Knowledge of Pregnancy and Postpartum Complications up to One Year Postpartum Compared by Rurality

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INTRODUCTION

- Georgia has one of the highest maternal mortality rates (MMR) in the U.S. at 46.2 maternal deaths per 100,000 live births, disproportionately affecting Black and rural populations.[1]
- Rural areas have high MMR due to obstetric services availability and geographical location. In Georgia, 93 of 109 rural counties lack hospital labor and delivery units, and 83% of women in rural Georgia must travel long distances for prenatal care and hospital delivery services.[1]
- Research shows that inadequate maternal health literacy increases the risk of adverse pregnancy and birth outcomes.[2,3,5,6]
- **Study aim:** Our study sought to 1) assess knowledge of Georgian adults about complications and urgent maternal warning signs both during pregnancy and up to 1-year postpartum and 2) characterize knowledge within rural and urban populations to further understand the urban/rural disparities.

METHODS

- As part of a larger study, a previously validated online survey addressing maternal health knowledge was distributed via Qualtrics XM, through social media outputs and email to Georgians.
- A total of 588 adults ages 18-76 completed the survey, and 441 adults provided a Georgia zip code (56.5% urban, 33.3% large rural city/town (LRCT), 7.7% small rural town, 2.4% isolated small rural town).
- Data was exported into IBM-SPSS , and knowledge scores were created for the following domains: identification of warning signs and symptoms of common or life-threatening complications in both pregnancy and during the post-partum period.
- One-way Analysis of Variance, linear regression, and binary logistic regression were preformed to characterize knowledge based on provided zip codes.

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RESULTS

Table 1. One-way Analysis of Variance Summary Table Comparing (Warning signs of Pregnancy Complications and Warning Signs of Postpartum Complications by Age, Gender, Race, and Ethnicity *p≤ 0.05

	Pregnancy Warnings Signs 15**		Postpartum Warning Signs 12**	
	Mean SD	p	Mean SD	p
Demographic Characteristics	8.60 (5.27)		6.53 (4.34)	
Age		0.031		0.003
18-20.99	7.07 (5.88)		4.85 (4.67)	
21-29.99	8.95 (5.26)		6.71 (4.44)	
>30	8.62 (4.98)		6.87 (3.90)	
Gender		<0.001		<0.001
Male	5.75 (5.01)		4.25 (4.06)	
Female	9.31 (5.05)		7.11 (4.21)	
Other	6.21 (6.13)		4.00 (4.36)	
Race		<0.001		<0.001
Black	6.14 (4.95)		4.41 (3.84)	
White	9.75 (4.96)		7.48 (4.16)	
Multiracial	8.67 (4.96)		5.33 (4.28)	
Other or undeclared	5.13 (5.56)		4.28 (4.45)	
Ethnicity		<0.001		<0.001
Spanish, Hispanic, or Latino	5.43 (3.61)		4.42 (2.81)	
Other	9.55 (5.25)		7.17 (4.47)	
Rurality				
Urban	9.14 (4.94)	0.0005	6.98 (3.92)	0.0005
Large Rural City/Town	10.84 (4.58)		8.43 (4.11)	
Small Rural Town	11.79 (3.58)		9.18 (3.49)	
Isolated Small Rural Town	10.73 (4.08)		7.00 (402)	

**Maximum number of correct responses

Table 2. Modeling the effect of rurality on the correct identification of signs and symptoms of common complications during pregnancy

Demographics	Harmful exposures	P[1]	CV Comp	P[1]	Preeclampsia	P[1]	Suicidal thoughts[3]	P[3]
Rurality[2]								
Urban	-0.34	0.0010	-0.27	0.0536	-0.79	0.0002	0.56	0.0163
Small Rural Town	-0.20	0.3161	-0.08	0.7692	0.12	0.7635	0.92	0.8519
Isolated Small Rural Town	0.26	0.3669	0.15	0.7229	-0.35	0.5690	0.62	0.4797

[1]Linear model adjusting for age group, education, gender, ethnicity; [2]Reference category is "Large Rural City/Town";

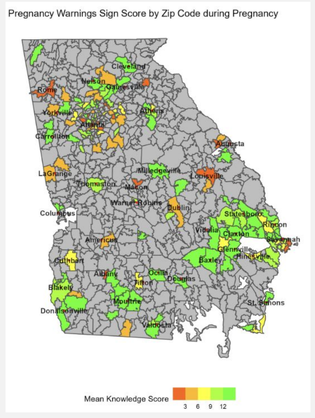
[3] Results are Adjusted Odds Ratios obtained from binary logistic regression model adjusting for age group, education, gender, ethnicity.

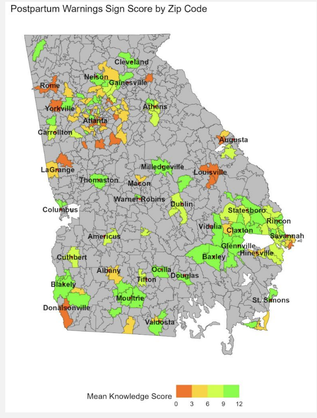
Table 3. Modeling the effect of rurality on the correct identification of signs and symptoms of common postpartum complications

Demographics	CV Comp	P[1]	Preeclampsia	P[1]	Suicidal thoughts[3]	P[3]	Bleeding/ Wound Comp	P[1]
Rurality[2]								
Urban	-0.55	0.0002	-0.64	0.0006	1.73	0.0338	-0.49	0.0009
Small Rural Town	0.01	0.9850	-0.02	0.9466	1.46	0.4244	0.22	0.4134
Isolated Small Rural Town	-0.71	0.0955	-0.95	0.0811	0.29	0.2592	-0.92	0.0314

[1]Linear model adjusting for age group, education, gender, ethnicity; [2]Reference category is "Large Rural City/Town";

[3] Results are Adjusted Odds Ratios obtained from binary logistic regression model adjusting for age group, education, gender, ethnicity.





RESULTS

- Among participants, 54% failed to identify complications that women may experience during pregnancy, 52% failed to identify life-endangering warning signs during pregnancy, and 56% failed to identify warning signs during postpartum.
- Compared to LRCT participants (72% and 70%), urban residents were less likely to identify urgent maternal warning signs during pregnancy (61%) and one-year post-partum (58%).
- Additionally, compared to LRCT (59% and 72%), the proportion of urban residents identified fewer harmful exposures (54%) and preeclampsia (59%) as pregnancy complications.
- The odds of identifying suicidal thoughts during pregnancy were 44% lower among urban residents compared to LRCT. OR=0.56; 95% CI (0.35-0.9), p<0.001.

CONCLUSION

- Overall, knowledge of pregnancy and postpartum warning signs and complications is poor in Georgia across all individuals, which may be contributing to the high maternal mortality rate within our state.
- Surprisingly, knowledge of pregnancy and postpartum warning signs and symptoms was significantly lower in urban areas compared to large rural cities/towns, while significant differences were evident among small and isolated rural towns.
- Our study places greater emphasis on access and barriers contributing to rural health deficits including the lack of hospital services and resources, healthcare workforce shortages, a deficiency in transportation, and financial constraints[1,4].
- A limitation to our study includes the smaller number of rural participants compared with urban responses, which could have contributed to our findings.

REFERENCES/ACKNOWLEDGEMENTS

This project is part of a larger study, which includes additional knowledge of general pregnancy care behaviors.