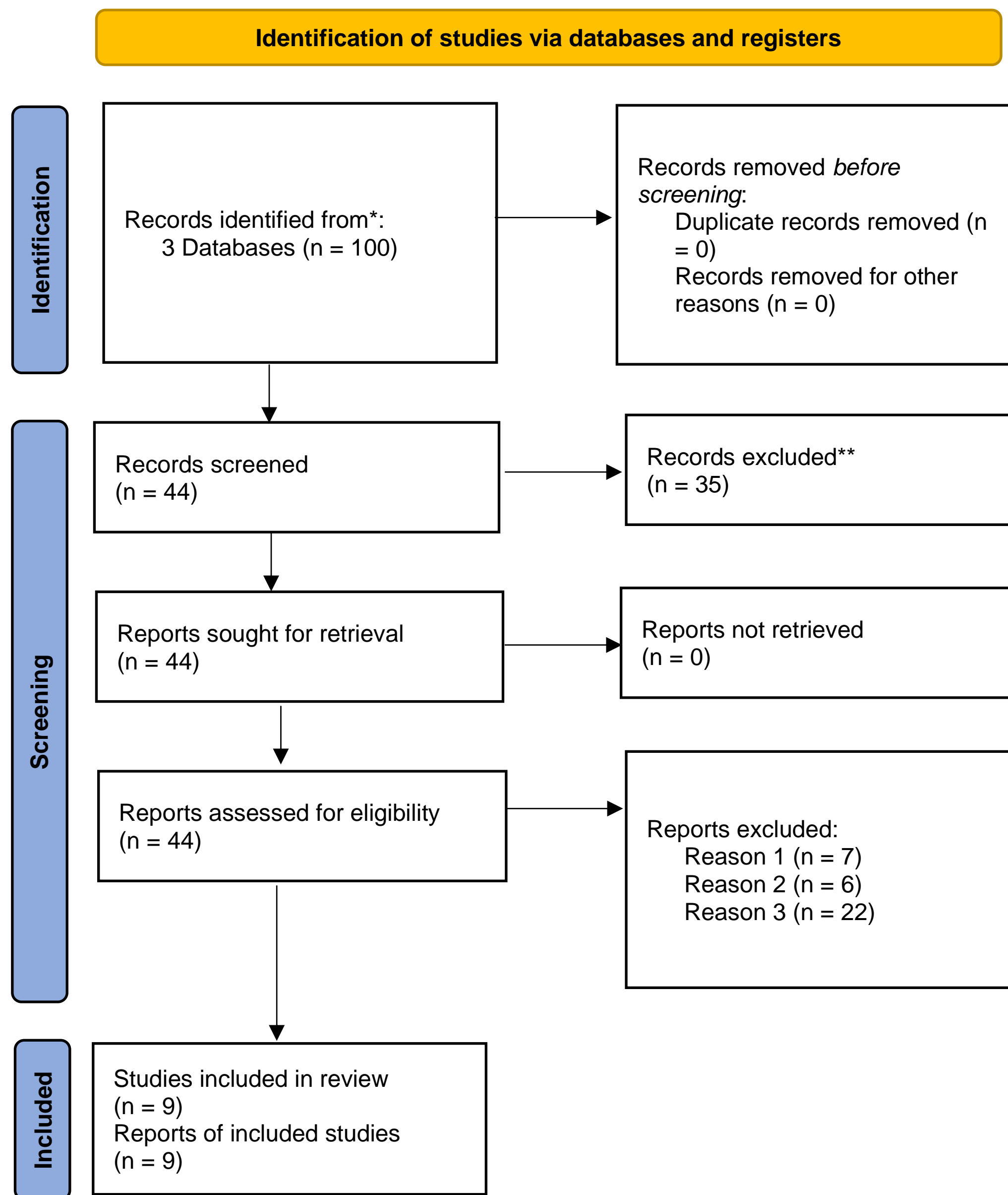

Figure 1. Adapted from PRISMA 2020 flow diagram Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

include Black women or conducted in a geographic location that historically has many black, socioeconomically disadvantaged and/or low-income individuals (N=3).

Black women face tremendous barriers to accessing effective, high-quality maternal care. The social determinants of health (SDOH) that contribute to heightened adverse birth outcomes for Black women include economic stability, level of education, neighborhood, and social relationships (Kozhimannil et. al, 2016). Despite clinical and nonclinical interventions in the healthcare setting, the longstanding and complex sociodemographic and historical factors impacting the birthing experience for women of color, have continued to perpetuate racial/ethnic disparities in maternal healthcare that generate adverse pregnancy outcomes (Kozhimannil et. al, 2016; Hans et. al, 2018). Doulas and certified midwifes have been noted as a potential tool to disrupt the pathway between SDOHs and birthing outcomes by mitigating some of its adverse effects through continuous physical, emotional, and social support. Doula's and midwifes have the potential to intervene at any period during the pregnancy process; prenatally, during labor, and postpartum (DONA, 2021; NACPM, 2014). Literature included in this review identified key maternal and infant outcomes that were improved with the introduction of a doula and/or midwife during the birthing process. Maternal outcomes can be divided into psychological and clinical. Improved clinical maternal outcomes included reduced cesarean delivery (Kozhimannil et. al, 2017; Lubic & Flynn, 2010; Kozhimannil et. al, 2016; Murn, 2019; Benatar et. al, 2013) reduced use of pain medication during labor (Hans et. al, 2018), and increased breastfeeding initiation postpartum (Hans et. al, 2018; Gruber et. al, 2013). Improved psychological outcomes that were reported included increased feeling on agency, connectedness, knowledge, personal security, and reduced incidence of postpartum depression (Hans et. al, 2018; Kozhimannil et. al, 2016). Doula-supported infant outcomes reported in the literature were reduced preterm birth

(Benatar et. al, 2013; Gruber et. al, 2013; Lubic & Flynn, 2010; Thomas et. al, 2017) and reduced low birthweight (Benatar et. al, 2013; Gruber et. al, 2013; Lubic & Flynn, 2010; Thomas et. al, 2017). Table 1 demonstrates the major outcomes assessed by the literature after the intervention of doula and/or midwifery services.

Reference (Year)	Design, *n*	Population	Intervention/Exposure	Key Finding(s)
Benatar, S. et. al (2013)	Propensity score modeling, *43,859*	Women who gave birth in Washington D.C., at least prenatal visits, singleton birth and gestational age ≥ 24 weeks	Examined VB vs. C-section, forceps or vacuum used, EFM during labor, VBAC infant outcomes: PTB, low APGAR score, incidence of LW, average weight	CS[a], carried to term[a], delivered on weekend[a], IO[a], reduced intervention[a]
Gruber, K. et. al (2013)	Program evaluation, *226*	Expectant mothers who attended at least three Healthy Moms Health Babies childbirth classes	Evaluation of type of birth, incidence of having a LBW baby, incidence of having a LBW baby, incidence of complications at birth for either mother or baby and incidence of initial BF	Reduced LBW[a], BCP[a], increased BF[a]
Hans, S. et. al (2018)	Randomized Control Trial, *312*	Women under 26, >37 weeks gestation, living in program geographic catchment area, meet sociodemographic risk criteria used by HFA or PAT models	Baseline interviews, Follow-up (3-weeks postpartum), Follow-up (3-months postpartum)	Increased BCA[a], less PM[a], Increased BF[a], CS[b], MRH[b], PPD[b]
Kozhimannil, K. et. al (2017)	Retrospective survey analysis, *2,400*	Women, delivering a singleton baby in US in 2011-2012, ages 18-45	Measurement of cesarean birth was self-reported in survey	Reduced CS[a], want for doula but no access[a]
Kozhimannil, K. et. al (2016)	Quantitative data analysis, *67,082*	Medicaid-funded, singleton births and hospitals in West North Central and East North Central US	Differences between preterm and cesarean birth	Reduced PTB[a], CS[a]
Kozhimannil, K. et. al (2016)	Qualitative in-depth interviews, *13*	Racially/ethnically diverse, low-income pregnant women	Pilot-tested questionnaire to guide semi-structured focus group discussions	Increased agency[a], PS[a], respect[a], Knowledge[a], connectedness[a]
Lubic, R. & Flynn, C. (2010)	Qualitative data analysis, interview analysis, *250*	Program evaluation, low-income African American women in Washington, DC	Qualitative interview analysis: comparison between FHBC' s and traditional hospital births	Reduced LBW[a], PTB[a], CS[a]
Murn, N. (2019)	Program evaluation, *22*	17 studies, observation of nurses in a labor and delivery unit	Evaluation of cesarean delivery	Reduced CS[a]
Thomas, MP. Et. al (2017)	Program evaluation, *560*	Pregnant women in Brownsville, East New York, Bedford-Stuyvesant and Bushwick, non-Latina Black women	Quantitative comparison between doula program " By My Side" and mother project in the area	Reduced PTB[a], LBW[a], CS[b]

Table 1.[a]Significant difference, [b]Insignificant difference. Key outcomes identified from literature synthesis. CS: Cesarean section, IO: Infant outcomes, LBW: Low birthweight, BCP: Birthing complications, BF: Breastfeeding, BCA: Birthing class attendance, PM: Pain medication, MRH: mother re-hospitalization, PPD: postpartum depression, PTB: preterm birth, PS: Personal security.

Maternal outcomes

Cesarean deliveries

Low-income and minority women are disproportionately at risk for experiences more interventions during delivery and more likely to experience adverse birth outcomes overall (Benatar et. al, 2013). In fact, Black women are more likely to deliver by c-section than any other racial/ethnic group in the United States, even when controlling for risk factors and insurance coverage. While cesarean section delivery is sometimes necessary for the health and safety of both the women and the child, in recent times they have been overly used as a way to expedite the birthing process for the healthcare provider. In the United States c-sections are increasing at a rate that is not consistent with clinical determinations of necessity. According to the World Health Organization, guidelines suggest that c-section rates should not exceed 15% (WHO, 1985) while the rates of c-sections in the United States have risen to an astonishing 32.8% in 2010 and continues increase to be more prevalent every year (Benatar et. al, 2013; Roth & Henley, 2012). Excessive use of c-sections during delivery (use over 10% of the time) have been associated with an increase in maternal and infant morbidity and mortality. The surgical procedure increases risk of infection, blood clots, blood loss, injury to organs and venous thromboembolism (Roth & Henley, 2012).

Benatar et. al (2013), Kozhimannil et. al (2016 & 2017), Lubic & Flynn (2010), and Murn (2019) reported that the use of doula and midwifery services have significantly reduced the rates of cesarean section and other invasive delivery interventions among Black women. According to Gruber et. al, 2013, a doula can act as a mother’s advocate, providing women with the information they need to make proper decisions during the birthing process, like having a c-section. Literature presented in this review demonstrated that doula-paired women experienced

significantly shorter periods of labor, less instances or instrument-assisted delivery or c-sections. Kozhimannil et. al, 2017 reports that doula support was associated with nearly a 60% reduction in odds of cesarean delivery (AOR = 0.41, 95% CI [0.18, 0.96]) and 80% lower odds of non-indicated cesarean delivery (AOR = 0.17, 95% CI [0.07, 0.39]), compared with not having doula support. Additionally, Kozhimannil et. al (2017)'s findings showed that women who desired but did not have doula support had almost 50% greater chances of delivering via cesarean and more than 70% higher odds of having a non-indicated cesarean delivery, compared with women who did not desire a doula. Results from Lubic & Flynn (2010) report the impact of nurse-midwives in a Black-serving Family Health and Birth Center (FHBC) on rates of cesarean sections. The patient centered, holistic birthing experience approach used by certified midwives, has reduced the need for women to undergo surgical interventions, such as a c-section, during delivery. Further research into doula and midwifery services at FHBC's showed that receiving prenatal care at a FHBC was associated with less obstetric interventions. More specifically, women in the FHBC doula-assisted group are significantly less likely to deliver via c-section compared to women who receive traditional care (19.7% vs. 29.4%, OR=0.59, $p<0.01$). See summary statistics in Table 2.

Use of pain medication during labor

Results from a randomized control trial study of a doula-home-visiting model conducted by Hans et. al, 2018 show that intervention-group mothers were less likely to use epidural or other pain medication during labor compared to control-group mothers (OR=0.47, 95% CI [0.25-0.88]). In contrast, Gruber et. al, 2013 reported that mothers who did not use a doula were less likely to use an epidural during labor compared to women with doulas (55.2% vs. 58.7%), however this difference was not statistically significant.

Breastfeeding initiation

Results from a study done with the YWCA Greensboro Healthy Beginnings Doula Program (2008) where they compared two groups of African American and Hispanic women, one who used a doula during birth and one who did not, showed that 90.4% of mothers assisted by a doula chose to initiate breastfeeding compared to 73.2% among non-doula supported mothers ($z=1.91$, $p<0.04$, CI = 95%) (Gruber et. al, 2013). Kozhimannil et. al, 2017 conducted a study using data from a nationally representative survey and reported that when low-income, diverse women have access to doula services, they experience better outcomes than Medicaid recipients in general, including higher breastfeeding initiation rates. Hans et. al, 2018 randomized control trial demonstrated that mothers in the doula-assisted intervention group were more likely to initiate breastfeeding in the hospital than mothers in the control group (OR=1.67, 95% CI [0.91-3.03]). Additionally, this study found that doulas, by providing skilled lactation counseling throughout pregnancy, in mothers' home and postpartum in the hospital, increase breastfeeding initiation, even among populations with traditionally low breastfeeding rates, notably the Black community.

Agency

Agency is described as the capacity of an individual to act or to make their own choices (as opposed to being someone to whom things happen) (Kozhimannil et. al, 2016). Thematic codes resulting from a focus group discussion conducted by Kozhimannil et. al 2016 identified the role of doula support in providing agency to birthing mothers before, during and after labor. The following is an example of a quote included under the agency code: "[Having a doula] help prepare you mentally; like it has gotten me more in the mindset of…the confidence throughout the pregnancy and knowing I can do this…" These findings also suggest that doulas play an

important role in providing low-income, diverse pregnant women with agency by either prompting the expression of concerns or by facilitating interactions between healthcare providers and the patients, improving patient-provider communication.

Connectedness

Results from the focus group conducted by Kohzimannil et. al (2016) also showed how doulas were able to improve pregnant women's feeling of connectedness during the birthing experience. Connectedness refers to the level at which a woman feels connected to the resources that are available, her clinicians, her infants, and the support people in her life. Focus group participants reports that doulas play an important role in ensuring that women who lack social support do not feel isolated. They also expressed that their connection with their doula would make a difference in their pregnancy and childbirth, sometimes even more so than a healthcare provider or family member. Additionally, women found the connection they had with their doula to be important for the general support that the doula provides, beyond specific knowledge or guidance in the birthing process. The following is an example quote from a participant in the focus group: "…It is good to have a doula because the doctors will say this and your family may say this, but the doula is mindful of who you are."

Knowledge

Kohzmannil et. al (2016)'s results showed knowledge is an important theme focus group participants identified doulas provide women before, during and after birth. Their findings further suggest that doulas play a critical role in imparting knowledge to their clients and empowering them to be more knowledgeable about the physiologic process of pregnancy. Traditionally, women are likely to receive information about their pregnancy and labor from

their healthcare provider. However, participants in this study stated that they often didn't fully understand some of the things the provider shared with them. Consequently, women rely on their doula to help "translate" their clinical encounters (Kozhimannil et. al, 2016). Having a doula present to share techniques and pass on wisdom and birth strategies is important according to focus group participants. "My reasons for wanting a doula. [It is] because I do not have nobody right now, and if I go into labor…I do not know the techniques or how to calm down." (Kozhimannil et. al, 2016).

Personal Security

Personal security is an often overlooked but critical determinant of birth outcomes. The physical and emotional safety of the birthing women is an important role in pregnancy and childbirth. Feeling secure, comfortable, and calm is particularly crucial for women contending with complex social circumstances (i.e., unstable living situation, an unsupportive partner) (Kozhimannil et. al, 2016). Historically, the hospital setting has been a source of stress and anxiety for Black women. Moreover, Black women are more likely to have negative past experiences with and mistrust of providers including discrimination and lack of sensitivity to cultural differences (Dahlem et. al, 2015). Consequently, feelings of security, comfortability or serenity are usually lacking in the Black women's birthing experience, leading to adverse birth and infant outcomes. The following quote from the focus group reflects this sentiment:"…I talk to the doctor…and I am calling the doula right after that…Like, I am scared…and she's like, oh, no don't be…It is very comforting to know that you have somebody [who] has your back" (Kozhimannil et. al, 2016). A pregnant women's doula contributes to her personal security by addressing her health concerns after an encounter with her provider. The concept of security can

be extended to the incorporation of culturally concordant beliefs about childbirth and personal safety.

Postpartum depression

Previous studies have shown that Black and Hispanic women have higher odds of reporting postpartum depression due to lack of social support, access, trust, past depression, and other factors (Cannon & Nasrallah, 2019). While Hans et. al (2018) sited doula and midwifery services as a tool to reduce the incidence of postpartum depression amongst Black women, their doula-home-visiting intervention was not associated with reduced mother postpartum depressive symptoms ($x = 13.8$ vs. 14.2, $p>0.05$). Postpartum depression is greatly influenced by a complex set of biological factors, chronic stress, trauma history, and instability in relationships with infants' fathers. Therefore, more research must be done with large samples of pregnant Black women, to determine if there is any significant relationship between doula and/or midwifery services and reduction in depressive symptoms.

<u>Infant outcomes</u>

Preterm birth

Preterm birth (PTB) can be defined as birth before 37 weeks' gestation and is associated with higher rates of infant death, respiratory problems, developmental delay, cerebral palsy, and other adverse child health outcomes (DeSisto et. al, 2018). In the United States, non-Hispanic black women have the highest rate of PTB compared to other racial/ethnic groups. The FHBC doula-assistance intervention conducted by Benatar et. al (2013) demonstrated that the use of doula services before, during and after pregnancy significantly reduced the risk of delivering a preterm baby compared to women who didn't use doulas (7.9% vs. 11.0%, $OR = 0.70$ $p<0.01$). The

FHBC intervention strategy used by Lubic & Flynn (2010) generating findings that also suggest doula's have the ability to reduce incidence of preterm birth in low-income, Black women. Additionally, findings from Thomas et. al (2017) By My Side (BMS) doula-assistance program showed that participants had significantly lower rates of preterm birth compared to traditional hospital birth without a doula (6.3% vs. 12.4%, $p < 0.001$, 95% CI).

Low birthweight

Low birthweight refers to when a baby is born weighing less than 5 pounds, 8 ounces. While some babies with low birthweight are still healthy, being low birthweight can cause some serious health problems. These include trouble eating, gaining weight, and fighting off infection and some babies may also have long-term health problems (March of Dimes, 2021). The results from Gruber et. al (2013) study comparing doula and nondoula mothers, showed that nondoula-assisted mothers were four times more likely to have a low birthweight baby than mothers who were assisted by a doula (2.1% vs. 8.6%, $p < 0.04$, 95% CI). Lubic & Flynn (2010) found similar results within their FHBC doula-assistance program. Additionally, Thomas et. al (2017)'s By My Side doula program showed that participants had significantly lower rates of low birth weight compared to women who did not use a doula (6.5% vs. 11.1%, $p = 0.001$, 95% CI).

<u>Barriers to Access</u>

Results from all 9 articles included in this review have identified that doula and midwifery services are associated with one or more improvements in maternal and infant outcomes for Black women in the United States. Both interventional and observational studies sited the benefits of doula and midwifery services on birth and infant outcomes for Black women in the United States, along with an overall satisfaction and desire for more access to these services

(Thomas et. al, 2017; Kozhimannil et. al, 2017; Lubic & Flynn, 2010). Unfortunately, doula support is underutilized among low-income and women of color due to significant barriers to accessing these services including, lack of information about services, lack of available services, and cost. In fact, a national survey found that women whose delivery was covered by Medicaid were almost 50% less likely to know about doula care than women who were privately insured (Thomas et. al, 2017). Evidence shows that Black women who wanted doula support throughout their pregnancy are more likely not to have access to one. Results from the Kozhimannil et. al (2017) study showed that the factors that were associated with higher odds of desire for doula support were black race (vs. white) (AOR = 1.77, 95% CI [1.03, 3.03]) and public (32.6%) or no health insurance coverage (39.3%) (vs. private coverage, 21.2%) (AOR = 1.83, 95% CI [1.17, 2.85]). Consequently, when they compared women who has doula support with those who indicated a desire for support but didn't have it, women with doula support had significantly lower odds of cesarean delivery (AOR = 0.11, 95% CI [0.03, 0.36]). They also found that women who wanted doula support but didn't have it had higher odds of cesarean delivery (AOR = 1.48, 95% CI [1.00, 2.19]) and non-indicated cesarean delivery (AOR = 1.73, 95% CI [1.10, 2.73]), compared with women who did not express a desire for doula support. Results from Thomas et. al (2017) showed the positive response to the doula program from participants. They surveyed participants (N= 244) between July 2010 and January 2015 and found that 95.5% said they would recommend the program or use it in future pregnancy and 94.3% said they were "well-matched" with their doula. Lubic & Flynn (2010) found that there was increased interest in their FHBC from low-income, African American pregnant women in the Washington D.C area (N = 281) and the FHBC is designed for 250 birth. Consequently, the success of the program urged the request to expand in the nearby inner-city Ward 7 and 8 communities.

Reference (Year)	Cesarean Section	Preterm Birth (PTB)	Low birthweight (LBW)	Postpartum Depression	Breastfeeding
Benatar, S. et. al (2013)	Reduced CS rates (19.7% vs. 29.6%, p<0.01)	Reduction in PTB (7.9% vs. 11.0%, p<0.01)	Reduction in LBW (8.4% vs. 10.2%, p<0.01)	Not applicable	Not applicable
Gruber, K. et. al (2013)	Doula vs. non-doula assisted birth rates of CS **not significant** (19.6% vs. 24.2%)	Not applicable	Reduction in LBW (2.1% vs. 8.6%), p<0.04, 95% CI	Not applicable	Increased BF initiation (79.4% vs. 67.2%, p<0.03, 95% CI)
Hans, S. et. al (2018)	**Not statistically significant**	**Not statistically significant**	Not applicable	Not applicable	Increased breastfeeding (OR = 1.67, 95% CI ([0.97 – 2.77])
Kozhimannil, K. et. al (2017)	60% reduction in CS (AOR = 0.41, 95% CI [0.18, 0.96]), 80% reduction of non-indicated cesarean delivery (AOR = 0.17, 95% CI [0.07, 0.39])	Not applicable	Not applicable	Not applicable	Not applicable
Kozhimannil, K. et. al (2016)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Kozhimannil, K. et. al (2016)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Lubic, R. & Flynn, C. (2010)	Doula assisted women less likely to have CS (19.7% vs. 29.4%, OR =	Reduction in PTB	Reduction in LBW	Not applicable	Not applicable
Murn, N. (2019)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Thomas, MP. Et. al (2017)	**Not statistically significant** (33.5% vs. 36.9%, p = 0.122)	Reduction in PTB (6.3% vs. 12.4%, p<0.001)	Reduction in LBW (6.5% vs. 11.1%, p = 0.001)	Not applicable	Not applicable

Table 2. Key findings of main birth and infant outcomes in included literature. Most prominent outcomes improved by the provision of doula services were c-section rates, low birthweight, preterm birth, postpartum depression, and breastfeeding.

Limitations

There are a few limitations associated with this review. First, the specific population focused on in this review were Black women, which created difficulties with analysis because of the limited peer-reviewed articles that focused on the impact of doula and midwifery services on maternal and infant outcomes particularly for this population. Additionally, some assumptions were made when choosing literature, specifically that when publications referred to "low-income", "socioeconomically disadvantaged" or "diverse women", it was assumed that this population included a significant number of Black women and could still be used for analysis. Another limitation is that both some of the observational and interventional articles utilized self-selection into intervention (doula-assisted birth) or control group or utilized self-reported results from the program or intervention (Thomas et. al, 2017; Gruber et. al., 2013; Kozhimannil et. al, 2017). This can lead to sources of bias that make it difficult to determine a causal relationship between program exposure and birth outcomes in addition to self-reporting can lead to risks of recall and social desirability bias.

Another limitation includes small sample sizes in both interventional and observational study designs, and the localization of sample selection to one region of the United States (Kozhimannil et. al, 2016). This can result in low statistical power and the difficulty to extrapolate findings to Black women in different regions in the United States where the sociopolitical and cultural environment may be different than the one included in the study. Finally, all 9 of the articles focus on the impact of doula services for low risk, low-income women and don't look at the impact of doula and midwifery services on women who have pregnancies that are complicated by obesity, hypertension, uterine fibroids, previous cesarean section delivery etc. Considering that a large portion of Black women suffer from pre-existing conditions that complicate the

birthing experience, more research should be done on high-risk, Black women and the impact of doula services on birth and infant outcomes. Table 3 summarizes the strengths and limitations of the literature included in this review.

Reference (Year)	Design	Intervention/Exposure	Strengths	Limitations
Benatar, S. et. al (2013)	Propensity score modeling	Birth certificate data, women who gave birth in Washington D.C	Women without medical complications, midwife-directed prenatal and labor care results in equal or improved maternal and infant outcomes	Self-reported results carry risk of recall and social desirability bias
Gruber, K. et. al (2013)	Program evaluation	YWCA Greensboro Doula Program - subjects: expectant mothers who attended at least three Healthy Moms Health Babies childbirth classes	Demonstrates how doulas can empower women to achieve the best birth outcomes possible	Participants self-selected themselves to work with a doula. No information on who else was involved in providing support to the mothers leading up to birth
Hans, S. et. al (2018)	Randomized Control Trial	(45% African American, 38% Latina), subjects identified: women under 26, >37 weeks gestation, living in program geographic catchment area, meet sociodemographic risk criteria used by HFA or PAT models.	Provides support for doula-home services during pregnancy and through 6-weeks postpartum - emphasizes pregnancy health, childbirth, breastfeeding and newborn health	Focuses on impact of doula services for low-risk women, more research needs to be done to determine the effect of doula services for high-risk, low-income women
Kozhimannil, K. et. al (2017)	Retrospective survey analysis	Nationally representative survey of women, delivering a singleton baby in US in 2011-2012, ages 18-45 from Listening to Mothers III survey	Demonstrated demand for doula services and benefits to American women, while showing how it can mitigate healthcare costs	Self-reported results carry risk of recall and social desirability bias
Kozhimannil, K. et. al (2016)	Quantitative data analysis	Differences between preterm and cesarean birth	Demonstrates positive associations between doula care and preterm and cesarean birth	Self-reported results carry risk of recall and social desirability bias
Kozhimannil, K. et. al (2016)	Qualitative in-depth interviews	Pilot-tested questionnaire to guide semi-structured focus group discussions	Differences between preterm and cesarean birth	Small sample, from one region in the United States - low power for extrapolation
Lubic, R. & Flynn, C. (2010)	Qualitative data analysis, interview analysis	Program evaluation, low-income African American women in Washington, DC	Shows evidence that FHBC appears to best meet the needs of low-income women at risk of poor birth outcomes	Available data cannot quantify the impact of the comparison sites on birth outcomes
Murn, N. (2019)	Program evaluation	17 studies, observation of nurses in a labor and delivery unit	Demonstrates how nurse CLS can provide women with more autonomy over their birthing experience and reduce rates of cesarean delivery	Self-reported results carry risk of recall and social desirability bias
Thomas, MP. Et. al (2017)	Program evaluation	Subjects: Pregnant women in Brownsville, East New York, Bedford-Stuyvesant and Bushwick, non-Latina Black women	Shows that low-income Black and Latina women are underserved by doula support and would benefit from increased emotional, physical, informational, and social support	Self-selection and other potential forms of bias make it impossible to determine causal relationship between program exposure and birth outcomes

Table 3. Strengths and limitations of included literature research design.

Discussion

Impact of Continued Labor Support (CLS) on Birth and Infant Outcomes

The results from the literature review are consistent with previous research that demonstrates that both doula and midwifery services can lead to significant improvements in birth and infant outcomes for Black women in the United States. Specific areas where doula and midwifery services are shown to have substantial impacts are cesarean section deliveries, use of pain medication during labor, breastfeeding initiation, psychological perceptions of birthing experience (agency, connectedness, knowledge, and personal security), preterm birth and low birthweight. Findings regarding rates of cesarean section delivery showed that with the provision of a doula and/or midwife, Black women experience significantly lower rates of invasive surgeries including a c-section during labor (Benatar et. al, 2013; Kozhimannil et. al, 2016 & 2017; Lubic & Flynn, 2010; Murn, 2019; Thomas et. al, 2017). This suggests that many of the c-sections that are performed are unnecessary, exposing vulnerable, pregnant women to the risks that are associated with c-section complications, including postpartum hemorrhage, blood clots, increased risk of infection and even death. Additionally, considering that non-Hispanic black women experience higher rates of c-sections than any other racial/ethnic group in the United States (Roth & Henley, 2012), it is important to understand the complex relationship between racism, discrimination, and social determinants of health and how they create the disparities in birth and infant outcomes we see amongst black women.

Literature included in this review also demonstrated positive associations between a doula-assisted pregnancy and reduced use of medication during labor and increased initiation of breastfeeding (Benatar et. al, 2013; Kozhimannil et. al, 2016 & 2017; Lubic & Flynn, 2010; Murn, 2019; Thomas et. al, 2017; Murn, 2019). Previous research has shown that black women

tend to either be denied medication for pain during labor (i.e., epidural) or are over prescribed medication by their provider. Breastfeeding rates are also relatively low compared to their non-Hispanic white counterparts. The physical, emotional, and informational support doulas and midwives provide women deliver information to the birthing women about prenatal maternal nutrition, what to expect during labor, breastfeeding after delivery and how to manage emotions and physical health postpartum.

Implications for Education and Practice

There's a large gap between women who desire a doula and women who have access to one. Findings suggest that low-income, black women would substantially benefit from doula and midwifery support but face significant barriers when trying to access this evidence-based continued labor support (Thomas et. al, 2017; Kozhimannil et. al, 2017; Gruber et. al, 2013). This literature review provides evidence for the inclusion of doula services in traditional obstetric care. Doulas services can be initiated at any point during pregnancy; prenatally, during labor and postpartum, however previous studies have shown that doula service initiation during the prenatal period show the greatest improvements in birth and infant outcomes. Literature in this review, both the interventional and observational studies, support this statement. These findings suggest that the inclusion of prenatal doula-assistance would both improve birth outcomes and encourage positive behavior changes in the expecting mother (breastfeeding initiation, safe sleep practices, etc.). Moreover, obstetricians and other medical/birthing professionals should include a plan for doula support in the pregnancy plan for their pregnant patients. Hospitals could also provide educational training for obstetricians/birthing professionals about how to integrate doula services into traditional obstetric care. A relevant barrier created by the COVID-19 pandemic is the reduction of persons in the room during birth as a method of

reducing infection risk. In order to still provide women with the continued labor support services women deserve during prenatal checkups, labor and delivery, there must be more consideration into telehealth options to include doulas in the birthing process and to ensure that women are still provided with the social and emotional support doulas provide. Another major barrier to access that was established in the literature was the lack of coverage of doula services by public and private insurance plans. Specifically in the case of low-income black women, being covered by a public insurance plan like Medicaid, provides substantial barriers to accessing doula or midwifery services because it is not covered under most state or federal plans. Findings from this review add to the body of research that demonstrates the cost-effectiveness of doula services by improving birth outcomes and reducing yearly costs of birth complications (Kozhimannil et. al, 2017; Gruber et. al, 2013). Therefore, doula services should be covered either fully or partially by public insurance plans to improve access to socially disadvantaged pregnant black women and reduce racial/ethnic disparities in access and adverse birth outcomes.

Recommendations for Future Research

As stated previously, literature included in this review focused on low-risk, low-income black women. Further research must be done on the impact of doula and midwifery services on high-risk black women with pre-existing conditions and their birth outcomes. Findings from the literature review showed no significant difference in rates of postpartum depression amongst women who used a doula and who didn’t, however, previous research has sited that the emotional and social support doulas and midwives can have a positive impact on rates of postpartum depression. Therefore, more research must be done on the extent at which doula and midwifery services have on postpartum depression.

Conclusion

Continuous labor support (CLS) doulas and midwives can improve the physical, emotional, and spiritual well-being of a women throughout pregnancy and facilitate the best possible birth outcomes. Their support seems to empower women to take agency of their situation and achieve the best birth outcomes possible. Almost all outcomes, for both infants and mothers, seem to have more positive results when the women are supported by either a doula or a midwife. CLS services also act to mitigate the impact of racism and discrimination within the healthcare system on birth outcomes by acting as an advocate, and a medical jargon translator to shift the power of birthing decisions back in the hands of the mother. This literature review demonstrates the use of doulas throughout pregnancy can lead to improvement of various maternal and infant birth outcomes ranging from cesarean section rates to breastfeeding behaviors and reduction of preterm birth rates.

Although this review faced limitations due to the lack of research done on the relationship between doula/midwifery services and birth and infant outcomes among black women along with the associated bias, the literature findings show that doula and midwifery services can disrupt the pathway between structural racism, social determinants of health and adverse birth outcomes. CLS services are underutilized despite the evidence surround the potential benefits for low-income, black women due to social, structural, and financial barriers. Hospitals must provide training opportunities for obstetricians and medical/birthing professionals on doula care and how to integrate it into traditional obstetric care. Additionally, CLS services must be covered by public insurance plans, like Medicaid in order to improve utilization and reduce disparities in access. More research must be done to determine the influence of doula support on birth

outcomes for high-risk black women and the association between doula/midwifery services and postpartum depression.

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