

Background

Genetic Carrier Screening (GCS) is a genetic test that allows patients to find out if they carry genes for certain genetic disorders. The results of the test enable patients to make changes to their family planning decisions and prenatal care when appropriate and allow them the opportunity to seek further medical and social support. Despite these health benefits and notable clinical utility of GCS, GCS has not been utilized in most nations due to moral and ethical controversy among the public. Previous studies have demonstrated patients' ethnicity, socio-demographic (age, education) and economic factors were associated with the patient's intention to undergo GCS for sickle cell trait screening. This study investigates the socioeconomic and demographic factors that may have impacted the decision to choose GCS among 468 OB-GYN female patients in Montgomery County, OH.

Hypothesis

Patients with higher education (some college and beyond) and private insurance are more willing to undergo GCS. In regards to the demographic factors, older patients are more willing to go through GCS, and patients with religious beliefs are less likely to undergo GCS.

Methods

Data was collected from 468 OB-GYN female patients in Montgomery County, OH via a descriptive self-administered survey composed of 31 questions. The survey questions include patient demographics (age, ethnicity, and religious preferences), socioeconomic (highest level of education and type of health insurance), and questions to measure patient opinions on GCS (positive or negative attitudes towards GCS, desire to undergo GCS, etc.) The independent variables of interest include socioeconomic factors such as highest level of education and type of health insurance and demographic factors such as patients' age and religious affiliation. Then a retrospective quantitative analysis (Chi-Square test) was conducted using IBM version 24.0 Statistical Package for the Social Sciences software (SPSS) with a p-value of 0.05.

Results

Table 1. Patients' desire to undergo GCS based on age, type of insurance, education level, and religious affiliation

	Desire to Undergo GCS		<i>P</i>
	Yes	No	
Age [% (n)]			<0.07
18-28	43.6% (65)	56.4% (84)	
29-36	36.8% (57)	63.2% (98)	
37+	27.0% (17)	73.0% (46)	
Type of Insurance [% (n)]			<0.575
Private	36.2% (100)	63.8% (176)	
Medicaid	41.4% (36)	58.6% (51)	
Self Pay/None	50.0% (3)	50.0% (3)	
Education [% (n)]			<0.86
High School/GED	38.6% (27)	61.4% (43)	
Some College	36.6% (59)	63.4% (102)	
Graduate School/Doctorate Level	40.0% (42)	60.0% (63)	
Religiously Affiliated [% (n)]			<0.04
No	45.3% (53)	54.7% (64)	
Yes	34.1% (86)	65.9% (166)	

Table 2. Descriptive statistics of participants' pregnancy history

	Desire	N	Mean	Std. Deviation	<i>P</i>
Number of Pregnancies	Yes	140	1.24	1.644	<0.001
	No	237	1.84	1.775	
Number of Miscarriages	Yes	139	0.36	0.780	<0.82
	No	234	0.38	1.099	
Number of Elective Abortion	Yes	136	0.12	0.405	<0.99
	No	231	0.12	0.437	
Number of Living Children	Yes	138	0.64	1.139	<0.001
	No	235	1.11	1.160	

Table 3. Desire to undergo GCS based on age, type of insurance, education level, and religious affiliation (N=82) among women who were currently pregnant

	Desire to Undergo GCS		<i>P</i>
	Yes	No	
Age [% (n)]			<0.66
18-28	28.1% (9)	71.9% (23)	
29-36	23.4% (11)	76.6% (36)	
37+	50.0% (1)	50.0% (4)	
Type of Insurance [% (n)]			<0.28
Private	21.7% (13)	78.3% (47)	
Medicaid	38.1% (8)	61.9% (13)	
Self Pay/None	0.0% (0)	100.0% (1)	
Education [% (n)]			<0.05
High School/GED	46.7% (7)	53.3% (8)	
Some College	12.9% (4)	87.1% (27)	
Graduate School/Doctorate Level	27.6% (8)	72.4% (21)	
Religiously Affiliated [% (n)]			<0.77
No	27.6% (8)	72.4% (21)	
Yes	24.5% (13)	75.5% (40)	

Conclusion

We found there was no difference in the desire to undergo GCS related to age, type of insurance, or highest level of education. However, when only "currently pregnant" women were examined, those with at least some college were less likely to desire to undergo GCS compared to women with high school as their highest level of education. We also found that women who reported having a religious affiliation were less likely to desire GCS than women reporting no religious affiliation. Furthermore, women with fewer pregnancies and fewer living children are more likely to desire GCS. Awareness of the association between religious belief and desire to undergo GCS can help physicians prepare for conversations with patients about GCS.

Further Study

Future research may include examination of the relationship of other factors, such as medical history, pregnancy history, and cultural norms, and GCS. Understanding the influence of other factors on the desire for GCS is important not only to reconcile the gap between benefits and patient use of GCS but also to build stronger patient-physician rapport.

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