

Distribution Agreement

In presenting this thesis or dissertation as a partial fulfillment of the requirements for an advanced degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis or dissertation in whole or in part in all forms of media, now or hereafter known, including display on the world wide web. I understand that I may select some access restrictions as part of the online submission of this thesis or dissertation. I retain all ownership rights to the copyright of the thesis or dissertation. I also retain the right to use in future works (such as articles or books) all or part of this thesis or dissertation.

Signature:

Nicole Levidow

Date

WOMEN'S RIGHT TO KNOW ACT INCREASES SECOND TRIMESTER ABORTION IN GEORGIA

BY

NICOLE LEVIDOW

MSPH

HEALTH POLICY AND MANAGEMENT

LAURA M. GAYDOS

COMMITTEE CHAIR

MSPH DIRECTOR

MICHAEL KRAMER

COMMITTEE MEMBER

SARAH BLAKE

COMMITTEE MEMBER

WOMEN'S RIGHT TO KNOW ACT INCREASES SECOND TRIMESTER ABORTION IN GEORGIA

BY

NICOLE LEVIDOW

MSPH

EMORY UNIVERSITY

2012

THESIS COMMITTEE CHAIR: LAURA M. GAYDOS, PHD

AN ABSTRACT OF

A THESIS SUBMITTED TO THE FACULTY OF THE
ROLLINS SCHOOL OF PUBLIC HEALTH OF EMORY UNIVERSITY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE IN PUBLIC HEALTH
IN HEALTH POLICY AND HEALTH SERVICES RESEARCH

2012

ABSTRACT

WOMEN'S RIGHT TO KNOW ACT INCREASES SECOND TRIMESTER ABORTION IN GEORGIA

BY NICOLE LEVIDOW

In 2005, the state legislature passed the Women's Right to Know Act (WRTK) (HB 197 O.C.G.A. § 31-9A-1), which included mandatory counseling and a 24-hour waiting period as preconditions to abortion. We performed logistic regression analysis using ten years of Induced Termination of Pregnancy data (2000-2009) from the Georgia Department of Public Health to determine whether the implementation of WRTK is associated with a delay in the timing of abortion. We found that WRTK had a statistically significant effect in increasing the number of second trimester abortions in Georgia.

Second trimester abortions are detrimental to the health of the women due to the increased medical risks of abortion with each week of pregnancy. Risks include bleeding, infection, and infertility. For every 1,000 abortions performed after the implementation of WRTK, our research suggests that there will be an additional 14 second trimester abortions that would have previously occurred in the first trimester. The effect we observed persisted under different model specifications and is greater for minors, minority women, and those living outside of metro-Atlanta. These findings suggest that the policies implemented by the WRTK have created a more risky environment for Georgia women seeking abortion.

WOMEN'S RIGHT TO KNOW ACT INCREASES SECOND TRIMESTER ABORTION IN GEORGIA

BY

NICOLE LEVIDOW

BACHELOR OF ARTS

EMORY UNIVERSITY

2012

THESIS COMMITTEE CHAIR: LAURA M. GAYDOS, PhD

A THESIS SUBMITTED TO THE FACULTY OF THE
ROLLINS SCHOOL OF PUBLIC HEALTH OF EMORY UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE IN PUBLIC HEALTH
IN HEALTH POLICY AND HEALTH SERVICES RESEARCH

2012

ACKNOWLEDGEMENTS

THANK YOU TO DR. LAURIE GAYDOS AND TO ALEX AND LAURA.
THEIR GUIDANCE, FEEDBACK, AND SUPPORT HAS BEEN INVALUABLE.
I AM GRATEFUL FOR THEIR PATIENCE, PRAISE, CRITICISM, AND KEEN INSIGHTS INTO THE
WORLD OF DATA ANALYSIS.

THANK YOU TO DR. MICHAEL KRAMER AND TO SARAH BLAKE.
THEIR SKILLS AND INSIGHTS HAVE BEEN INSTRUMENTAL IN THE COMPLETION OF THIS
THESIS.

THANK YOU TO KATHY WOLLENZIEN.
FOR BELIEVING IN ME FROM DAY ONE.

THANK YOU TO THE BROYDE FAMILY
FOR THEIR TREMENDOUS SUPPORT AND KINDNESS.

AND FINALLY, THANK YOU TO MY PARENTS, TO MY GRANDPARENTS, AND FAMILY
FOR ENCOURAGING ME TO PURSUE MY DREAMS.

TABLE OF CONTENTS

1. INTRODUCTION.....	10
2. LITERATURE REVIEW.....	11
MANDATORY COUNSELING AND 24-HOUR WAITING PERIOD.....	12
PARENTAL NOTIFICATION.....	12
MEDICAL RISKS.....	13
CONCEPTUAL FRAMEWORK.....	14
RESEARCH QUESTION AND HYPOTHESIS.....	15
3. METHODOLOGY.....	15
DATASET.....	15
DEPENDENT VARIABLE.....	16
KEY INDEPENDENT VARIABLE.....	16
DEMOGRAPHIC VARIABLES.....	17
GEOGRAPHIC VARIABLES.....	18
DATA ANALYSIS.....	18
4. RESULTS.....	19
DESCRIPTIVE.....	19
BIVARIATE ANALYSIS RESULTS: FIRST VS SECOND TRIMESTER.....	22
5. DISCUSSION.....	24
SUMMARY.....	24
LIMITATIONS.....	25
FUTURE RESEARCH.....	26
6. CONCLUSION.....	28
REFERENCES.....	29
APPENDIX.....	32

LIST OF TABLES

1. TABLE 1. PROPORTION OF ABORTIONS PERFORMED IN THE FIRST AND SECOND TRIMESTER BY TIME PRECEDING WRTK AND TIME FOLLOWING WRTK..... 20
2. TABLE 2: DEMOGRAPHIC AND GEOGRAPHIC CHARACTERISTICS OF ALL ABORTIONS PERFORMED IN THE FIRST AND SECOND TRIMESTER, GEORGIA RESIDENTS..... 20
3. TABLE 3: THE OBSERVED AND ADJUSTED PROPORTIONAL IMPACT OF WRTK ON SECOND TRIMESTER ABORTION..... 23
4. TABLE 4: ODDS RATIOS OF SECOND TRIMESTER ABORTION..... 24

LIST OF FIGURES

1. CONCEPTUAL FRAMEWORK..... 14

2. GRAPH 1: GEORGIA ABORTION RATE PER 1,000 (2000-2009)..... 21

3. GRAPH 2: PERCENTAGE OF SECOND TRIMESTER ABORTION PER TOTAL ABORTIONS
IN GEORGIA..... 22

1. INTRODUCTION

In the past decade, state-based abortion legislation that imposes preconditions to abortion has become nationally prevalent. Currently 35 states have legislation that require a woman to receive mandatory counseling prior to receiving an abortion, 26 require a waiting period between counseling and abortion (most often 24 hours), and 37 states require some form of parental involvement for minors seeking abortion. Consistent with this trend, in 2005, Georgia implemented the Women's Right to Know Act (WRTK), which enacted mandatory counseling with a 24-hour waiting period as a precondition of abortion for all women and increased the stringency of parental notification laws for minors.

This paper explores the consequences and health implications of WRTK on Georgia residents. We specifically seek to understand whether the policy has led to women delaying the timing of their abortion and whether it has ultimately resulted in an increase in second trimester abortions. Second trimester abortions have medical risks that exceed that of first trimester abortion (Bartlett, Berg et al. 2004). An increase in percent of second trimester abortions would indicate that the implementation of the policy has resulted in more risky abortions and has ultimately created less safe conditions for women to undergo abortion in Georgia. Of particular interest, is the impact of the policy on minors and women of low-socioeconomic status. These populations tend to be more vulnerable in general, and we seek to understand whether they are disproportionately affected by this policy.

2. LITERATURE REVIEW

INTRODUCTION

Abortions in Georgia have increased 18 percent since 2005, while the national rate has remained constant. Abortion touches the lives of many women in Georgia: eighteen percent of Georgia pregnancies result in abortion, at a rate of 19.2 abortions per 1,000 women of reproductive age (Guttmacher Institute 2011). Women face many barriers in accessing abortion services including difficulty in making arrangements for abortion, deciding whether to follow-through with the procedure, and in initially determining pregnancy (Guttmacher Institute 2011). There are only 32 abortion providers in the state of Georgia and 94 percent of counties in Georgia have no abortion provider. As a result, the 57 percent of Georgia women who live in these counties face even greater difficulty in obtaining an abortion (Guttmacher Institute 2011). Although 88 percent of abortions occur in the first trimester, studies have found that 58 percent of all women who receive an abortion would have liked to do so earlier in the pregnancy (Joyce, Henshaw et al. 2009; Guttmacher Institute 2011). However, evidence shows that teens are more likely to delay having an abortion until past 15 weeks of pregnancy than older women to delay or avoid parental involvement and that women of low socioeconomic status are twice as likely to have difficulty making arrangements for abortion (Finer, Frohwirth et al. 2006; Joyce, Henshaw et al. 2009; Guttmacher Institute 2011).

The Georgia Women's Right to Know Act (WRTK) is a state-level policy that requires women seeking abortions in Georgia to receive mandatory counseling 24-hours prior to the abortion procedure and imposes strict parental notification laws on minors. Prior to WRTK, Georgia law did not require prior counseling and women could receive an abortion immediately upon request (Official Code of Georgia Assembly 2005).

Additionally, individuals accompanying minors to the procedure did not need to provide proof of identification and could act in *loco parentis*¹ for the minor. This allowed Georgia minors to circumvent parental involvement when it was problematic. For many women intent on aborting their pregnancies, these new policies complicate an already difficult situation.

MANDATORY COUNSELING AND 24-HOUR WAITING PERIOD

The scientific literature on mandatory counseling and 24-hour waiting periods is limited because these policies are so new their effects have not yet been studied. However, the limited literature indicates that mandatory counseling and 24-hour waiting periods that require multiple visits to the abortion clinic have led to increased second trimester abortion in other states (Joyce, Henshaw et al. 2009). This is likely attributed to the increased burden that results from needing to visit an abortion clinic twice, which is especially great for minors, women of low-socioeconomic status, and women in rural counties. However, many of these studies examining mandatory counseling have fundamental limitations, such as incomplete data and failure to control for confounding factors (Joyce, Henshaw et al. 2009). The Guttmacher Institute suggests that future research should have a straightforward design and show trends in outcomes among those who were exposed and unexposed both before and after the implementation of the policy (Joyce, Henshaw et al. 2009).

PARENTAL NOTIFICATION

¹ Latin for in the place of the parent

A study examining Mississippi's abortion laws show that parental notification and mandatory counseling policies in Mississippi were independently associated with an increase in second trimester abortion (Joyce and Kaestner 2000). Second trimester abortions increased by 53 percent among women whose closest abortion provider was in Mississippi. In contrast, second trimester abortions increased by only 8 percent among women whose closest abortion provider was outside of the state (Joyce and Kaestner 2000). A study of Arkansas's abortion policy found that minors with judicial bypass received an abortion 1.1 weeks earlier than minors without judicial bypass (Joyce 2010). Both studies found that these parental notification laws did not decrease the number of minors receiving abortions (Joyce and Kaestner 2000; Joyce 2010).

Additionally, a study in Texas found that second trimester abortion increased by 21 percent among minors who conceived just prior to their 18th birthdays.. These teenagers waited to receive an abortion until after their 18th birthday in order to bypass the requisite parental involvement (Colman and Joyce 2009). An observational study in Texas showed that minors who were pregnant 3-6 months before their birthday were more likely than those who conceived after 18 years of age to have an abortion in the second trimester (Guttmacher Institute 2006).

MEDICAL RISKS

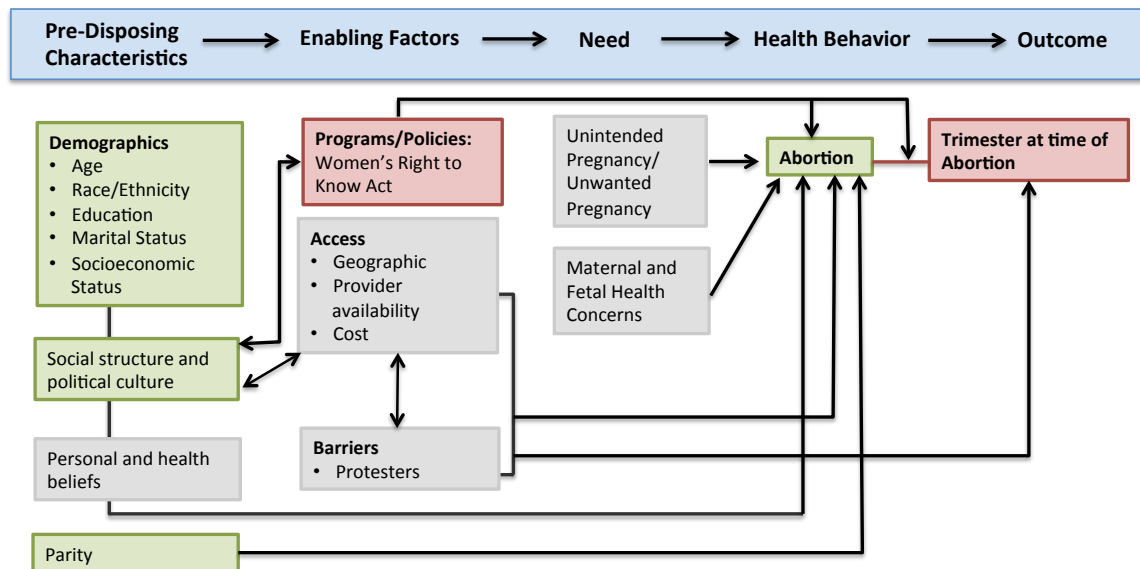
The risk of death to the mother at the time of abortion increases exponentially by 38 percent for each additional gestational week (Bartlett, Berg et al. 2004). Women who received second trimester abortions were significantly more likely to die of abortion-related causes than women who had an abortion at or before 8 gestational weeks (Bartlett). Additionally, evidence shows that 87 percent of deaths in women who had an

abortion after 8 gestational weeks may have been avoidable if performed prior to 8 gestational weeks (Bartlett).

The medical risks of abortion increase with each additional week of pregnancy. Risks include infertility, infection, incomplete abortion, bleeding, cut or torn cervix, perforation of womb-walls (Georgia Department of Public Health 2005). As the pregnancy progresses, the fetus is larger and more developed, and, therefore, the abortion procedure is necessarily more invasive and complex (Healthwise Staff 2010). Second trimester abortions are performed through dilation and evacuation, a surgical procedure, whereas first trimester abortions are usually performed with oral medication or vacuum aspiration (Healthwise Staff 2010).

CONCEPTUAL FRAMEWORK

This analysis is based on the following conceptual model, which seeks to capture the relationship between the observable and unobservable factors that influence abortion and its timing.



We categorized these factors based on the conceptual framework established in Andersen's Initial Behavioral Model (1960) and Phase 4 of Andersen's Initial Behavioral Model (Grimes 2006). The categories include: pre-disposing characteristics for terminating pregnancy, enabling factors for terminating pregnancy, need for terminating pregnancy, health behavior for terminating pregnancy, and outcome. The red-colored boxes indicate the key independent and dependent variable. The green-colored boxes indicate the variables that are measured and are controlled in our analysis. The gray-colored boxes indicate the variables that we could not measure in our analysis.

RESEARCH QUESTION AND HYPOTHESES

This research examines whether WRTK has led to an increase in second trimester abortions in Georgia and whether the legislation has had a greater impact on minors and women of low-socioeconomic status. The main research question is:

Q: Has the Women's Right to Know Act led to an increase in the number of second trimester abortions performed in Georgia?

H₁: The Women's Right to Know Act has led to an increase in the number of abortions performed in the second trimester in Georgia.

H_{1a}: The impact of the Women's Right to Know Act is greater among women of low-socioeconomic status, minority women, and minors receiving abortions in Georgia.

3. METHODOLOGY

DATASET

We used ten years (2000-2009) of Georgia Induced Termination of Pregnancy (ITOP) data to examine the impact of WRTK on the timing of abortions in Georgia. The ITOP dataset contains the vital health records of women who received an abortion in Georgia with detailed demographic information as reported on the official ITOP certificate. The data is collected by the Georgia Department of Public Health as required by Georgia law. Our data request was approved by the Georgia Department of Public Health following expedited approval of the research study from the Emory University Institutional Review Board.

The dataset originally contained 332,998 observations. We limited our sample to Georgia residents who had an abortion in the first or second trimester (before 28 gestational weeks). We deleted 43,770 observations with missing data and 461 observations that occurred at 28 gestational weeks or later (in the third trimester). This narrowed our sample size to 288,767 observations. We then deleted 33,094 observations that included non-Georgia residents. This resulted in our final sample size of 255,673 observations. We ran statistical tests to determine that the missing data was random and not a systematic error in data collection.

DEPENDENT VARIABLE

Trimester is the key dependent variable. It is a binary variable that indicates whether the abortion was performed in the first trimester (1-12 weeks) or second trimester (13-27 weeks).

KEY INDEPENDENT VARIABLE

WRTK Act is the pre-post dichotomous variable indicating the time before and after the policy was implemented. The policy took effect on May 10, 2005. Therefore, the ‘pre’ variable contains the years 2000 through May 9, 2005, before the policy was implemented; and the ‘post’ variable contains the years May 10, 2005 through 2009, after the policy was implemented. The ‘pre’ variable is used as the reference group in our analysis. This is our key independent variable.

DEMOGRAPHIC VARIABLES

Minor is a categorical variable indicating whether the woman is a minor (under 18 years of age) or is a legal adult (18 years of age or older). The reference variable for our analysis is legal adult, so we can understand the impact of WRTK on minors in particular.

Education is a categorical variable indicating the last grade that the woman completed. The variable is coded into four categories: Less than 9th grade, 9th-11th grade, high school diploma or GED, and some college or higher. In our analysis, we use ‘some college or higher’ as the reference group. This variable is our primary indicator of socioeconomic status, but it has limitations. It does not capture the socioeconomic status of those who are not old enough to have completed high school, but is an adequate measure of socioeconomic status for those who are old enough to have completed high school.

Race is a dichotomous variable coded into two categories: African-American and White/other races. ‘White/other races’ is the reference group for our analysis.

Ethnicity is a dichotomous variable coded into two categories: Hispanic and non-Hispanic. This data is collected as a separate variable by the Georgia Department of

Public Health. Rather than combining ethnicity and race, we decided to keep them separate to understand the impact of the policies on Hispanic and African-American women individually. ‘Non-Hispanic’ women is the reference group in our analysis.

Marital Status is a dichotomous variable coded into two categories: married and unmarried. This variable indicates what the woman’s marital status was at the time of abortion. ‘Married’ women is the reference group.

First pregnancy is a dichotomous variable that indicates whether this was the woman’s first pregnancy and is coded as yes or no. The reference group is ‘not first pregnancy.’

GEOGRAPHIC VARIABLES

Travel outside of county is a dichotomous variable that indicates whether a woman had to travel outside of her county to receive an abortion. The variable is coded into two groups: yes or no. The reference group is ‘no,’ indicating that a woman did not travel outside of her county to receive an abortion, so we can see the impact of the policy on women who traveled outside of her county.

Residential County is a dichotomous variable that indicates whether the woman lives within the Atlanta Metropolitan Statistical Area (MSA) or lives outside of the Atlanta MSA. The variable of reference is ‘lives within the Atlanta MSA’.

Event County is a dichotomous variable that indicates whether the abortion was performed within the Atlanta MSA or outside of the Atlanta MSA. The reference variable is ‘performed within the Atlanta MSA.’

DATA ANALYSIS

After we received the dataset from the Georgia Department of Public Health, we imported the data into STATA 11.0 (StataCorp. 2009) for data cleaning and analysis. We deleted missing and incomplete data, recoded the data, and generated the *trimester* variable and *minor* variable. We calculated basic descriptive statistics for the variables to determine the demographics of the observations for the entire sample and for first and second trimester abortions separately (Table 1). We used a logit regression model to estimate our equation because our outcome variable is binary and the distribution around the error term is not normally distributed. The equation below demonstrates the analysis model.

$$[P (\textit{Second trimester}=1) = \beta_0 + \beta_1 \textit{WRTK Act} + \beta_2 \textit{Minor} + \beta_3 \textit{Education} + \beta_4 \textit{African American} + \beta_5 \textit{Hispanic} + \beta_6 \textit{Unmarried} + \beta_7 \textit{First pregnancy} + \beta_7 \textit{Traveled outside county for abortion} + \beta_8 \textit{Residential county outside Atlanta MSA} + \beta_9 \textit{Event county outside Atlanta MSA} + u].$$

4. RESULTS

DESCRIPTIVE STATISTICS

There were 255,673 abortions included in the population sample, 11.99 percent (30,644) of which were performed in the second trimester (Table 1). The majority of women in the sample were adults, unmarried, African-American, completed at least some college and this was not their first pregnancy. The mean age of the woman in the sample is 25.9 years (SD=6.3), with an age range of 10–55 years. The mean gestational age at time of abortion is 8.9 weeks (SD=3.4). Most women had to travel outside of their county of residence to receive an abortion, 87 percent of which were performed in the Atlanta Metropolitan Statistical Area. Table 2 shows the demographics of the sample that had a

first trimester abortion compared to the sample that had a second trimester abortion. The right-hand columns show the descriptive statistics for the entire sample population, numerically and in percentages. The base number used for percentages is total abortions. The chi-square test showed that there were statistically significant differences for each of the demographics between the first and second trimester at $p < 0.05$.

Table 1. Proportion of abortions performed in the first and second trimester by time preceding WRTK and time following WRTK

	1 st Trimester n=225,029	2 nd Trimester n=30,644	Total abortion n=255,673	
	%	%	%	#
Total	88.01	11.99	100	255,673
Before WRTK	88.44	11.56	59.18	151,310
After WRTK	87.4	12.6	40.82	104,363

Table 2. Demographic and geographic characteristics of all abortions performed in the first and second trimester, Georgia residents

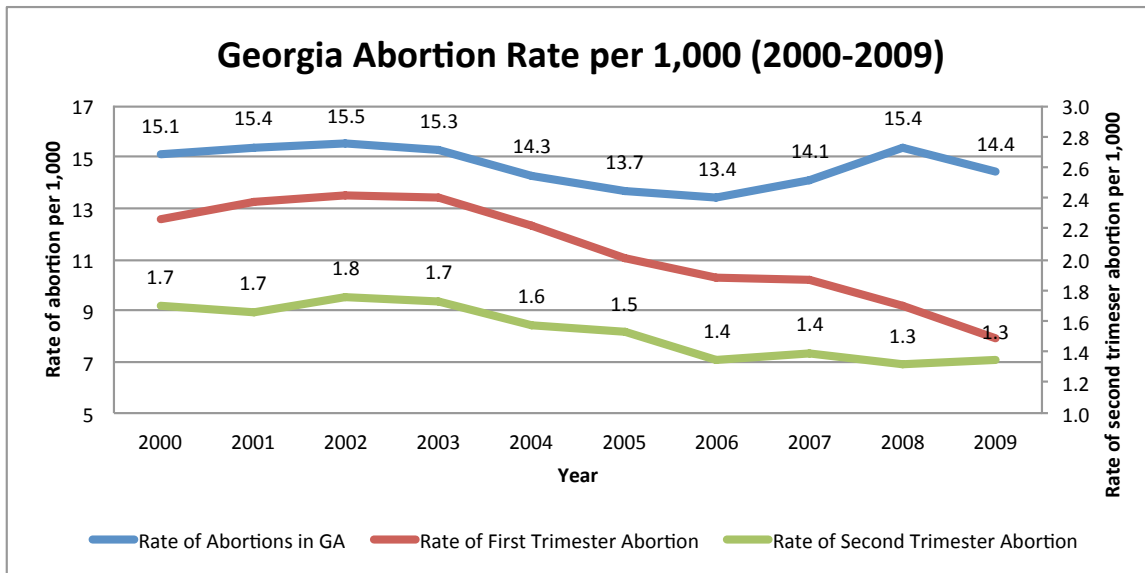
	1 st Trimester n=225,029	2 nd Trimester n=30,644	Total abortion n=255,673	
	%	%	%	#
Demographic Variables				
Minor	4.97	9.86	5.55	14,192
Adult	95.03	90.16	94.45	241,481
African American	57.63	63.11	58.29	149,030
Caucasian and other races	42.37	36.89	38.15	110,002
Hispanic	12.3	11.52	12.21	31,210
Unmarried	18.63	14.54	18.14	46,378
First pregnancy	26.48	28.22	26.69	68,227
Less than 9 th grade education	2.54	2.99	2.59	6,627
Some high school	10.52	16.07	11.18	28,590
Completed high school	40.02	43.45	40.43	103,376
Some college or more	46.92	37.58	45.79	117,080
Geographic Variables				
Traveled outside of county	72.21	77.81	72.88	186,345
Atlanta resident	68.36	66.75	68.17	174,284
Received abortion in Atlanta	81.98	89.98	82.93	212,042

*All variables are statistically significant $p < 0.005$

The graph below compares the abortion trends in Georgia and the United States from 2000-2009 (Bartlett, Berg et al. 2004). The green line indicates the national trend of

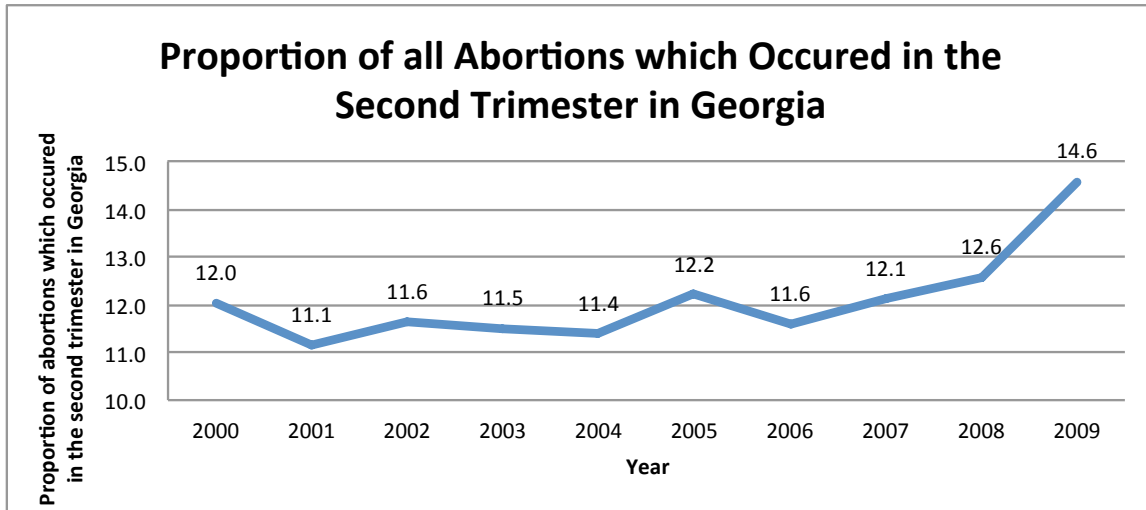
total abortions from 2000-2008 (data was not available for the year 2009). The blue line indicates the trend in Georgia of abortions from 2000-2009. The red line indicates the trend in second trimester abortions in Georgia.

Figure 1: Official Statistics from Georgia Department of Public Health (2000-2009)



Nationally, abortions have been steadily declining since 2000 with the exception of an uptick in 2006. In Georgia, the abortion rate has been decreasing from the years 2003-2006. However, after 2006 the number of abortions increased to its highest peak in the 10-year period, and then rapidly decreased from 2008-2009. The trend of second trimester abortions partially mirrors this trend. There is a notable increase and then decrease in abortions in 2008 and then 2009. This chart serves as a context to interpret the data.

Figure 2: Proportion of all abortions which occurred in the second trimester



BIVARIATE ANALYSIS RESULTS: FIRST VS. SECOND TRIMESTER

Results of our initial analysis show that before the passage of WRTK, the observed rate of first trimester abortions was 88.44 percent, and after the implementation, the observed rate of first trimester abortions was 87.4. However, after controlling for confounding factors our analysis revealed that the adjusted rate of first trimester abortions before the implementation of WRTK is 89.24 percent and after the implementation of WRTK is 87.94 percent (Table 3). Table 2 shows the adjusted analysis highlighted in blue, in contrast to the observed analysis in white. The marginal impact of WRTK is a 1.43 percent increase in second trimester abortions, which means that for every 1,000 abortions

there will be an additional 14 abortions in the second trimester that would have otherwise occurred in the first trimester.

Table 3. The Observed and Adjusted proportional impact of WRTK on second trimester abortion

	First trimester (%)		Second trimester (%)	
	Observed	Adjusted	Observed	Adjusted
Before WRTK	88.4	89.24*	11.56	10.63*
After WRTK	87.4	87.94*	12.6	12.06*

*Controlling for confounding variables; statistically significant at $p < 0.0001$

Therefore, we reject the null hypothesis and conclude that there has been an increase in second trimester abortions following the implementation of WRTK since the marginal effect of the policy is statistically significant. Table 4 presents the odds ratios, standard errors, and 95th percent confidence intervals for the results of the logit regression. We also found that minors, African-American women, and women with a high school education or less are more likely to receive an abortion in the second trimester than their counterparts (adults, other races, and women with a college education). African-American women were 32% more likely to have a second trimester abortion than women of other races; minors were 55% more likely than adults over 17 years of age to have a second trimester abortion; and those who have not completed high school were 64% more likely than those who completed some college to have a second trimester abortion. We did not find evidence for multiplicative interaction between women’s race, age, or education and implementation of WRTK, although the independent effect of WRTK combined with the higher prevalence of second trimester abortions among African American women means that the absolute burden (population attributable risk) of the policy was felt more strongly by African American women as compared to non-African-American women.

Table 4. Odds Ratios of Second Trimester Abortion

Variable (n= 255,029)	Odds Ratios	95% CI	P-Value
Demographic			
WRTK	1.14	(1.11; 1.16)	<0.001
Unmarried (ref: married)	1.2	(1.16; 1.24)	<0.001
Minor under 18 years (ref: adult, over 17 years)	1.55	(1.47; 1.64)	<0.001
First pregnancy (ref: not first pregnancy)	.96	(0.929; 0.987)	0.01
African American (ref: other races)	1.32	(1.28; 1.35)	<0.001
Hispanic (ref: not Hispanic)	.96	(0.92; 0.99)	<0.001
Education			
Less than 9 th grade	1.44	(1.33; 1.55)	<0.001
Some high school	1.64	(1.57; 1.713)	<0.001
Completed high school	1.3	(1.28; 1.356)	<0.001
Some college	(Ref 1.0)		
Geographic			
Travel outside county (ref: no travel)	1.16	(1.121; 1.191)	<0.001
Residential county Atlanta (ref: not Atlanta)	1.59	(1.54; 1.64)	<0.001
Abortion performed in Atlanta (ref: not in Atlanta)	0.36	(0.34; 0.373)	<0.001

5. DISCUSSION

SUMMARY

We found that the Women’s Right to Know Act (WRTK) was statistically significantly associated with the number of second trimester abortions in Georgia. For every 1,000 abortions performed after the implementation of WRTK, our research suggests that there will be an additional 14 second trimester abortions that would have previously occurred in the first trimester. Each year there are approximately 33,000 abortions in Georgia. Therefore, we expect that there will be additional 462 abortions each year in the second trimester. The effect persisted under different model

specifications and was strengthened when we stratified by demographic and geographic variables. This result confirmed our first hypothesis.

We also found that minors, African-American women, and women with a high school education or less are more likely to receive an abortion in the second trimester than their counterparts (adults, other races, and women with a college education) following the implementation of WRTK. The population impact of the policy was slightly greater in the African-American population because there are a disproportionate number of African-American women in the sample population. We fail to reject our second hypothesis because we saw a greater effect among minors, minority women, and those with a high school education or less. However, we did not find a multiplicative interaction effect of the WRTK on these populations.

LIMITATIONS

This analysis did face some limitations. We did not have a reliable indicator of socioeconomic status. Since we did not have data on income, we used ‘last grade completed’ to measure education, which is one recognized component of socioeconomic status. While education is an important component of socioeconomic status, the use of this proxy variable does not account for income and precluded us from knowing the socioeconomic status of women who are not yet old enough to have completed high school. However, since minors comprised only 6 percent of the sample population and over 55 percent of the sample population had a high school education or less, we can infer that there are a substantial number of adults old enough to have completed high school, but did not. Additionally, we were unable to include ‘year’ in our model. Since we only used ten years of data, the inclusion of a ‘year’ variable skewed our analysis and

did not detect any underlying national trends in our analysis. As a result, we were unable to detect other phenomena that may have contributed to our observed effect. Finally, since our data only contained observations of women who received an abortion, we are unable to evaluate how WRTK impacted women seeking abortion but who did not receive one after the required counseling and waiting period or precluded them from seeking abortion at all.

FUTURE RESEARCH

In 2007, WRTK was amended to require abortion providers to offer women the option of receiving an ultrasound and then to view the image of the fetus prior to an abortion. Future research should explore the effect of the 2007 Ultrasound Amendment to WRTK in order to understand the impact of this amendment on the timing of abortion and whether it has an effect independent of the mandatory counseling and 24-hour waiting period imposed by the initial 2005 law. Additionally, it would be ideal to examine the impact of abortion financing and the Hyde amendment on our observed impact of WRTK. Since 1976, the Hyde amendment has prohibited the use of federal funds for abortion. Women who receive insurance through Medicaid must pay for abortion out-of-pocket. We would like to understand if this policy contributed to our observed phenomena. We did not find evidence of multiplicative statistical interaction among African Americans and minors, it is possible that the interaction is additive. Future research should use additional modeling to determine whether there is an additive interaction. Finally, a qualitative component would provide a better context to the impact of the law. Interviews with women and providers might further elucidate the impact of this law on access.

Additionally, the Georgia legislature just passed HB 954 – a bill that, if signed into law by Georgia Governor Nathan Deal, will criminalize abortion after 20 gestational weeks. This bill does not provide exceptions for women who are victims of rape or incest. Georgia law currently allows women to receive late-term abortions in special cases, such as for mental-health related concerns. This bill does not allow mental health exceptions. Research should focus on the impact of this bill in the future, because it appears to have the potential to create new problems, rather than solve the ones revealed by this research.

Of the 332,998 women who had abortions in Georgia from 2000-2009, 11,883 abortions were performed from 20-27 weeks and 461 abortions were performed from 28-40 weeks (in the third trimester). In total 12,344 abortions, 3.7 percent of all abortions were performed from 20-40 weeks. The percentage of women that will be affected is relatively small. However, the implications of this policy for women of low-socioeconomic status are great.

Low-income women cite lack of financial resources as one of the primary reasons for delaying abortion (Finer, Frohwirth et al. 2006). Research indicates that 42 percent of women in the United States who receive abortions live below the Federal Poverty Line (FPL); and 27 percent of women who receive abortions live between 100-199 percent of the FPL (Guttmacher Institute 2011). This policy has the potential to increase socioeconomic disparities among women seeking abortion in Georgia, to increase the burden to Georgia's Medicaid and State Children's Health Insurance Program among women unable to terminate their pregnancy before 20 gestational weeks, and to increase

the number of illegal abortions among women unable to receive a legal abortion prior to 20 gestational weeks.

Our research is consistent with the limited body of abortion-policy literature. Previous research suggests that state-level abortion policies such as mandatory waiting periods obstruct access to abortion services (Joyce, Henshaw et al. 2009). They create an inherent obstacle for all women and are particularly burdensome to rural women and women of low-socioeconomic status. This increased difficulty is attributed to transportation issues, the burden in making childcare arrangements, and missing additional days at school or work (Joyce, Henshaw et al. 2009). WRTK has additionally increased the logistical obstacles women in these counties face in obtaining an abortion because they must visit the clinic twice: first to receive counseling and then to undergo the procedure.

Ultimately, our research suggests that WRTK puts women, especially minors, minority women, and women of low-socioeconomic status, at greater risk for the dangers associated with late-term abortion, including infertility, bleeding, and infection (Georgia Department of Public Health 2005; Healthwise Staff 2010). These findings suggest that the policies implemented by the WRTK have created a more risky environment for Georgia women seeking abortion. Additionally, since Medicaid does not pay for abortion low-income and uninsured women, the procedure must be paid for out-of-pocket. Second trimester abortion is more expensive than first trimester abortion and creates an added burden for these vulnerable populations (Joyce, Henshaw et al. 2009).

6. CONCLUSION

The Women's Right to Know Act, like many other state-based abortion policies, complicate an already a highly difficult and complex personal matter. The results of this

study indicate that the implementation of the policy has resulted in more risky abortions and has ultimately created less safe conditions for women to undergo abortion in Georgia. Its stipulations are associated with a delay in the timing of abortion and our research shows that they do not affect all women equally. For minors, rural women, and women of low-socioeconomic status especially, the policy creates an excessive burden and puts them at disproportionate risk for negative health consequences.

REFERENCES

- Bartlett, L., C. Berg, et al. (2004). "Risk factors for legal induced abortion-related mortality in the United States." Obstet Gynecol **April 103**(4): 729-737.
- Colman, S. and T. Joyce (2009). "Minors' Behavioral Responses to Parental Involvement Laws: Delaying Abortion Until Age 18." Perspectives on Sexual and Reproductive Health **41**(2).
- Finer, L. B., L. F. Frohworth, et al. (2006). "Timing of steps and reasons for delays in obtaining abortions in the United State." Elsevier **74**: 334-344.
- Georgia Department of Public Health (2005). "Abortion: A Woman's Right to Know: Patient Education Booklet." Retrieved September, 2011, from <http://health.state.ga.us/wrtk/patienteducation.asp - medicalrisks>.
- Grimes, D. (2006). "Estimation of pregnancy-related mortality risk by pregnancy outcome, United States, 1991 to 1999." Am J Obstet Gynecol. **Jan 184**(1): 92-94.
- Guttmacher Institute (2006). "Under Texas Parental Notification Law, Minors' Abortion Rate Falls, but Risk of Late Abortion Rises." Perspectives on Sexual and Reproductive Health **38**(2).
- Guttmacher Institute (2011). "Counseling and Waiting Periods for Abortion." State Policies in Brief. Retrieved September, 2011, from http://www.guttmacher.org/statecenter/spibs/spib_MWPA.pdf.
- Guttmacher Institute (2011). "Facts on Induced Abortion in the United States." In Brief: Fact Sheet. Retrieved April, 2012, from http://www.guttmacher.org/pubs/fb_induced_abortion.html.
- Guttmacher Institute (2011). "State Facts About Abortion: GEORGIA." Retrieved September, 2011, from <http://www.guttmacher.org/pubs/sfaa/georgia.html>.
- Healthwise Staff (2010). "Dilation and Evacuation (D&E) for Abortion." Retrieved September, 2011, from <http://women.webmd.com/dilation-and-evacuation-de-for-abortion>.
- Joyce, T. (2010). "Parental Consent for Abortion and the Judicial Bypass Option in Arkansas: Effects and Correlates." Perspectives on Sexual and Reproductive Health **42**(3).
- Joyce, T. and R. Kaestner (2000). "The Impact of Mississippi's Mandatory Delay Law on the Timing of Abortion " Family Planning Perspectives **32**(1): 4-13.
- Joyce, T. J., S. K. Henshaw, et al. (2009). "The Impact of State Mandatory Counseling and Waiting Period Laws on Abortion: A Literature Review." from <http://www.guttmacher.org/pubs/MandatoryCounseling.pdf>.

Official Code of Georgia Assembly (2005). Women's Right to Know Title 31 Chapter 9A.

StataCorp. (2009). Stata Statistical Software: Release 11. College Station, TX, StataCorp LP.

APPENDIX

