Adherence to Gestational Weight Gain Recommendations Based on Ward of Residence in Washington, D.C.

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Gestational Weight Gain and Why It Matters

Gestational weight gain is a measure of maternal weight increase during pregnancy. In 2009, the Institute of Medicine (IOM) published recommendations for appropriate weight gain during pregnancy for women who were underweight, normal weight, overweight or obese based on their calculated pre-pregnancy body mass index (BMI).

IOM Weight Gain Recommendations (2009)

Prepregnancy Weight Category	Body Mass Index	Recommended Range of Total Weight gain (lb.)
Underweight	Less than 18.5	28-40
Normal Weight	18.5-24.9	25-35
Overweight	25-29.9	15-25
Obese	30 and greater	11-20

Gestational weight gain below IOM recommendations has been associated with an increase in preterm birth and small for gestational age neonates. On the other hand, gestational weight gain above the IOM recommended amount has been associated with large for gestational age neonates as well as increased risk of cesarean section and macrosomia.

Methods

Data was gathered through retrospective chart review including women who received prenatal care at GW Medical Faculty Associates and delivered at GW Hospital between September 2019 and December 2019. Gestational Weight Gain was determined by subtracting prepregnancy weight from maternal weight at delivery. Independent variables included insurance status, race and ward of residence in D.C. and the dependent variable was rate of gestational weight gain discordance from IOM recommendations. Data was analyzed for significance via logistical regression.

Health Disparities by Ward of D.C.

Washington D.C. is separated geographically into 8 wards and there are obvious racial, socioeconomic and health disparities between the different wards, with Ward 7 and Ward 8 having disproportionate rates of poor health outcomes. These patterns of segregation and differences in health outcomes very closely mirror the patterns of education attainment, food environment, outdoor environment, community safety, medical care, income and health insurance coverage. These statistics can be found in the 2018 D.C. Health Equity Report.

The object of this study is to evaluate whether social determinants of health contribute to gestational weight gain discordance from recommendations set by IOM guidelines. Potential variables evaluated in this review include pre-pregnancy BMI, insurance status, race and location of patient's home residence, delineated by ward of D.C.

Subject Demographic Information

Total sample size (N) was 505 women. Of the total N, 64.3% had private insurance and 35.7% had public insurance. Self-reported race of the study subjects are as follows: 38.5% White, 7.3% Asian, 39.5% Black, 14.6% Other. 346 women resided in DC and their reported ward of residence is listed below. Women residing in Maryland or Virginia were excluded from the analysis involving D.C. wards but were included in analysis evaluating race and insurance status.

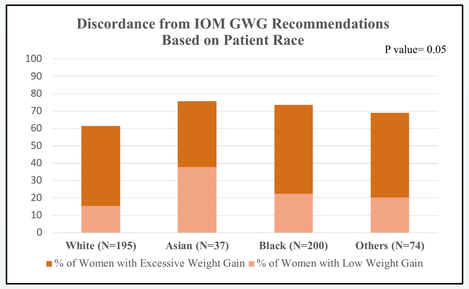
Insurance	
Private	N=323 (64.3%)
Public	N=179 (35.7%)

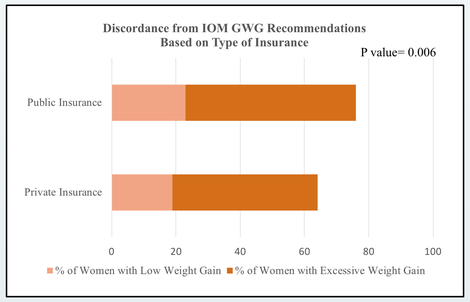
Race	
White	N= 195 (38.5%)
Asian	N= 37 (7.3%)
Black	N= 200 (39.5%)
Others	N= 74 (14.6%)

D.C. Ward of Residence	
Ward 1	N= 54 (15.6%)
Ward 2	N= 29 (8.4%)
Ward 3	N= 20 (3.2%)
Ward 4	N=36 (10.4%)
Ward 5	N= 57 (16.5%)
Ward 6	N= 25 (7.2%)
Ward 7	N= 89 (25.7%)
Ward 8	N= 36 (10.4%)

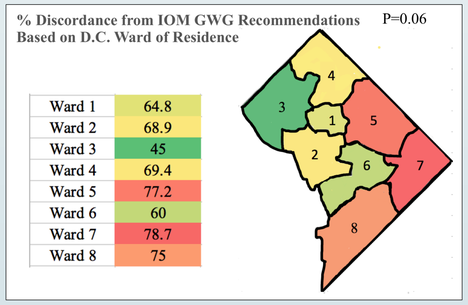
Results

Results indicated that there was a statistically significant discordance in gestational weight gain based on race, with Black and Asian patients having higher rates of discordance than white patients (p value=0.05) and based on insurance status, indicating that patients with public insurance had higher rates of discordance than patients with private insurance (p value=0.006).





There was a non-statistically significant trend which demonstrated that D.C. Wards 5, 7 and 8 had higher rates of discordance compared to other D.C. Wards, especially Wards 3 and 6.



Discussion

This study identified statistically significant differences in gestational weight gain discordance based on type of insurance as well as reported race. A trend that was not statistically significant also suggests that differences in gestational weight gain discordance may exist between the different wards of D.C., which resembles the previously demonstrated patterns of health outcome disparities as well as social determinants of health outlined in the 2018 D.C. Health Equity Report.

Data collection and sample size were often limited by inconsistent recording of prepregnancy weight and weight at delivery in the charts reviewed. Consideration should also be given to the self-reporting nature of prepregnancy weight recording which may lead to inaccuracies. Late entry to care may also affect accuracy, however women who entered prenatal care after the first trimester were excluded from the current data set.

Future directions for this project include evaluation of pregnancy outcomes associated with gestational weight gain discordant from IOM recommendations to evaluate for disparities based on social determinants despite similar gestational weight gain. Additional evaluation of the data to increase sample size will continue to illuminate statistically significant trends.

The results of this study will help to identify women who might be at higher risk for discordant gestational weight gain and the associated adverse pregnancy outcomes due to the impacts of social determinants of health so that counseling and resources may be provided accordingly.

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