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**Implementation of Community Health Workers to Improve Birth Outcomes**

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**Abstract**

Those who have ever been affected by an adverse childhood experience (ACE) have a greater likelihood of having poor birth outcomes. These include low infant birth weight, preterm delivery and can even lead to pregnancy loss. Black and Latina women have been identified by the Center's for Disease Control (CDC) as those most affected by ACEs. The direct relationship is that Black and Latinas therefore have poor birth outcomes. With the implementation of nurse trained Community Health Workers (CHWs), the impacts within the community includes decreasing health care costs, adopting healthier choices for mother and child, and providing support and connection within a community. This literature review looks to address improvements in the measure of education and motivation levels of CHWs before and after having 6 to 8 hours of nurse led training over 3 months.

*Keywords:* community health worker, promotora, birth outcomes, pregnancy loss, low birth infant, improved outcomes, Black, Latina

### **Implementation of community health workers to improve birth outcomes**

Adverse childhood experiences (ACEs) have several impacts on morbidity and mortality later in life as identified by The Centers for Disease Control and Prevention (CDC). More specifically, the stress responses activated can negatively affect pregnancy and delivery for women (The Centers for Disease Control and Prevention, 2021). There is a direct correlation to those who experience ACEs and their increased likelihood of experiencing pregnancy loss or preterm birth (PTB) (Mersky & Lee, 2019; Sulaiman et al., 2021). ACEs include “physical abuse, sexual abuse, emotional abuse, physical neglect, emotional neglect, household substance abuse, household mental illness, household crime, domestic violence, and divorce/separation” (Mersky & Lee, 2019, p.2). The CDC identified women, Blacks, Latinas and those other than White to be at a much greater risk of experiencing one or more ACE (Merrick et al., 2019). When women experience two or more ACEs, their likelihood of PTB increases two-fold (Sulaiman, et al., 2021). For each additional ACE the odds of pregnancy loss increased by 12%, PTB by 7% and delivery of low birth weight (LBW) infants by 8% (Mersky & Lee, 2019).

For Black and Latinas who have experienced ACEs, community health workers (CHWs) have shown to provide the type of community support that could change this narrative and significantly contribute to addressing barriers to care and improve birth outcomes. Such birth outcomes include decreasing rates of pregnancy loss, PTB, LBW infants, and furthermore decreasing the amount of healthcare costs incurred by the woman and infant once delivered. CHWs provide support in ways that not only address the needs of the woman and infant directly, but they offer support to the family unit which very often influences other health behaviors like breastfeeding (Boyd, et al., 2021; Falicov. et al., 2020; Pan, et al., 2020; Sandhaus, et al., 2018; Valenzuela-Yu, et al, 2018). Furthermore, the implementation of CHWs in low- and middle-

income countries has shown a decrease in depressive symptoms in postpartum women (Rossouw, et al., 2021).

To start, the implementation of support resources for women in the community is essential. Support can be given by using CHWs, as they enhance professional care and reinforce birth preparedness and complication readiness (Kalisa, et al., 2018). In addition, CHWs who provide trauma informed care (TIC) can meet the sensitive needs of the women who have experienced ACEs. TIC includes increasing provider awareness, implementing additional perinatal screenings, and enhancing communication skills to improve care for those women who have experienced trauma or adverse experiences in their lives (Sperlich, et al., 2017). The purpose of this integrated literature review is to identify how educating and implementing the use of CHWs can positively impact birth outcomes in Black and Latina women, those who are most greatly affected by ACEs, and have an increased likelihood of adverse birth outcomes. Evaluation of the PICOT question: Does the implementation of the CHW role into a rural Black and Latina population who have experienced ACEs improve maternal and fetal outcomes?

### **Search Strategy**

Three databases were utilized to complete a thorough search: CINAHL, PubMed and SCOPUS. The following keywords were used: birth outcomes, preterm birth, miscarriage, adverse childhood experiences, Latina, Hispanic, and Black. A total of 213 articles were found. When the search terms of *community health nurse, promotora, birth outcomes, training* and *community support* were used, 47 articles populated. When trying to search with the terms, Black and Latina, searches reduced significantly, for this reason searches were reviewed in more general terms of demographics. The MeSH term “California/epidemiology” was also used which

provided an additional 22 articles. The search was limited to 2017-2022 to provide a more current selection of articles.

Articles reviewed included those where the population was described as low income and focused on the outcomes of PTB, LBW, or miscarriage/pregnancy loss. Excluded were articles which focused on specific ACEs and those outcomes. Included were pieces that focused on generalization of all ACEs. Of the English articles with full text available, search results were less than 20 in each of the respective databases. Articles chosen included: systematic reviews, qualitative research studies and analyses, prospective cohort study, implementation guidelines, and a secondary analysis of a longitudinal study.

A total of 15 articles were reviewed and synthesized for this paper utilizing the Johns Hopkins Nursing Evidence- Based Practice (JHNEBP) (Dang & Dearholt, 2017) Tools to ensure quality literature was used to support the purpose statement. Additionally, the JHNEBP Appendix H was used to guide synthesis of the findings. Of the articles reviewed, those that were Level II and of good and high quality, included a quasi-experimental, retrospective study, a prospective cohort study, and another quasi-experimental research study. Level III articles, were of good and high quality; a qualitative content analysis, a qualitative comparative study, and a quantitative, non-experimental large-scale cross-sectional data set review. The Level IV article was of high quality and was a suggested practice change. Lastly, the Level V articles were good and high quality and included a systematic review of literature aimed at quality improvement, a secondary analysis of longitudinal data, and a qualitative, multiple case study analysis.

Main themes identified from the articles addressed how CHWs can positively impact outcomes in women, those who are most affected by ACEs. The themes, discussed in the following sections, include identifying Black and Latina women as an at-risk population, various

influences CHWs have on birth or health outcomes, addressing barriers in community participation and furthermore, the implications for practice change within the area of maternal and child health (Boyd, et al., 2021; Falicov. et al., 2020; Sandhaus, et al., 2018; Valenzuela-Yu, et al, 2018).

### **Identifying the at-risk population**

Black and Latinas have predominately been community members at most risk when compared to White women due to their likelihood of experiencing any number of ACEs (Merrick et al., 2019). When identifying ACEs in the community it is important to recognize that ACEs greatly affect health outcomes. Health outcomes include “risks for injury, sexually transmitted infections, maternal and child health problems (including teen pregnancy, pregnancy complications, and fetal death), involvement in sex trafficking, and a wide range of chronic diseases and leading causes of death such as cancer, diabetes, heart disease, and suicide” (CDC,2021). ACEs cause stress in the body which contribute to difficulties forming healthy relationships, keeping stable work, and utilization of substances (CDC, 2021). The CDC has further identified that to improve health outcomes, we can start by addressing the treatment of ACEs by raising awareness of ACEs, promoting safe and nurturing relationships, and reducing the stigma associated with difficulties with raising children or mental illness. Teaching and supporting the community will change the health outcomes of future generations. Cost-efficient intervention is utilization of CHWs to educate and support Black and Latina women in the community (Embick, et al., 2021; Falicov. et al., 2020; Sandhaus, et al., 2018; Valenzuela-Yu, et al, 2018).

### **The impact CHWs have on improving birth and health outcomes**

CHWs have been an active part of change within the area of community and population health for all races/ethnicities, ages, and education levels (Smittenaar et al., 2020). CHWs offer support, education, and further resources (Boyd, et al., 2021; Cunningham et al., 2020; Falicov. et al., 2020; Sandhaus, et al., 2018; Valenzuela-Yu, et al, 2018). The ability to train and employ a CHW for practice is minimal as they require no formal education (Smittenaar et al., 2020). CHWs are lay persons who wish to impact their community. CHWs have shown improvements in decreasing the number of PTB infants and those born at LBW (Kalisa et al., 2018). CHWs cultivate a trust that is “an important indicator of quality in patient–provider relationships and predicts adherence to protective health behaviors” (Falicov. et al., 2020; Pan, et al., 2020; Sandhaus, et al., 2018; Selchau et al., 2017; Valenzuela-Yu, et al, 2018). CHWs can assist with case management, care coordination, and emotional support during pregnancy and the postpartum period (Cunningham, et al., 2020). CHWs assist in easing the burden for those who do not have access to transportation or childcare services because they can offer home visits. Furthermore, CHWs contribute to decreasing healthcare costs due to the impacts they have on birth and additional health outcomes (Cramer et al., 2018; Falicov. et al., 2020; Sabo et al., 2021; Sandhaus, et al., 2018; Valenzuela-Yu, et al, 2018).

### ***Decreasing the number of PTB and infants born at LBW***

Use of CHWs as an intervention in a quasi- experimental study showed that full term deliveries increased by 3%, women remained pregnant 0.3 weeks longer, and there was a 0.2% increase in birth weight (Cramer et al., 2018). In another quasi-experimental retrospective study, Latinas had deliveries that resulted in less LBW infants. LBW was defined as anything less than 2500g; very low birth weight (VLBW) was less than 1500g; and extremely low birth weight (ELBW) was less than 1000g (Sabo et al., 2021). For Latinas, the delivery rates of VLBW



infants were 36% lower and 62% lower for ELBW. The decrease was regardless of gestational age (Sabo et al., 2021).

### ***Home visits***

By offering home visits to women in the community, CHWs will reach those who are impacted by not having childcare or transportation. CHWs can assess the home environment and offer connections to further community resources if needed (Falicov. et al., 2020; Sandhaus, et al., 2018; Valenzuela-Yu, et al, 2018). Establishing a relationship with women early in pregnancy improved office visit attendance within the pregnancy. Visiting at least three times within the first week after delivery showed an improvement on maternal health behaviors, as well as for those with chronic disease diagnoses before pregnancy (Cunningham, et al., 2020; Smittenaar et al., 2020). Improved maternal health behaviors included exclusively breastfeeding and proper cord care (Smittenaar et al., 2020).

Home visits establish a relationship with the women and their support system. CHWs can talk with any support persons the woman might live with or have present often. The support system is very likely to influence the decisions the woman makes such as feeding preference of the infant (Smittenaar et al., 2020). Discussing beneficial health behaviors for the woman and her infant can lead to actualization of those behaviors. When supportive persons have the same education, they can encourage and influence the healthy behaviors (Boyd, et al., 2021; Kalisa et al., 2018; Pan, et al., 2020; Smittenaar et al., 2020).

### ***Decreasing healthcare costs***

Use of CHWs indirectly improves healthcare costs (Cramer et al., 2018; Sabo et al., 2021; Smittenaar et al., 2020). For instance, the costs associated with an ELBW infant to survive is approximately \$202,700. The costs associated with a healthy infant is approximately \$1,100

(Sabo et al., 2021). The rates of ELBW infants were reported to be decreased by 0.2%, an estimated 16 ELBW cases, this totaled to about \$3.2 million (Sabo et al., 2021).

Implementing CHWs will also decrease the high utilization of the women who frequent obstetric triage areas and the ER (Embick, et al., 2021). Decreasing these high-cost visits will save the on high health care costs. Women found to have experienced ACEs, have limited social support, and poor self-efficacy were more likely to utilize these services rather than attending regular prenatal visits (Mehta et al., 2017). Prenatal office visits were seen as inaccessible (Mehta et al., 2017). If CHWs can decrease the amount of PTB, LBW infants delivered, and encourage the proper use of services, then healthcare costs can significantly improve as evidence by this data alone. With utilization of CHWs and the cost savings they provide, Cramer et al. (2018) states there will be a 90% return on investment of services rendered by CHWs.

### **Addressing barriers to participation**

Literature further suggested that barriers arose when it came to Black and Latina women participating in studies or health programs. Majority of the population captured in the data reviewed was of White women. Identifying a large cohort of Black and Latina women studied affected by ACEs was scarce. Selchau et al. (2017) identified that barriers to “care seeking and healthy birth outcomes included lack of insurance; isolation or unsupportive relationships; timidity and lack of self-advocacy.”

In the Latina population specifically, there were also language barriers and/or a delay in the preparation of having tools available in the Spanish language (Sabo et al., 2021). CHWs who can speak Spanish will better support the needed connection within the Latina community (Falicov. et al., 2020; Sandhaus, et al., 2018; Valenzuela-Yu, et al, 2018). Any tools used should be translated prior to implementation of the relationship establishment with the pregnant or

postpartum woman. When there are delays or barriers it is easy for the woman and/or the CHW to become disinterested in the process (Sabo et al., 2021).

### **Discussion**

In this review and synthesis of literature there was sufficient data to support the idea of how CHWs can positively impact birth outcomes in Black and Latina women who are most greatly affected by ACEs. It was startling to find limited amounts of literature that reflected communities of Black and Latina women specifically affected by CHWs. This can be due to mistrust of the healthcare system or lack of resources, but further research would be needed to confirm this. Furthermore, randomized research trials are necessary to provide higher quality literature for review. Randomized trials can be conducted by collecting data on all Black and Latina women, comparing data on ACEs they have experienced and then compared with their birth outcomes.

Most of the literature did not utilize validated tools as the information collected was demographic information and data collection regarding the birth outcomes. Two studies utilized a validated tool to assess comfort in managing care and ACEs experienced. The tools used were the Patient Activation Measures (PAM) for self-care management tool (Cramer et al., 2018) and the Childhood Experiences Survey (Mersky & Lee, 2019). Further research can be done to utilize these tools to assess satisfaction within the community with use of CHWs and comfort in managing own healthcare. It would be beneficial to review the PAM tool results at different time intervals to assess any improvements in scores.

More research needs to be done on how to address ACEs with regards to mental health resources and various methods to treating trauma of ACEs. The CDC (2021) supports this by stating the beginning steps which include: bringing awareness to ACEs, promoting safe and

nurturing relationships, and reducing the stigma with difficulties in raising children or mental health illness. The validity of data was clear with the large retrospective review done by Sabo et al. (2018) in the review of data of a CHW program in the state of Arizona. Research can be explored further to develop a robust CHW program to impact a community. Annual data of community delivery rates and details would need to be explored to see a bigger picture of the impact CHWs has had on decreasing adverse birth outcomes.

### **Implications for Practice**

Practice changes suggest that nurses lead education of CHWs to prepare for engagement with the community. Connection with Black and Latina women who have experienced ACEs is necessary early on in pregnancy and into the postpartum period. CHWs need to be trained to provide sensitive, TIC to address the needs of those affected by ACEs (Sperlich et al., 2017). Educational topics for women include positive health behaviors such as attendance to prenatal visits, benefits of exercise and healthy diet, benefits to mother and child with breastfeeding and postpartum care. To be successful in connecting with the at-risk population, partnerships can be made with obstetricians within the community to reach pregnant women. Clinics who take Medicaid or Medi-cal will allow connections with women who are experiencing poverty. As well, pregnant women who have other children enrolled in Head Start and Early Start programs will reach those of low-income status. To address the needs for all Black and Latinas equitably there would need to be data collection of ACEs experienced by the woman during an initial intake. This will then define further if there are benefits for all women or only those who have experienced ACEs (Mersky & Lee, 2019).

### **Conclusion**

Findings from this literature review, support the use of CHWs as beneficial towards impacting birth outcomes of Black and Latina women who have been affected by ACEs. CHWs have shown a decrease in the number of PTBs and in the number of babies born at LBW. With the opportunity to do home visits, CHWs have the ability to impact pregnant and postpartum women, their support system and can further promote action of beneficial health behaviors. Literature also supports the amount of funds that can be saved with the utilization of CHWs. It would be appropriate for any community where Black and Latina women live to implement the use of CHWs to do outreach and education during times of pregnancy and postpartum to improve birth outcomes.

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