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The Role of Culturally Congruent Community-based Doula Services in Improving Key Birth Outcomes in Kansas City

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PURPOSE

This brief reports on data from Uzazi Village, a Kansas City organization providing culturally congruent, community-based doula services since 2012. Analyses were conducted independently by researchers at Washington University in St. Louis, with Uzazi Village leadership and staff providing key context, to evaluate the health outcomes associated with doula care. This evidence can help inform the policy discussion regarding the addition of Medicaid coverage for doula services in Missouri.

INTRODUCTION

Missouri is ranked 38th in the nation in maternal mortality (12th worst) and 34th in the rate of low birthweight (LBW) babies.[1] The March of Dimes currently gives the state a D-minus rating, with 11.3% of Missouri's live births being pre-term.[2] In terms of infant mortality, Missouri is worse than average with a rate of 6.1 deaths per 1000 compared to 5.6 per 1000 for the United States as a whole.[3] The pre-term birth rate is 51% higher for black women, compared to women of other races.[2]

Other birth outcomes also vary considerably by race. Based on a 2018 annual report by the Missouri Pregnancy-Associated Mortality Review (PAMR) Board, it was found that Black women experienced four times the rate of pregnancy-related deaths than that of white women. The Pregnancy-Related Mortality Ratio (PRMR) is a measure of the number of deaths related to pregnancy per 100,000 live births. In 2018, Missouri estimated the overall PRMR to be 33 deaths per 100,000 live births. Among Black women, that number was 87.6 deaths per 100,000 births. Women on Medicaid were 8 times as likely to die as women with commercial insurance.[4] Many of these deaths were preventable.

Doulas are trained experts who support expectant women and their families throughout their pregnancy, birthing process, and postpartum. Doulas are an important resource for people of color given the systemic racism and inequality that continues to stain the healthcare system. Having a doula present during birth helps to ensure that a mother's wishes are acknowledged and respected. Having a healthcare professional that understands the patient's perspective and needs from a cultural perspective can ensure effective communication and care between clients and healthcare providers.

Uzazi Village is a non-profit organization providing culturally congruent community-based doula care in Kansas City, Missouri. They work to decrease racial health disparities in maternal and infant health. Uzazi Village utilizes an Afro-centric doula model to address racial disparities and negative maternal health outcomes based on race. Their mission is to center Black and Brown communities and make sure they have the necessary support and resources.

DATA AND METHODS

Uzazi Village has utilized two electronic medical records systems since its founding in 2012. Because each system had its own layout and functionality, data were manually cleaned and aggregated into one file. After removing records with no birth outcome recorded, our final dataset contained 321 records. We calculated descriptive

KEY FINDINGS

- When comparing Uzazi Village's key birth outcomes – gestational age, birth weight, and APGAR scores – to those reported in Kansas City Health Department data, we found that Uzazi's outcomes were better across the board.
- People of color often experience structural racism within the healthcare system. This contributes to the dramatically different birth outcomes for Black women.
- To help improve poor birth outcomes in Missouri, reimburse-ment of doula services by the Medicaid program is a promising solution. Culturally congruent community-based doulas aid in lowering racial disparities within healthcare.
- Given the impact on reducing costly poor outcomes, doula care is also a cost-effective option to implement.

statistics on maternal age, method of delivery, and site of delivery. Other variables were collected, such as health histories, smoking status, and breastfeeding initiation, but due to missing information, we did not include them in this brief.

Our main question of interest was to assess the effect that doula care has on these outcomes, especially given that Uzazi Village's clientele is comprised of at least 90% Black birthing people. We wanted to understand what doulas are doing that makes a difference in the lives of Black and Brown women and their families.

We focused our analysis on three key outcomes: gestational age, birth weight, and APGAR scores (see Box below). These measures, as primary health outcomes, are closely tied to healthcare utilization and are therefore relevant to the policy decision regarding reimbursement of doula services. A related outcome, whether a neonatal intensive care unit (NICU) stay was needed, was also included. There was no information available on the length of NICU stays.

Key Variable	**Definition and Additional Information**
Gestational Age	Gestational age describes how far along the pregnancy is. It begins on the first day of the mother's last menstrual cycle and is tracked to the end of the pregnancy. A normal gestational age is 38-42 weeks. A child that is born earlier than 37 weeks is considered premature.[5]
Birth Weight	A normal birth weight is between 2500 grams (5 pounds, 8 ounces) and 4000 grams (8 pounds, 13 ounces). Babies that weigh less than 2500 grams are at a higher risk of developing health implications and are often taken to the NICU soon after birth.[6]
APGAR Score	APGAR is an acronym that stands for "Appearance (skin color), Pulse (heart rate), Grimace (reflexes), Activity (muscle tone), and Respiration (breathing rate and effort)." When a baby is born, an APGAR test is performed at the 1-minute and 5-minute marks. Each of the components is scored out of 2. Babies who receive an overall score of 7 to 10 are perceived as being in good health standing. Babies with a score lower than 7 need to have immediate medical intervention.[7]

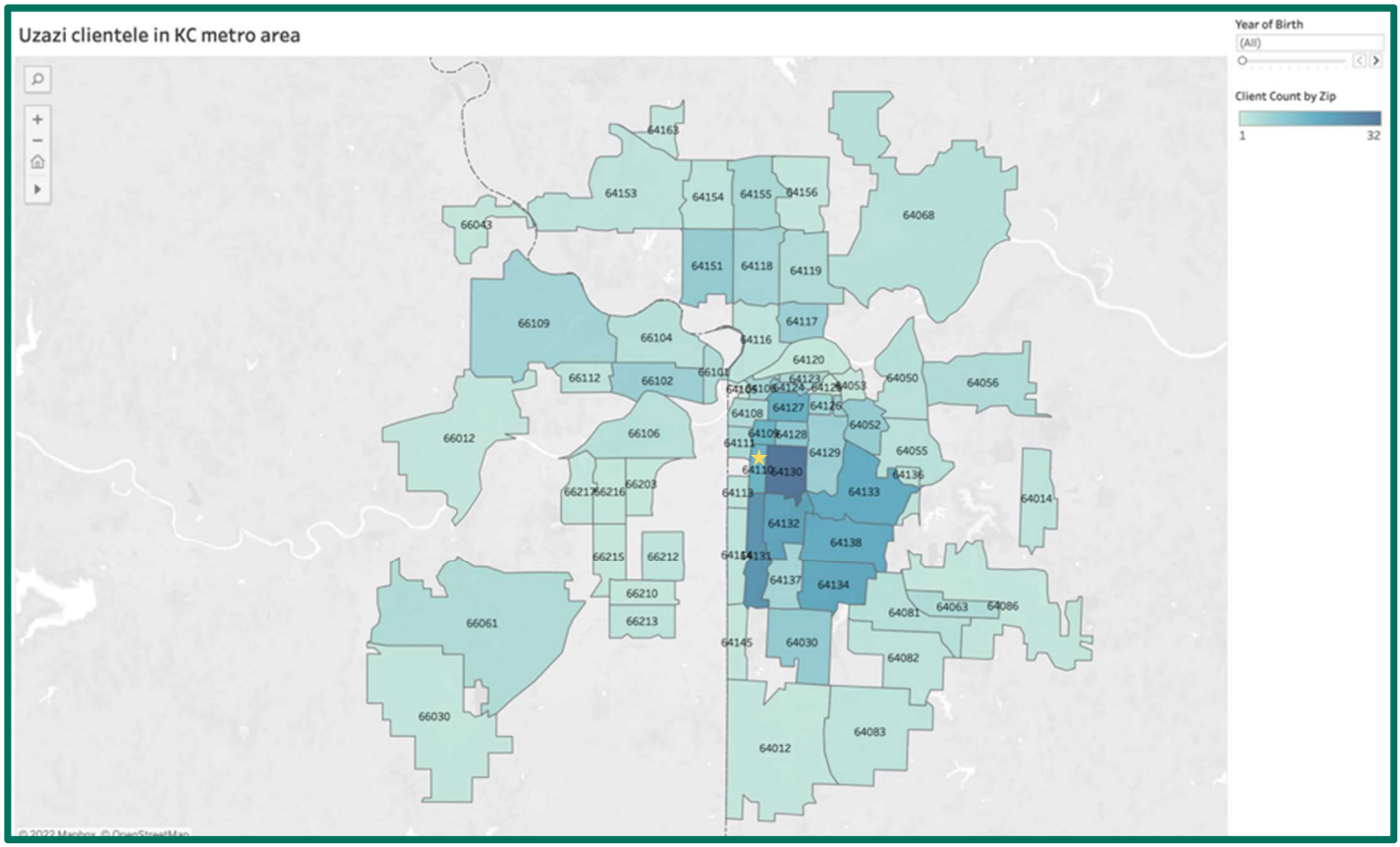
We first counted clients by ZIP code, and created a map to describe the Uzazi Village service area. Then, to understand whether Uzazi clients' birth outcomes differed from that of Kansas City's overall birth outcomes, we obtained similar data from the Kansas City Health Department, which were available for 2013-2020. We requested data by race and ZIP code for all nine KC ZIP codes with at least 10 clients in the Uzazi Village data. We received averages as well as percentages with poor outcomes (preterm, low birthweight, and APGAR < 7) in each of the nine ZIP codes for Black, White, and Hispanic women. Because over 90% of Uzazi Village's non-missing data are Black clients, we used the Black rates in constructing our comparisons.

Using Uzazi data counts for each of these ZIP codes, we calculated weighted averages for each metric. This represents the best available comparison for assessing the birth outcomes of Uzazi Village clients relative to the usual standard of care.

RESULTS

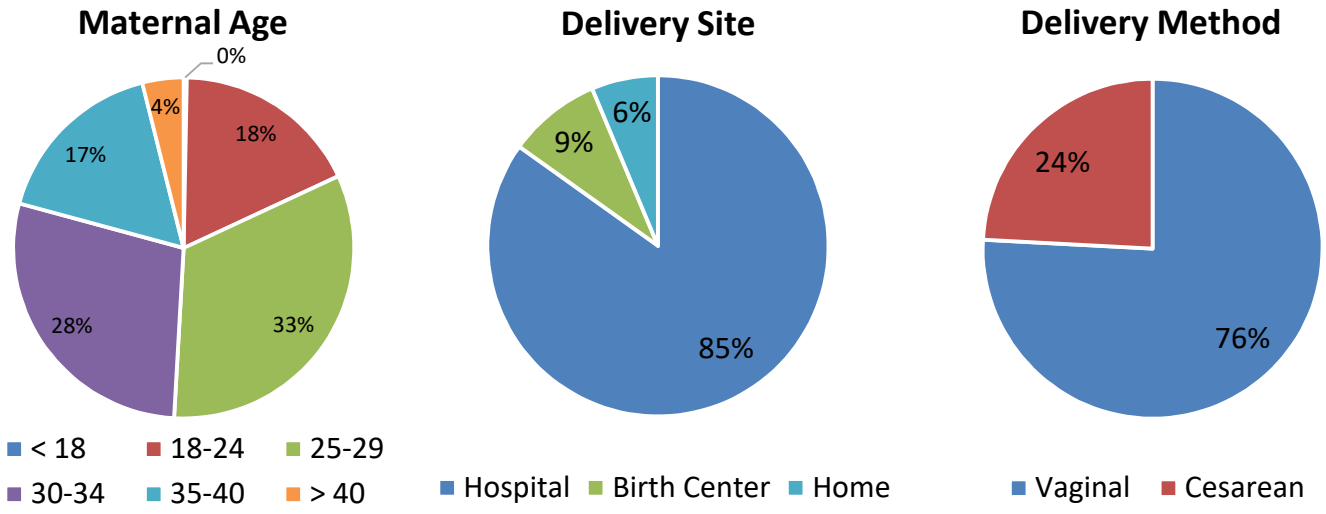
Clientele Map

Using Tableau, we created a ZIP code map to show where Uzazi Village's clientele are located (including all years). For reference, Uzazi Village is located in the 64110 ZIP code and is marked with a star.



Demographics

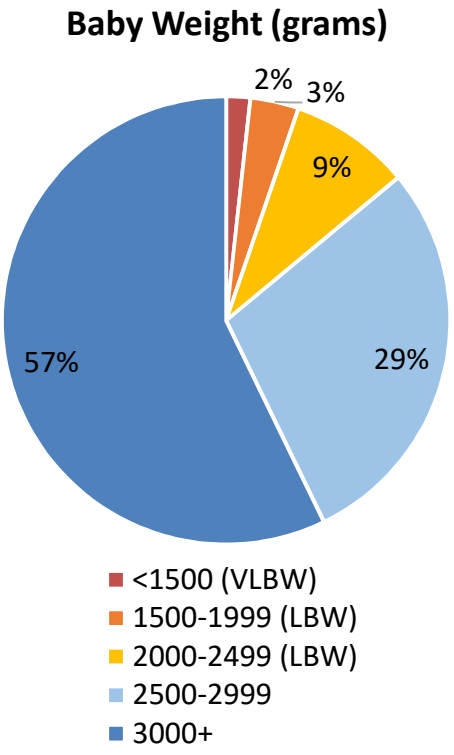
Most of Uzazi Village's clients were between the ages of 25 and 34 (Figure). Most (85%) of Uzazi Village's clients gave birth in hospitals, but many more gave birth at a birth center or at home than in the general population (9% vs 0.5% and 6% vs. 1.0%, respectively).[8]

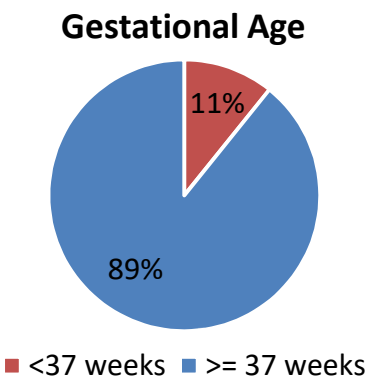


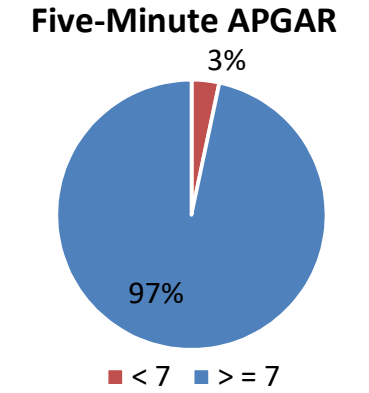
Key Outcomes

Uzazi Village's data showed that 89% of their clients had full-term babies, while 11% had premature births. The majority of their clients gave birth to babies that were within normal birth weight standards, but 11% were low or very low birthweight, and 9% were admitted to the NICU. Finally, 97% of babies born to Uzazi Village's clientele had an APGAR score within the normal range.

In comparing Uzazi findings to the Kansas City weighted average for Black births, we found that Uzazi rates were better across all three key outcome measures. (Table 1) Premature birth rates differed by 7.11 percentage points, or about 40% lower. Low birthweight differed by 1.3 percentage points, which is 8.5% lower. Low APGAR rates differed by 0.78 percentage points, which is 19% lower than the comparison group. Because these statistics compare the entire Uzazi clientele with complete data to the entire set of birth data for the relevant Kansas City ZIP codes, rather than comparing samples, all differences are significant. Uzazi rates also compare favorably to Missouri and U.S. rates for Black births reported by March of Dimes. (Table 2)







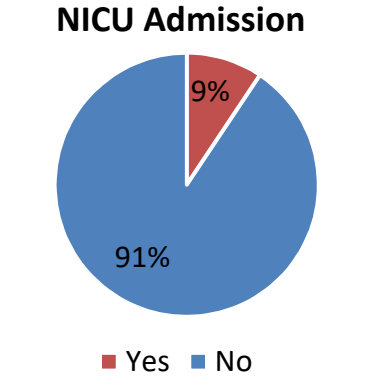


Table 1. Comparison of Key Outcomes, Uzazi Village vs. Kansas City

	Uzazi Village Rate	Kansas City Rate for Black Births	Percent Difference (Relative)
Premature Birth (<37 Weeks)	10.8%	17.9%	-39.7%
Low Birthweight (<2500g)	14.0%	15.3%	-8.5%
Low APGAR (<7)	3.3%	4.1%	-19.1%

Table 2. Comparison of Key Outcomes, Uzazi Village vs. Missouri and United States

	Uzazi Village Rate	MO Rate for Black Births[3]	US Rate for Black Births[3]
Premature Birth (<37 Weeks)	10.8%	15.2%	14.2%
Low Birthweight (<2500g)	14.0%	15.4%	14.0%

DISCUSSION

Benefits of Doula Services

We found that births for which doula care was sought from Uzazi Village had better outcomes than comparison births in the same geographic area. These findings are consistent with other literature. For example, a recent study that analyzed the effect of continuous doula support during labor found that women

were more likely to have a vaginal birth and shorter labor periods. Women were less likely to have anesthesia and synthetic oxytocin during the birthing process, cesarean births, negative feelings about giving birth, low APGAR scores, or admission to the NICU, and were more likely to breastfeed 1 to 2 months after giving birth.[9]

Other benefits not able to be measured in the current project due to data limitations are nonetheless important to mention. For example, a 2013 study found that mothers who utilized doula support had increased levels of positive engagement with their children and were also more likely to respond to infant distress at the 4-month mark.[10] Similarly, a 2022 study found that women who utilized doula services had 57.5% lower odds of postpartum depression; and those who had used doula services specifically doula care during labor and after giving birth, had 64.7% lower odds of postpartum depression.[11] This is significant since postpartum depression can cause a variety of different problems for the child, such as feeding, bonding, and even developmental delays.[12] It can also affect a mother's personal and professional life. Approximately 1 in 8 women have reported suffering from postpartum depression symptoms and prevalence was additionally significantly higher for women of color.[13] Uzazi Village offers services that span prenatal, birth, and postpartum periods in order to provide comprehensive support that may have similar impact.

Understanding Costs

The cost of prematurity is high. Gestational age, birth weight, and APGAR scores are all important measures that correlate with increased healthcare utilization. Low 5-Minute APGAR scores have a strong correlation with neonatal mortality.[14] Studies show that approximately 75% of NICU stays are due to premature births, while the other 25% are due to pathologic reasons.[15] The relationship between NICU costs and gestational age is an inverse one.[16] As gestational age and weight increase, costs decrease. Commercial insurance data analysis found that NICU stays after a vaginal delivery had an estimated cost of $30,875, with approximately $1200 in out-of-pocket costs. NICU stays after a cesarean delivery had an estimated cost of $35,497 with $1300 in out-of-pocket costs.[17]

The magnitude of the costs associated with poor outcomes suggests that an investment in a model that can reduce them may be cost-saving. For example, based upon the 2006 study cited above which reports the costs by week of gestational age, the 7-percentage point difference in preterm births for Uzazi Village clients saved an estimated $593,000 (in current 2022 dollars). This savings, divided by 321 clients, equals $2068 per client in this study, which is potentially large enough to fund doula services for *all* clients.

Racism in the Healthcare System

To fully understand the positive impact of doula care, it's important to understand the context of structural racism within which pregnant women and families in Missouri are situated. Structural racism is present across many systems, especially within the healthcare, education, and justice systems. Black people are often at a disadvantage when navigating these systems, and each patient of color faces the risk that they will not receive the same standard of care as their white counterparts. Being treated by someone with the same racial identity can increase the levels of health communication and understanding, as culturally congruent health professionals hold similar values and experiences as those they are treating. Therefore, solutions such as doula care that can disrupt these patterns by providing culturally congruent services that include healthcare navigation and cultural brokering – doulas "interpreting" clinical language for their clients and Black cultural norms for clinicians – are important to consider embedding into policy. The current study demonstrates that the unique array of services offered by Uzazi Village does "move the needle" on the complex, intractable issue of obstetric racism that will ultimately require systemic solutions to resolve.

Covenants, Redlining, and Gentrification in Kansas City

Kansas City began the use of covenants in the 1920s at the instigation of a white developer, JC Nichols, who wanted to restrict the purchase of his homes to whites only. Homeowner associations that forbade the

sale of property to African Americans and Jews in their neighborhoods were incorporated into deeds. A city council ruling on zoning caused Troost Avenue to become a racial property divide between white and Black families, which lead to clear financial divide as well.[18]

The practice of redlining – the act of residential segregation based on race – was used by lending institutions to determine who could obtain mortgages for homes in desirable areas and who could not. It caused Black and Brown communities, in a continuous renting cycle, to be unable to gain access to loans.[19] Although redlining was abolished in 1968, through the Fair Housing Act, there remains a distinct separation of neighborhoods based on race in Kansas City.[20] This is partly due to lingering effects of redlining and covenants.

Both Kansas City and St. Louis are the nation's leading areas of discriminatory covenants.[21] As of 2021, over 50 years after the Fair Housing Act was passed, an estimated 30,000 St. Louis properties still had racial covenants in their deeds.[22] A new state law passed in 2022 has finally mandated the removal of all covenants from deed agreements. The law changes the definition of covenants and creates a way to remove covenants from deeds, ending a long chapter of history in which discrimination was written into Missouri law.[23]

Reversing the cumulative impact of a century of discriminatory housing policy on health outcomes is an urgently needed goal. Kansas City's Community Health Improvement Plan states that the ZIP code 64130 – where the highest number of clients came from – is a "high priority ZIP code". Approximately 90.8% of residents who live there belong to minority racial or ethnic groups. In contrast, the metro-area ZIP code with the highest life expectancy is 64113, from which Uzazi Village has only drawn 2 clients. This ZIP code's residents are 93% white. The life expectancy in this area is about 16.9 years higher than for a resident of 64130.[24] This is another example of the phenomenon that quality of life may differ immensely across areas that are under 5 miles apart.

A more recent challenge to achieving racial health equity has come in the form of gentrification, which began in Kansas City in the late 1980s and has steadily increased since that time. Uzazi Village's CEO notes that gentrification has greatly impacted the areas from which her organization draws clients. While the negative impact of covenants and redlining were to reinforce inequities in wealth between racial minorities and whites, the displacement that has now occurred due to gentrification has eroded culturally cohesive neighborhoods and supports that Black women could have traditionally accessed. This suggests another reason that culturally congruent doula care may be important – to create a trusted community that can support women of color during pregnancy, birth, and postpartum – which might not otherwise be easy to find.

Policy Recommendations

Missouri Medicaid does not currently provide coverage for doula services. However, the state's budget does include funds for community-based doula training, and the state has begun distributing $500,000 per year to doula organizations. Additionally, at least two Medicaid managed care organizations have implemented or are developing plans for reimbursing doula services in a few targeted areas of the state.[25]

Based on our analysis, Missouri policymakers should consider including doula services as a covered Medicaid benefit. Doula services are a cost-effective method both to increase positive health outcomes for mothers and their babies and to aid in closing the gap on racial disparities that exist within the healthcare system. This brief provides new evidence that these services can help improve key birth outcomes in a measurable way at an organization that is already deeply engaged in this work. We found that outcomes improve for women and families who seek out doula care, relative to a comparison group.

Overall, as Missouri Medicaid works to improve the poor birth outcomes cited in the recent PAMR report, community-based doula services should be part of a strategy to improve birth outcomes. Culturally Congruent Community-Based Doulas can play a key role in reducing racial disparities in those outcomes. Given the high costs that can be avoided, value-based payment strategies may be warranted. Additionally, payment based on risk factors (e.g., maternal age, maternal comorbidities, etc.) could be considered.

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