

An Association of Health Literacy Levels on Pregnancy Outcomes

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Introduction

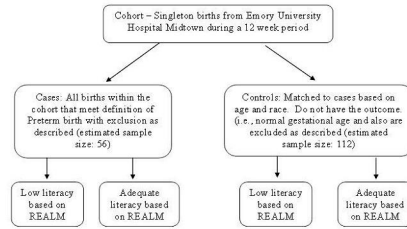
The assessment of maternal-child health is one of the key measuring tools for determining the well-being of any community. Indicators such as infant mortality, gestational age, low birth weight, and early entry into prenatal care have been identified and used throughout the nation to assess maternal-child health (March of Dimes, 2011).

One potential reason for the continuing problem of preterm birth is miscommunication between provider and expectant mother during prenatal care. This miscommunication could be the result of low maternal health literacy levels. Identifying maternal health literacy levels could contribute to improving the health outcomes for mothers and their newborn babies.

Within the past 20 years, health consumer's level of health literacy has risen as a public health concern in the United States as awareness of the detrimental impact low health literacy can have on the overall health of individuals has increased (Saferer & Keenan, 2005). For some women of reproductive age, a pregnancy is the first contact with a healthcare system (Ferguson, 2008). Health literacy has a direct impact on many health outcomes, including pregnancy. How a pregnant woman obtains, processes, and understands basic health information about her pregnancy can depend upon her level of health literacy (Bennett et al., 2006; Endres et al., 2004).

The purpose of the quantitative, case control study was informative in nature with a goal to identify the maternal health literacy levels among postpartum women between the ages of 18 and 35 within the metropolitan Atlanta area and compare their maternal health literacy levels (independent variable) to their pregnancy outcomes (dependent variable), specifically preterm birth as defined by gestational age. The study was designed to address whether there was an association with pregnancy outcome when looking at maternal health literacy levels of recently delivered women.

Methods



- This research was based on the theoretical framework of the Interaction Model of Client Health Behavior.
- Through a convenience sample, we obtained the gestational age of infants born to a cohort of nulliparous women that presented for a singleton delivery at a teaching hospital in Atlanta, Georgia and to identify cases and matched controls.
- **REALM health literacy assessment tool**
- The data were analyzed in SPSS using logistic regression, with preterm birth as the dependent variable, and health literacy levels as the independent variable.

Results

Of the 2,168 women that presented for delivery, 856 fit the cohort of a singleton birth. After accounting for the exclusion criteria 647 women were eligible for this study, of which 169 participated (Cases=56, Controls=113). Those with low health literacy levels did not show an association (p-value=0.112) to preterm birth. However, other risk factors of type of insurance (p-value=0.02), type of delivery (p-value=0.04), and level of education (p-value=0.05) were associated with preterm birth.

Demographic Characteristics of Delivered Mothers by Pregnancy Outcome - Preterm Birth

	Cases (n=56)	Controls (n=113)	Test of Significance (p)
Education (n, %)			0.05
< Highschool	12(21.4%)	9(8.0%)	
Highschool Degree	17(30.4%)	40(35.4%)	
Some College	17(30.4%)	31(27.4%)	
College Degree	10(17.8%)	33(29.2%)	
Employment Status (n, %)			0.43
Employed	24 (42.9%)	81 (72.6%)	
Self-employed	0 (0%)	3 (10.8%)	
Unemployed	19 (33.9%)	47 (27.8%)	
Student	7 (12.5%)	24 (14.2%)	
Homemaker	4 (8.7%)	14 (8.3%)	
Household Income (n, %)			0.68
Less than \$20K	32 (1.8%)	44 (2.4%)	
Greater than \$20 and Less than \$50K	19 (35.7%)	54 (22.5%)	
Greater than \$50K	5 (19.6%)	15 (20.1%)	
Type of Insurance (n, %)			0.02
None	4 (7.1%)	4 (2.4%)	
Private	22 (39.3%)	74 (43.8%)	
Public	30 (53.6%)	91 (53.8%)	
Marital Status (n, %)			0.70
Never Married	20 (35.7%)	57 (33.7%)	
Married	36 (64.3%)	112 (66.3%)	
Prenatal Care Visits (n, %)			0.79
Adequate	54 (96.4%)	108 (95.6%)	
Inadequate	2 (3.6%)	5 (4.4%)	
Type of Delivery (n, %)			0.04
Vaginal	37 (66.0%)	91 (80.5%)	
C-Section	19 (34.0%)	22 (19.5%)	
Type of Physician (n, %)			0.60
Academy	16 (28.6%)	28 (24.8%)	
Private	40 (71.4%)	85 (75.2%)	
Maternal Health Literacy (n, %)			0.11
Adequate	21 (37.5%)	57 (50.4%)	
Inadequate	35 (62.5%)	56 (49.6%)	

Multiple Logistic Regression Analysis:

The results suggest that women that have some high school education are 5.23 times more likely to have a preterm birth than those with completed high school or earned a GED and 1.49 and 1.86 times more likely than those with some college or a college degree, respectively. Additionally, women that delivered by C-section were 2.44 times more likely to have a preterm birth.

Outcome of Backward Step Binary Logistic Regression Analysis

Variable	OR	95% CI	p
Education graduated (highschool or GED)	5.23	.061 - 601	.005
Education (some college)	1.49	.266 - 1.689	.396
Education (college degree)	1.86	.209 - 1.372	.194
Delivery Type	2.44	1.193 - 3.666	.020

Conclusions

- This study reinforces the need to reengage health practitioners to achieve a modest understanding of the principals of health literacy and the health literacy levels of their patients to assist in maternal health improvements. A focus on the development and implementation of educational competencies for clinicians on maternal health literacy would attribute to a positive social change.
- Since the inception of this study, the American College of Obstetrics and Gynecologists (ACOG) has published a Committee Opinion (No. 585) addressing all entities within the health care profession are responsible for recognizing and addressing the problem of low health literacy. There should be a systematic approach in offices, hospitals, clinics, national organization, local health organizations, advocacy organizations, medical schools, residency training programs and CME program.

Literature cited

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Acknowledgments

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Further information

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