



Unique Profiles of Postpartum Family Needs and Evidence of Racial and Ethnic Disparities: Insights from Community Implementation of Family Connects

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Abstract

Objectives To delineate specific family needs during the postpartum period using data from Family Connects (FC), a universal home-visiting initiative, and to scrutinize potential racial and ethnic disparities in these needs.

Method FC implementation data spanned from July 1, 2009, to August 31, 2021, in seven counties across the USA. Data encompassed nurse-led in-home assessments for 34,119 families. Nurses evaluated needs across four domains (healthcare, parenting/childcare, safe home, and parent support) comprising 12 risk factors.

Findings Overall, families reported high levels of need, and community connections were facilitated for 57% of visited families. Significant differences in need profiles between whites and minority groups were revealed, reflecting both disparity and uniqueness. Employing the Oaxaca decomposition approach, we found that racial/ethnic disparities in socioeconomic attributes were associated with racial/ethnic gaps in the need profiles.

Conclusions The event of giving birth is both high risk and high opportunity for preventive intervention. Home-visiting programs, as an evidence-based approach, must address the diverse spectrum of familial needs comprehensively.

Keywords Family Connects · Home visiting · Racial/ethnic disparity · Oaxaca decomposition approach · Infant

Families undergoing the transformative experience of child-birth encounter a spectrum of challenges, including physical health problems (e.g., fatigue and sleep disturbance), stress and other mental health concerns, breastfeeding issues, lack of social support, limited knowledge about infant care after hospital discharge, and possible inadequate healthcare

access and utilization [1–3]. Moreover, the USA has the highest maternal morbidity and mortality rates of any high-income nation [4] and is the only high-income nation in the world that does not have paid maternity leave, suggesting these challenges are particularly acute in the USA. Even more egregious are the documented disparities in health outcomes, access to healthcare, and healthcare utilization across race and socioeconomic groups, which are worsening [5, 6]. To address these critical issues, the federal Maternal, Infant, and Early Childhood Home Visiting (MIECHV) program allocated over \$434 million in 2023 to voluntary, evidence-based home-visiting initiatives [7].

In designing home-visiting interventions, questions arise as to whether the pattern of challenges faced by families is common to the population (a universal profile), is associated with racial/ethnic and income groups (group-specific profiles), or is unique to each family (family-specific profiles). The answers will inform the design and assignment of intervention types to families. By delineating patterns of specific family needs and exploring any racial and ethnic disparities in these needs, the findings may be used to ensure that

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interventions are finely tuned to address the unique needs of diverse families during this crucial life phase.

In 2019, nearly half of the 3.7 million births recorded in the USA were infants from minority racial/ethnic backgrounds [8]. Race/ethnicity has been shown to affect health-care needs for families with infants. For example, Hispanic and Black non-Hispanic infants are less likely than White non-Hispanic infants to receive preventive care [9]. Compared to White non-Hispanic mothers, Black non-Hispanic mothers have a higher prevalence of early and chronic depression [10]. Additionally, mothers' parenting knowledge varies by race/ethnicity and parent education level [11]. The demographic shift towards a higher proportion of minority infants over the years underscores the significance of investigating and addressing racial/ethnic disparities in the needs of families with infants, a matter of substantial concern for both research and policy communities [12].

Socioeconomic and demographic disadvantage is a significant factor contributing to unmet needs among families with infants. Research has demonstrated higher rates of infant mortality among teenage mothers compared to their adult counterparts [13]. Single parenthood has been associated with increased risks for parental mental health difficulties and challenges in the parent-infant relationship [14]. Economic deprivation is associated with adverse impacts on infant brain growth rates [15] and overall infant development [16]. Moreover, lower levels of parental educational attainment are predictive of suboptimal child nutritional status [17].

Socioeconomic and demographic characteristics are deeply entwined with larger social frameworks and systems, including the socially constructed categories of race and ethnicity [6]. These constructs shape access to resources, opportunities, and support networks, thereby influencing the extent to which families with infants can meet their needs. Compared to White non-Hispanic mothers, minority mothers are more likely to experience disadvantaged socioeconomic status such as living in impoverished neighborhoods [18], being a single mother [19], being a teenage mother [20], being unemployed [21], having no high school diploma [22], and being eligible for Medicaid or uninsured [23].

The presumption of differential levels of postpartum family needs has prompted program developers and policymakers to prioritize early childhood interventions for low-income and/or minority groups. However, little is known of the specific needs of minority families, those of White-non-Hispanic families, and whether the patterns of postpartum needs vary across these racial/ethnic groups. Few studies have systematically assessed the needs of families with infants, and an even smaller subset has explored potential racial/ethnic disparities in these identified needs. Moreover, there is a dearth of research that seeks to elucidate the racial/ethnic gap in family needs through the quantification

of social determinants. The identification of patterns of need and their underlying determinants represents a pivotal step towards mitigating racial/ethnic disparities in the realm of family needs. The endeavor holds significant promise for the advancement of more equitable and inclusive support systems for all families during the postpartum period.

Present Study

The present study was designed to examine the implementation of the Family Connects (FC) program in diverse communities and to compare the assessed needs of birthing families between White-non-Hispanic individuals and minority groups, including Black-non-Hispanic, Hispanic, and other non-Hispanic groups. The research accomplished the following three aims: (1) to document specific family needs at the time of birth for the population giving birth, (2) to test racial and ethnic differences in the profile of family needs, and (3) to test whether racial and ethnic differences in needs are accounted for by socioeconomic factors. We hypothesized both disparities and differences in needs across racial and ethnic groups; that is, in a context of overall greater needs for minority families, we hypothesized needs would be present in each group but with unique profiles.

Method

Data and Sample

These data came from case records of FC implementation [24]. The program has served more than 43,000 mothers at 27 sites across the USA by August 2021. Due to the restriction of data use agreements, the present study focused on seven well-established sites (i.e., sites with a minimum of 2 years of program operations) that have been certified as meeting fidelity to the evidence-based model. All seven sites were located in urban areas. Population sizes varied across the sites, with five sites falling within the range of 250,000 to 1 million residents, while two sites had fewer than 250,000 people. Five sites were dispersed throughout the Southern US, while the remaining two were located within the Midwest US region. Approval was obtained from individual implementing sites and the Institutional Review Board at the authors' university.

FC nurses completed assessments for 34,119 mothers/caregivers at infant age approximately 3 weeks and whose infants were born between 07/01/2009 and 08/31/2021. The population of families who completed the visits was 41% White non-Hispanic ($n = 14,105$), 26% Black non-Hispanic ($n = 8750$), and 22% Hispanic ($n = 7582$). An additional 11% of families identified as another non-Hispanic group

($n = 3682$). The Hispanic group included subgroups with mixed races (e.g., Hispanic and Asian, Hispanic and Black). Mothers were 29.17 years of age on average ($SD = 6.15$) and tended to be married (54%), employed (57%), and educated (77% had completed at least high school/GED). Insurance status varied with families receiving Medicaid (41%), having private insurance (50%), or being uninsured (9%).

The Family Connects Process for Data Collection

A trained FC staff member coordinated with parents to schedule an Integrated Home Visit (IHV) when the infant was approximately 3 weeks old. The IHV lasts between 1.5 and 2 h. With the active collaboration of the mother or other family member, the nurse gathered information on the parent and child (e.g., health risk), family (e.g., parents' substance use, parent-child relationship quality, and household safety), and community characteristics (e.g., neighborhood violence and access to resources). Together, 12 risk factors were assessed in four domains of parenting and childcare, family violence and safety, parent mental health and well-being, and health and healthcare using the FC *Family Support Matrix*. Utilizing a high inference approach, the nurse rated the family need for each factor on a four-point scale, with 1 indicating no need, 2 indicating a need that could be addressed directly by the nurse during the visit, 3 indicating a major need requiring referral to a community agency, and 4 indicating an urgent need requiring immediate intervention (e.g., a 911 call; < 1% of cases). Previous evaluations of FC have demonstrated inter-rater agreement in nurses' scoring of need to be substantial, as measured by Kappa coefficients of 0.69–0.78 [24].

After identifying each family's unique needs, the nurse and family work collaboratively to connect the family with community resources, as needed and desired, such as childcare agencies, mental health providers, government social services, and other related services. A final contact with a staff member 1 month after the IHV assessed outcomes for any referrals a family received. FC built an electronic data system to document family needs assessed by the nurse, as well as connections with community agencies. Details of the FC program and its needs assessment system have been published elsewhere [24, 25].

Measures

Socioeconomic characteristics for families were collected from administrative data (e.g., electronic birth records or hospital discharge records). These included the birthing parent's race, ethnicity, age, marital status, employment status, educational attainment, and health insurance status. Program implementation data were collected by the nurses and entered into the FC electronic data system after visit

completion. Metrics included scores on the 12 factors of the *Family Support Matrix* (described below), the number of referrals to community agencies provided, and the number of successful connections made with referred agencies.

Regarding family need scores, the first group of outcome variables is the set of the 12 individual factors, each rated on the four-point scale (1–4) by the nurse, including parent health, infant health, healthcare plans, childcare plans, parent-infant relationship, management of infant crying, household safety and material supports, family and community safety, maltreatment history of mother, maternal well-being, substance abuse, and emotional support [24]. For the current study, scores were recoded as 0–3 for ease of interpretation of findings. Analysis variables included *average need* (mean score) across all families and the percentage of families experiencing *any need* (any non-zero rating) for each factor.

The second group of outcome variables consists of combining the 12 factors into the four domains. The first domain, "healthcare," was measured using scores for parent health, infant health, and healthcare plans. The second domain, "parenting and childcare," came from scores for childcare plans, parent-infant relationship, and management of infant crying. The third domain, "safe home," was made using scores for household safety and material supports, family and community safety, and interpersonal maltreatment history. The fourth domain, "parent support," was constructed from scores for maternal well-being, substance abuse, and emotional support. A fifth outcome was an overall level of need, calculated using all 12 factors. For each summary outcome, both *total need* (sum score; range 0–9 and 0–36, respectively) and *any need* (any non-zero rating across factors) scores were calculated. Higher total score or percentage scores indicated greater need.

Analysis Plan

First, we examined family needs across the entire sample of families who participated in the FC program, including individual factor scores, the number of referrals received, and the number of successful connections to community agencies. Next, we compared the difference in outcomes between White non-Hispanic families and each other racial/ethnic group (Black non-Hispanic, Hispanic, other) using ANOVA for continuous variables and using chi-square tests for categorical variables. The decision to compare each group with the White non-Hispanic group was made not to privilege this group but rather because it is the largest group represented in this sample. Subsequently, we conducted linear regression analyses of specific domains on socioeconomic factors within racially defined subgroups. The variables included in the models

were site, mother age, single parental status, employment status, maternal education attainment, and health insurance coverage.

To further explore the relation between racial/ethnic disparities in outcomes and the corresponding differences in socioeconomic factors, we conducted an Oaxaca decomposition analysis [26, 27]. This regression-based decomposition approach dissects the racial/ethnic disparity in needs into two components: the difference arising from racial/ethnic disparities in socioeconomic factors and the difference in intercepts and slopes (see Supplemental File).

Approximately 6.5% of observations exhibited some degree of missing values in the aforementioned variables. The missing pattern deviated from Missing Completely at Random as confirmed by Little's test ($\chi^2 = 10,547.54$, $p < 0.01$) [28]. Consequently, a multiple imputation approach was implemented to optimize the utilization of available data, mitigating non-response bias [28–30].

Results

Prevalence of Family Needs

Of the 34,119 assessed families, 100 (< 1%) received a rating of 3 on at least one factor, indicating the need for immediate emergency intervention; 16,116 (47%) received at least one 2 (but not 3), indicating serious need best served by a referral to a community agency provider; 16,402 (48%) received at least one 1 (but not a 2 or 3), indicating mild to moderate need that could be addressed by nurse education/intervention during the home visit; only 1376 (4%) received the lowest need score (0) on all 12 factors. Importantly, 96% of all families communicated at least one need during the FC postpartum home visit.

Nurses provided community referrals based on identified needs, family preference, and clinical judgement. Of the 16,116 families communicating a need best served by a connection to community agency, 15,672 families (97% of families in need, and 46% of the total population) received at least one referral related to an identified need based on the factor scores. An additional 3714 families received a community agency referral not based on need but on family request. Overall, 19,386 families (57% of the population) received at least one referral. During follow-up contacts, families reported that a successful connection had been established with the community service provider for nearly 50% of referrals, and community services had already been received for 39% of the total (similar to rates reported by families in the first randomized trial of FC) [31]. Almost every mother indicated that FC participation was a helpful experience (99%).

Descriptive Statistics Across Race/Ethnic Groups

Tables 1 and 2 provide descriptive statistics and comparative analyses for racial/ethnic groups. White non-Hispanic families had significantly fewer needs overall and for each of the four domains than did each of the other groups. Black non-Hispanic families reported the highest overall level of needs, followed by Hispanic families, families identified as “other race,” and finally, White non-Hispanic families. Upon close examination of the 12 factors, distinct profiles emerged for each group. Although the proportion of families with a need was higher for Black non-Hispanic families than for White non-Hispanic families in most factors, a significantly larger proportion of White non-Hispanic families had an infant health need than for Black non-Hispanic families. Also, although a higher proportion of Hispanic families had needs relative to White non-Hispanic families in most factors, a larger proportion of White non-Hispanic families had an identified substance abuse treatment need relative to Hispanic families.

Profiles of Type and Severity of Needs Within Race Groups

Analyses of relative ordering of needs indicate some group differences (Supplemental Table 1). Regarding the overall needs, White non-Hispanic families prioritized infant health, parent health, and maternal well-being as their top three rank-ordered needs. Conversely, among Black non-Hispanic families, the top three rank-ordered needs were parent health, infant health, and safety and material support. Hispanic families, on the other hand, prioritized infant health, safety and material support, and parent health. Similarly, with the frequency of occurrence in needs within racial/ethnic groups and need severity, the profiles were different across groups.

In terms of serious needs requiring referrals to community agencies, the top five concerns were household safety, material support, parent health, infant health, maternal well-being, and healthcare plans. However, the order of those five needs differed across racial/ethnic groups. Racial/ethnic composition in the 12 factors was also significantly different from each other (Fig. 1) when the need severity was considered.

Regression Models on Need Domains

The effects of socioeconomic characteristics on need domains in the full sample were examined (Supplemental Table 2a). Being a single mother, being covered by Medicaid or uninsured were related to a higher overall need score

Table 1 Family demographics
(*N* = 34,119)

| | White ¹ Percent | Black ¹ Percent | Hispanic Percent | Other races Percent | Total Percent | Significant difference (<i>p</i> < 0.05) ^{2,3} |
|------------------|-------------------------------|-------------------------------|---------------------|------------------------|------------------|---|
| <i>n</i> | 14,105 | 8750 | 7582 | 3682 | 34,119 | - |
| Single parent | 25.08 | 74.58 | 59.75 | 29.50 | 54.01 | WB, WH, WO |
| Age in year | | | | | | WB, WH, WO |
| < 18 | 0.68 | 3.21 | 3.14 | 1.34 | 1.95 | |
| 18–24 | 14.93 | 34.93 | 28.45 | 18.51 | 23.46 | |
| 25–29 | 29.27 | 27.79 | 26.73 | 27.28 | 28.11 | |
| 30–34 | 36.40 | 21.22 | 23.80 | 33.37 | 29.37 | |
| 35–39 | 15.77 | 10.17 | 14.21 | 15.81 | 13.99 | |
| 40–60 | 2.95 | 2.67 | 3.68 | 3.69 | 3.12 | |
| Employed | 71.35 | 58.82 | 30.73 | 52.06 | 57.05 | WB, WH, WO |
| Education | | | | | | WB, WH, WO |
| No HS | 4.98 | 15.88 | 46.47 | 11.29 | 17.58 | |
| HS/GED | 16.29 | 31.82 | 34.59 | 18.92 | 24.59 | |
| Post-secondary | 78.73 | 52.30 | 18.94 | 69.79 | 57.83 | |
| Health insurance | | | | | | WB, WH, WO |
| Private | 74.22 | 32.84 | 20.10 | 60.39 | 50.09 | |
| Medicaid | 24.60 | 65.67 | 45.65 | 35.87 | 41.03 | |
| Uninsured | 1.18 | 1.49 | 34.25 | 3.74 | 8.89 | |

¹White, White non-Hispanic; Black, Black non-Hispanic

²WB, White non-Hispanic vs. Black non-Hispanic; WH, White non-Hispanic vs. Hispanic; WO, White non-Hispanic vs. other races

³A Bonferroni multiple-comparison test in ANOVA is used to compare the means between two groups for continuous variables, while a chi-square test is used to compare the distributions between two groups for categorical variables

(column 1; *p* < 0.05). Moreover, being employed and having at least a high school diploma were related to a lower overall need score (column 1; *p* < 0.05).

However, the pattern of socioeconomic characteristic roles was clearly different across racial/ethnic groups, indicating an interaction between socioeconomic characteristics and race/ethnicity (Supplemental Table 2b and c). For example, maternal age was not a significant predictor of total need scores in either the White non-Hispanic group or the group with other races, whereas it was positively related to total need scores within Black non-Hispanic families and negatively predicted total need scores in Hispanic families. High educational attainment was negatively associated with the overall need score in White non-Hispanic, Black non-Hispanic, and Hispanic families but not in families of other races. Maternal employment had a negative relation with the overall need score in all racial/ethnic groups but Hispanic. Similar patterns were evident in the race/ethnicity-specific models for the effects of maternal socioeconomic characteristics on each individual need (1 = Yes, 0 = No) when logit models were applied (Supplemental Table 3a, b, c, and d).

Oaxaca Decomposition

The Oaxaca decomposition analysis indicated that racial/ethnic disparities in needs were predicted by differences in mothers' socioeconomic attributes (Table 3). For instance, when comparing White non-Hispanic and Black non-Hispanic groups (panel of "White non-Hispanic vs. Black non-Hispanic," column 1), the adjusted racial/ethnic difference in overall need scores was -2.07 . This difference can be dissected into two components: the explained component (-1.60) and the unexplained component (-0.46). The value of -1.60 signified the average reduction, indicating that total need scores for Black non-Hispanic mothers would be 1.60 points lower, on average, if they possessed the same characteristics as their White non-Hispanic counterparts. Moreover, these socioeconomic factors accounted for 77% of the racial/ethnic disparity in overall needs ($0.77 = 1.60/2.07$).

White Non-Hispanic vs. Black Non-Hispanic

Racial/ethnic differences with regard to health insurance accounted for the greatest contribution to the racial/ethnic

Table 2 Descriptive estimates in needs for race/ethnicity groups ($N=34,119$)

| | White ¹ | Black ¹ | Hispanic | Other races | Total | Significant difference ($p < 0.05$) ^{2,3} |
|--|--------------------|--------------------|-------------------|-------------------|-------------------|---|
| | Mean (SD)/percent | Mean (SD)/percent | Mean (SD)/percent | Mean (SD)/percent | Mean (SD)/percent | |
| <i>n</i> | 14,105 | 8750 | 7582 | 3682 | 34,119 | - |
| Needs | | | | | | |
| Overall | 3.81 (2.76) | 5.87 (3.61) | 5.44 (3.05) | 4.36 (2.91) | 4.76 (3.21) | WB, WH, WO |
| Healthcare domain | 1.75 (1.16) | 2.09 (1.35) | 2.28 (1.34) | 1.86 (1.27) | 1.96 (1.28) | WB, WH, WO |
| Parenting and childcare domain | 0.73 (0.93) | 1.25 (1.16) | 1.06 (1.07) | 0.94 (0.97) | 0.96 (1.05) | WB, WH, WO |
| Safe home domain | 0.62 (1.03) | 1.37 (1.31) | 1.28 (1.14) | 0.78 (1.08) | 0.97 (1.19) | WB, WH, WO |
| Parent support domain | 0.72 (0.99) | 1.16 (1.34) | 0.82 (1.09) | 0.79 (1.05) | 0.87 (1.13) | WB, WH, WO |
| Average score for each factor⁴ | | | | | | |
| 1. Parent health | 0.68 (0.63) | 0.78 (0.71) | 0.76 (0.68) | 0.68 (0.66) | 0.72 (0.66) | WB, WH |
| 2. Infant health | 0.73 (0.62) | 0.75 (0.67) | 0.76 (0.63) | 0.72 (0.65) | 0.74 (0.64) | WH |
| 3. Healthcare plans | 0.36 (0.54) | 0.57 (0.68) | 0.77 (0.75) | 0.52 (0.65) | 0.52 (0.66) | WB, WH, WO |
| 4. Childcare plans | 0.19 (0.46) | 0.47 (0.66) | 0.29 (0.57) | 0.28 (0.53) | 0.30 (0.56) | WB, WH, WO |
| 5. Parent-child relationship | 0.2 (0.44) | 0.37 (0.57) | 0.33 (0.56) | 0.25 (0.47) | 0.28 (0.51) | WB, WH, WO |
| 6. Management of infant crying | 0.34 (0.48) | 0.43 (0.50) | 0.44 (0.50) | 0.45 (0.50) | 0.40 (0.50) | WB, WH, WO |
| 7. Safety and material support | 0.39 (0.71) | 0.91 (0.85) | 0.97 (0.84) | 0.55 (0.79) | 0.67 (0.83) | WB, WH, WO |
| 8. Family and community violence | 0.1 (0.33) | 0.22 (0.48) | 0.19 (0.46) | 0.14 (0.38) | 0.16 (0.41) | WB, WH, WO |
| 9. Maltreatment history of mother | 0.13 (0.4) | 0.25 (0.53) | 0.13 (0.4) | 0.12 (0.38) | 0.16 (0.44) | WB |
| 10. Maternal well-being | 0.48 (0.66) | 0.6 (0.74) | 0.48 (0.66) | 0.48 (0.67) | 0.51 (0.68) | WB |
| 11. Maternal emotional support | 0.17 (0.43) | 0.38 (0.64) | 0.31 (0.6) | 0.27 (0.55) | 0.27 (0.55) | WB, WH, WO |
| 12. Maternal substance abuse | 0.08 (0.31) | 0.19 (0.46) | 0.04 (0.21) | 0.07 (0.28) | 0.10 (0.34) | WB, WH |
| Percent of families with needs in each factor⁵ | | | | | | |
| 1. Parent health | 59.73 | 62.35 | 62.20 | 58.53 | 60.82 | WB, WH |
| 2. Infant health | 64.22 | 62.38 | 65.40 | 62.49 | 63.82 | WB, WH |
| 3. Healthcare plans | 33.09 | 46.86 | 58.22 | 44.79 | 43.47 | WB, WH, WO |
| 4. Childcare plans | 17.33 | 38.14 | 23.95 | 25.91 | 25.07 | WB, WH, WO |
| 5. Parent-child relationship | 22.25 | 33.65 | 29.91 | 26.45 | 27.33 | WB, WH, WO |
| 6. Management of infant crying | 34.11 | 43.46 | 44.46 | 46.17 | 40.11 | WB, WH, WO |

Table 2 (continued)

| | White ¹ | Black ¹ | Hispanic | Other races | Total | Significant difference ($p < 0.05$) ^{2,3} |
|-----------------------------------|--------------------|--------------------|-------------------|-------------------|-------------------|---|
| | Mean (SD)/percent | Mean (SD)/percent | Mean (SD)/percent | Mean (SD)/percent | Mean (SD)/percent | |
| 7. Safety and material support | 27.13 | 59.14 | 63.08 | 37.72 | 44.47 | WB, WH, WO |
| 8. Family and community violence | 11.83 | 20.40 | 16.95 | 18.31 | 15.87 | WB, WH, WO |
| 9. Maltreatment history of mother | 13.19 | 23.01 | 12.15 | 17.30 | 15.92 | WB, WH |
| 10. Maternal well-being | 39.67 | 45.79 | 38.92 | 40.44 | 41.16 | WB |
| 11. Maternal emotional support | 14.83 | 29.71 | 24.12 | 23.76 | 21.68 | WB, WH, WO |
| 12. Maternal substance abuse | 10.07 | 18.62 | 4.26 | 13.44 | 11.33 | WB, WH, WO |
| Any needs | 94.43 | 98.09 | 97.15 | 96.20 | 96.17 | WB, WH, WO |

¹White, White non-Hispanic; Black, Black non-Hispanic

²WB, White non-Hispanic vs. Black non-Hispanic; WH, White non-Hispanic vs. Hispanic; WO, White non-Hispanic vs. others

³A Bonferroni multiple-comparison test in ANOVA is used to compare the means between two groups for continuous variables, while a chi-square test is used to compare the distributions between two groups for categorical variables

⁴The range of need score is 0–3, with 0 as no needs, 1 as moderate need, 2 as major need, and 3 as need requiring immediate intervention

⁵Families with needs are identified and coded as 1 if the need score is 1, 2, or 3; otherwise, they are coded as 0

difference in overall needs, healthcare needs, and safe home needs. Specifically, the contribution of health insurance coverage was -0.60 , indicating a 38% decrease in overall need if the distribution of health insurance coverage for Black non-Hispanic mothers was the same as that for White-non-Hispanic mothers (panel of “White non-Hispanic vs. Black non-Hispanic,” column 1). The second important factor was single parenthood status, the difference of which explained 29% of the difference in needs ($0.47/1.60 * 100\% = 29\%$).

The racial/ethnic discrepancy in health insurance was also the primary driver of the racial/ethnic disparity in needs related to safe home environments and healthcare. Conversely, the racial/ethnic gap in single-parent status emerged as the predominant driver of the racial/ethnic differentiation in parenting and childcare needs as well as parent support.

White Non-Hispanic vs. Hispanic

The racial/ethnic gap in health insurance coverage primarily underlay racial/ethnic differences in overall needs and safe home needs. However, the greatest portion of the racial/ethnic differences in healthcare needs, parenting and childcare, and parent support was attributed to the racial/ethnic gap in maternal educational attainment.

White Non-Hispanic vs. Others

The most substantial factor contributing to the racial/ethnic disparities in overall needs, healthcare, safe home requirements, and parent support was the racial/ethnic gap in health insurance coverage. Conversely, the greatest portion of the racial/ethnic gap in parenting and childcare was attributed to the racial/ethnic gap in maternal educational attainment.

Needs for Each of 12 Factors

Similar patterns were also uncovered in the decomposition models, illustrating the impact of racial/ethnic disparities in maternal socioeconomic characteristics on the racial/ethnic disparities in each specific need category (1 = Yes, 0 = No), utilizing logit models (Supplemental Table 4a and 4b).

Discussion

The primary goals of the study were to describe the needs of families during the early postpartum period and to investigate racial and ethnic disparities in these needs. These findings not only highlighted significant needs across all families with newborns but also uncovered racial/ethnic disparities

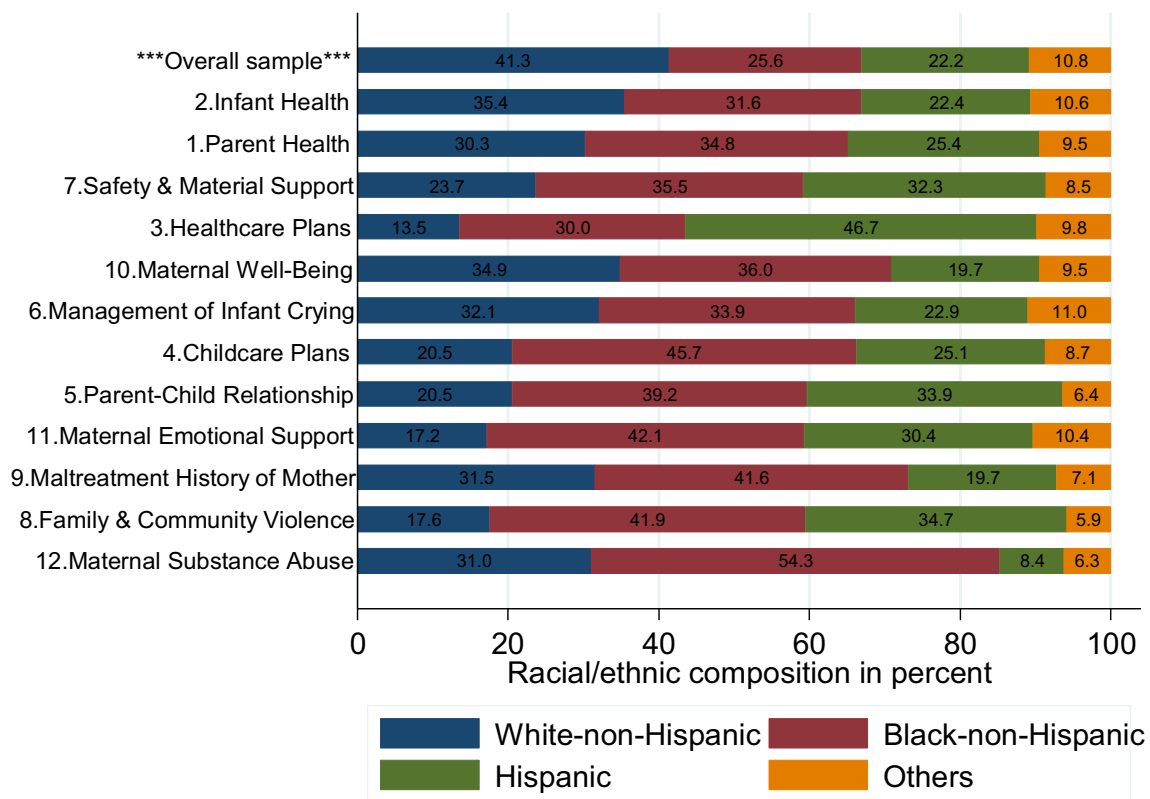


Fig. 1 Racial/ethnic composition of an urgent need requiring immediate intervention or a major need. Note: The bar named “overall sample” represents the racial/ethnic composition in the analytic sample

($N=34,119$). The bars are arranged in a descending order of needs, with the most frequent occurrences of need within the overall population at the top, descending to the least frequent occurrences

in the needs of these families as well as different patterns of the socioeconomic characteristics in affecting the needs across racial/ethnic groups. Using the Oaxaca decomposition approach, the results extend prior research beyond simply documenting racial/ethnic disparities to explaining the disparities.

Family Connects Implementation, Family Need, and Disparities

Based on an ecological framework of health and well-being, this study was designed to comprehensively investigate individual and family needs for families with young infants, with the goal of moving the field towards a more systematic understanding of various challenges faced by parents and their new babies. Strikingly, 96% of families had at least one identified need to be addressed directly by the nurse or through community referrals. Moreover, almost half of the families receiving a referral were able to connect with the community agency successfully, and nearly 40% were receiving the community service within 1 month of referral. These findings are similar to the referral connection rates reported by families in the first randomized trial of FC [31] and highlight the utility of a

universal-plus-targeted home-visiting approach to serving families in the postpartum period. That is, FC provides universal reach to all families while also being tailored to individual family needs by triaging families to community services based on individualized assessments. This tailored approach is particularly crucial given the racial and ethnic disparities in needs as demonstrated by the present study.

Overall, minority families reported higher rates of needs relative to White non-Hispanic families. Furthermore, the types of needs differed across races with the highest needs for Black non-Hispanic and Hispanic families being household safety/material supports and healthcare; for White non-Hispanic families, the highest needs were related to maternal well-being and the management of infant crying. These findings expand the knowledge of the differential impact of socioeconomic characteristics on the needs within racial/ethnic-specific subgroups. Herein, the findings identified the socioeconomic factors contributing to the disparity by using the Oaxaca decomposition. Further, the findings suggest that the reasons for racial/ethnic disparities in need can be partially explained by access to health insurance. Further, for Black non-Hispanic families, single parent status also contributed to racial/ethnic disparities; for Hispanic families

Table 3 Oaxaca decomposition of needs among families with infants ($N=34,119$)

| | Overall domain (1) | Healthcare (2) | Parenting and childcare (3) | Safe home (4) | Parent support (5) |
|--|-----------------------|-------------------|--------------------------------|------------------|-----------------------|
| White non-Hispanic vs. Black non-Hispanic | | | | | |
| Site | -0.26 (0.01)*** | -0.02 (0.01)*** | -0.09 (0.01)*** | -0.02 (0.01)*** | -0.12 (0.01)*** |
| Mother age | 0.07 (0.02)*** | 0.02 (0.01)** | -0.02 (0.01)*** | 0.03 (0.01)*** | 0.04 (0.01)*** |
| Mother education attainments | -0.29 (0.02)*** | -0.04 (0.01)*** | -0.04 (0.01)*** | -0.12 (0.01)*** | -0.09 (0.01)*** |
| Single parent status | -0.47 (0.04)*** | -0.05 (0.01)** | -0.10 (0.01)*** | -0.19 (0.01)*** | -0.14 (0.01)*** |
| Mother employment status | -0.06 (0.01)*** | -0.02 (0.01)*** | 0.00 (0.00) | -0.02 (0.01)*** | -0.02 (0.01)*** |
| Mother health insurance coverage | -0.60 (0.03)*** | -0.10 (0.01)*** | -0.03 (0.01)* | -0.33 (0.01)*** | -0.14 (0.01)*** |
| Explained | -1.60 (0.04)*** | -0.21 (0.02)*** | -0.28 (0.01)*** | -0.64 (0.02)*** | -0.47 (0.02)*** |
| Unexplained | -0.46 (0.06)*** | -0.15 (0.02)*** | -0.22 (0.02)*** | -0.14 (0.02)*** | 0.05 (0.02)* |
| Difference | -2.07 (0.05)*** | -0.36 (0.02)*** | -0.50 (0.02)*** | -0.78 (0.02)*** | -0.42 (0.02)*** |
| White non-Hispanic vs. Hispanic | | | | | |
| Site | -0.26 (0.02)*** | -0.05 (0.01)*** | -0.07 (0.01)*** | -0.01 (0.01) | -0.13 (0.01)*** |
| Mother age | 0.01 (0.01) | 0.01 (0.01) | -0.02 (0.00)*** | 0.01 (0.01) | 0.01 (0.01) |
| Mother education attainments | -0.58 (0.05)*** | -0.13 (0.02)*** | -0.08 (0.02)*** | -0.23 (0.02)*** | -0.13 (0.02)*** |
| Single parent status | -0.33 (0.02)*** | -0.04 (0.01)*** | -0.07 (0.01)*** | -0.12 (0.01)*** | -0.09 (0.01)*** |
| Mother employment status | -0.09 (0.02)*** | -0.05 (0.01)*** | 0.03 (0.01)** | -0.04 (0.01)*** | -0.03 (0.01)** |
| Mother health insurance coverage | -0.64 (0.06)*** | -0.11 (0.02)*** | 0.02 (0.02) | -0.44 (0.02)*** | -0.11 (0.02)*** |
| Explained | -1.88 (0.06)*** | -0.37 (0.02)*** | -0.19 (0.02)*** | -0.83 (0.02)*** | -0.48 (0.02)*** |
| Unexplained | 0.11 (0.08) | -0.20 (0.03)*** | -0.12 (0.03)*** | 0.06 (0.03)* | 0.37 (0.03)*** |
| Difference | -1.77 (0.05)*** | -0.57 (0.02)*** | -0.31 (0.02)*** | -0.77 (0.02)*** | -0.12 (0.02)*** |
| White non-Hispanic vs. other races | | | | | |
| Site | -0.19 (0.02)*** | -0.02 (0.01)** | -0.06 (0.01)*** | -0.02 (0.00)*** | -0.09 (0.01)*** |
| Mother age | 0.00 (0.01) | 0.00 (0.01) | 0.00 (0.01) | 0.00 (0.01) | 0 (0.01) |
| Mother education attainments | -0.10 (0.02)*** | -0.01 (0.01)* | -0.02 (0)*** | -0.04 (0.01)*** | -0.02 (0)*** |
| Single parent status | -0.02 (0.01) | 0.00 (0.01) | 0.00 (0.01) | -0.01 (0.01) | -0.01 (0.01) |
| Mother employment status | -0.08 (0.01)*** | -0.03 (0.01)*** | 0.01 (0.00)* | -0.03 (0.00)*** | -0.03 (0.01)*** |
| Mother health insurance coverage | -0.20(0.02)*** | -0.04 (0.01)*** | 0.00 (0.01) | -0.12 (0.01)*** | -0.04 (0.01)*** |
| Explained | -0.58 (0.03)*** | -0.1 (0.01)*** | -0.08 (0.01)*** | -0.21 (0.02)*** | -0.19 (0.01)*** |
| Unexplained | 0.02 (0.07) | -0.09 (0.03)** | -0.15 (0.02)*** | 0.08 (0.02)*** | 0.18 (0.02)*** |
| Difference | -0.56 (0.07)*** | -0.19 (0.03)*** | -0.23 (0.02)*** | -0.13 (0.02)*** | 0.00 (0.02) |

Multiple imputation was applied to handle missing data ($M=10$)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

and families of other races, maternal educational attainment was a driving factor.

Limitations

Despite the important contributions of the present study, the findings must be interpreted in the context of the study limitations. First, the Oaxaca decomposition methodology, while valuable, is constrained in the ability to account for unobservable factors that may exert influence on the observed disparities in outcomes. For example, variations in beliefs, values, and cultural practices among racial or ethnic communities can influence health outcomes and behaviors [32]. Those sociocultural factors can shape attitudes towards healthcare utilization, parenting practices, and the

perception of mental health conditions. Thus, forthcoming research should endeavor to encompass these pivotal elements in their analyses. Second, it is imperative to acknowledge the sensitivity of results generated through the Oaxaca decomposition approach to the specification of the underlying model. Thus, researchers should include all pertinent covariates within the model, to the fullest extent possible, to mitigate potential bias. Third, the study has limited power to distinguish between American Asians (AA) and American Indians (AI) in the group labeled as “other race.” This distinction is important because AA and AI populations exhibit marked differences in cultural attributes, health indicators, healthcare utilization patterns, and socioeconomic characteristics [33]. Thus, future studies should undertake a focused examination of racial/ethnic differentials between

White non-Hispanics and both AA and AI populations, individually.

Policy Implications

These results inform public health interventions by highlighting ways that programs can better meet the needs of all families with infants and also reduce racial and ethnic disparities. For instance, offering home-visiting programs to families for social support has been recommended [34]. Based on the results from its evaluation for program effectiveness, the FC program has been proven to have the capacity to resolve the challenges [24, 25] and to improve racial and ethnic difference in needs [35].

The findings indicate racial/ethnic group differences in needs that could inform how communities prioritize interventions that address the needs of specific groups. For example, communities with a high proportion of Hispanic families should prioritize healthcare plans and material supports (because of the particular needs these families communicate). Communities with a high proportion of Black non-Hispanic families should prioritize childcare planning and interventions to provide maternal emotional support (because of the particular needs these families communicate).

The findings do *not* suggest indiscriminate assignment of families to interventions based merely on race without individual screening. The within-race/ethnicity profiles of needs differ so widely that the individual-family identification of needs (as used in FC programming) is essential to match families with community services that address their family-specific profile of needs. The following policy recommendations are (1) universal screening of families giving birth, (2) targeting of interventions to families based on family-specific and family-identified needs, and (3) the allocation of resources to community-agency interventions based on the community's racial/ethnic-based profile of likely needs for specific interventions.

In addition, the present study provides evidence that reducing the racial and ethnic difference in socioeconomic factors is an effective way to identify targets for decreasing racial/ethnic gaps in the needs. For example, collaborative efforts among students, families, and schools in minority communities to implement dropout prevention programs can substantially enhance educational attainment, particularly among women [36]. Consequently, a diminished racial/ethnic divide in educational attainment between White-non-Hispanic and minority populations is poised to yield reductions in racial/ethnic disparities in needs.

Finally, our findings underscore the important role played by disparities in health insurance coverage as a major contributor to racial/ethnic disparities in needs. Nevertheless, rectifying the gap in health insurance coverage between

White non-Hispanic and minority mothers presents a formidable challenge. Given that Medicaid eligibility is contingent upon family income, the disproportionate prevalence of Medicaid coverage among African American and Hispanic mothers is symptomatic of systemic wealth disparities in the USA. Consequently, policymakers may consider extending Medicaid coverage and fortifying benefits for postpartum services.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s40615-024-02013-0>.

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HM: conceptualization, methodology, data analysis, writing—original draft preparation, writing—reviewing and editing.

KD: conceptualization, methodology, writing—original draft preparation, writing—reviewing and editing.

BG: conceptualization, data collection, methodology, writing—reviewing and editing.

KO: conceptualization, writing—reviewing and editing.

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Data Availability The data that support the findings of this study are available from Family Connects, but restrictions apply to the availability of these data, which were used under license for the current study and so are not publicly available. The data are, however, available from the authors (Dr. Yu Bai or Dr. Benjamin Goodman) upon reasonable request and with the permission of Family Connects.

Code Availability The availability of the code that supports the findings of this study is restricted under license for the current study and so is not publicly available. The code is, however, available from Dr. Yu Bai upon reasonable request and with the permission of Family Connects.

Declarations

Ethics Approval This study was approved by the Institutional Review Board of Duke University.

Consent to Participate Informed consent was obtained from all individual participants included in the study.

Consent for Publication Not applicable.

Competing Interests The authors declare no competing interests.

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