



## Factors associated with abortion at 12 or more weeks gestation after implementation of a restrictive Texas law <sup>☆,☆☆</sup>

Vinita Goyal <sup>a,\*</sup>, Robin Wallace <sup>b</sup>, Amna I. Dermish <sup>c</sup>, Bhavik Kumar <sup>d</sup>, Ann Schutt-Ainé <sup>d</sup>, Anitra Beasley <sup>d</sup>, Abigail R.A. Aiken <sup>a,e</sup>

<sup>a</sup> Population Research Center, University of Texas at Austin, Austin, TX, United States

<sup>b</sup> Southwestern Women's Surgery Center, Dallas, TX, United States

<sup>c</sup> Planned Parenthood of Greater Texas, Austin, TX, United States

<sup>d</sup> Planned Parenthood Gulf Coast/Planned Parenthood Center for Choice, Houston, TX, United States

<sup>e</sup> LBJ School of Public Affairs, University of Texas at Austin, Austin, TX, United States

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### ABSTRACT

**Objective:** To examine factors associated with obtaining abortion at 12 or more weeks gestation in Texas after implementation of a restrictive law.

**Study design:** In this retrospective cohort study, we collected data from eight Texas abortion clinics that provided services at 12 or more weeks gestation from April 1, 2015 to March 30, 2016, after a restrictive abortion law enacted in November 2013 shuttered many of the state's clinics. We examined factors associated with obtaining in-clinic abortion services between 3–11 versus 12–24 weeks gestation including patient race-ethnicity, income level, and driving distance to the clinic using chi-square tests and calculating odds ratios. We further subcategorized abortion between 15–24 weeks to determine who may be most affected by a Texas law banning dilation and evacuation (D&E).

**Results:** Among 24,555 in-clinic abortions, 19.2% ( $n = 4,714$ ) occurred at 12 or more weeks gestation. Compared to patients who obtained care between 3–11 weeks, those who obtained care at 12 or more weeks were more likely to be Black than White (OR 1.18; 95% CI 1.05–1.31), live  $\leq 110\%$  of the federal poverty level than have higher income (OR 2.09; 95% CI 1.94–2.26), and drive 50+ miles than 1–24 miles to obtain care (OR 1.25; 95% CI 1.15–1.38). These associations remained for those obtaining care between 15–24 weeks. Even after adjusting for race-ethnicity and driving distance, low-income patients had greater odds of obtaining care in between 15–24 weeks (aOR 1.52; 95% CI 1.21–1.91).

**Conclusions:** Patients obtaining abortion at 12 or more weeks gestation in Texas are more likely to be Black, low-income, and travel far distances to obtain in-clinic care.

**Implications:** In Texas, patients who are Black, low-income, and travel the farthest are more likely to obtain in-clinic abortion between 15–24 weeks gestation, commonly performed via D&E. If Texas Senate Bill 8 (SB8) banning D&E goes into effect, these patients may be prevented from obtaining care.

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### 1. Introduction

In the United States, second-trimester abortion is relatively uncommon. Only 12% of abortions occur beyond 12 weeks gestation nationally [1]. Yet, in Texas, the proportion of abortions performed after 12 weeks gestation has increased. In 2013, the Texas state legislature passed House Bill 2 (HB2), a restrictive abortion law which shuttered many of the state's 41 abortion clinics leaving only 19 after it went into effect in November 2013 [2]. As a result, abortions at 13 weeks gestation or more in Texas increased 27% (from 4814 in 2013 to 6117 in 2014) [3]. In the 12 months immediately after HB2 went into effect, the odds of

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\* Corresponding author.

E-mail address: [vinitagoyalmd@gmail.com](mailto:vinitagoyalmd@gmail.com) (V. Goyal).

having an abortion at 12 or more weeks gestation was greater among patients whose nearest abortion clinic was 50–99 versus less than 10 miles away, whose geographic region had fewer clinics, and among those who had longer wait times for an initial appointment [4].

Legislative barriers that delay patient care into the second trimester are problematic because these procedures are more expensive, often require cervical preparation necessitating a longer procedure and potentially multiple clinic visits, and carry greater risk of blood loss and cervical trauma compared to first-trimester aspiration abortion [5,6]. Furthermore, Texas law requires that abortion beyond 18 weeks gestation be performed in ambulatory surgery centers (ASCs) additionally limiting accessibility.

In 2017, the Texas state legislature passed Senate Bill 8 (SB8) banning dilation and evacuation (D&E), the most common and safest procedure for second-trimester abortion [7]. Specifically, use of forceps prior to fetal demise was prohibited [8]. A U.S. District Court ruling has halted SB8 from going into effect. However, a decision from the 5th Circuit Court of Appeals is pending leaving a potential pathway for the Texas law to be enacted.

Given the increase in second-trimester abortions in Texas, along with the potential for further legislative restrictions, our objective was to determine which patients may be most affected if SB8 is enacted. Specifically, we evaluated factors associated with receipt of abortion at 12 or more weeks gestation in Texas including patient race-ethnicity, income level, and driving distance to the clinic where care was obtained.

## 2. Material and methods

In this retrospective cohort study, we collected data from eight Texas abortion clinics for one year while HB2 was in effect, April 1, 2015 to March 30, 2016. We included clinics that provided second-trimester abortions and had electronic databases containing patient demographic and clinical information described below. Our sample comprised two clinics in both Fort Worth and Dallas, and one clinic each in Austin, San Antonio, McAllen, and Houston. Our study sites represented 8 of the 18 clinics, including 6 of 9 ASCs, open in Texas during this time. We included all cities with an ASC, which was legally necessary for provision of care between 18–24 weeks gestation in Texas.

The University of Texas at Austin Institutional Review Board approved this study and research departments of included clinics (if in existence, prior to data collection) agreed to participate.

Each clinic generated a de-identified list of all patients who obtained an abortion along with the patient zip code, race-ethnicity, and weeks gestation (by ultrasound dating) at time of care from their electronic medical record databases. One Dallas clinic did not have race-ethnicity data available. For income level, we were able to collect data on whether each patient met criteria for funding assistance for abortion, defined as living at or below 110% of the federal poverty level, for all clinics except Houston. Among clinics with income level information, three of these (in Austin, Fort Worth, and Dallas) had nearly complete information on each patient's monthly income and household size. We did not collect information on patient age. We also did not collect data on prior pregnancies which were not easily accessible from clinic databases.

Our primary outcome was abortion occurring between 12–24 weeks gestation, compared to 3–11 weeks gestation, to be consistent with another Texas-based study [4]. Since the need to use forceps generally begins around 15 weeks gestation and abortions beyond 18 weeks are mandated to occur in an ASC in Texas, we sub-categorized abortions as 12–14 weeks, 15–17 weeks, and 18–24 weeks gestation. Although, one component of HB2 included a

20 week post-fertilization abortion ban, there are exceptions for some maternal and fetal indications allowing abortion up to 24 weeks gestation.

We categorized patient race-ethnicity in accordance with requirements of the Texas Department of State Health Services Induced Abortion Report Form. Abortion providers in Texas are mandated to report details of each abortion provided at their facility via this form in which only one race or ethnicity; White, Black, Hispanic, Asian, Native American, or Other, can be selected. Given the low numbers in each of the latter three categories, we combined "Other" to also include Asian and Native American.

We categorized income level according to a patient's qualification for abortion funding assistance with low-income as  $\leq 110\%$  of the federal poverty level and higher-income as  $>110\%$ . For the three clinics with nearly complete family size and monthly income data, we calculated federal poverty level and created categories of  $<100\%$ , 100–199%, and  $\geq 200\%$ .

We calculated the driving distance between the centroid latitude and longitude coordinates of the patient's zip code and that of the clinic where care was obtained using Google API. We then categorized patient driving distances as 1–24, 25–49, 50–99, or 100+ miles from the clinic. We excluded patients residing outside of Texas from this analysis.

We calculated the number of abortions for every combination of gestational age group (3–11 weeks, 12–14 weeks, 15–17 weeks, and 18–24 weeks), race-ethnicity, income level, and driving distance variable. We reported column percentages in the table describing our study population and used chi-squared tests to evaluate differences in each independent variable. We reported row percentages in the text to identify differences in the proportion of patients obtaining abortion at 12 or more weeks [9]. We calculated odds ratios with 95% confidence intervals to describe the association between each independent variable and abortion at 12–24 vs.  $\leq 11$  weeks and 15–24 vs.  $\leq 14$  weeks. We then created multivariable logistic regression models to examine the relationship between abortion at the same gestational age groups adjusted for race-ethnicity, income level, and patient driving distance.

We performed all quantitative analyses using STATA version 14 and considered a  $p$ -value  $<0.05$  as significant.

## 3. Results

We collected data on 24,555 abortion cases, including 2635 (10.7%) at 12–14 weeks gestation, 1294 (5.3%) at 15–17 weeks, and 785 (3.2%) at 18–24 weeks. Table 1 presents the characteristics of the study population. The unadjusted odds of obtaining an abortion between 12–24 vs.  $\leq 11$  weeks gestation and 15–24 vs.  $\leq 14$  weeks gestation by race-ethnicity, income level, and patient driving distance are presented in Table 2. Results of multivariable logistic regression are also listed in Table 2.

Black patients were most likely to obtain an abortion at 12 or more weeks gestation compared to other racial-ethnic groups. Compared to patients of other race-ethnicities, Black patients also had the highest proportion of abortions between 15–17 weeks (6.2% Black vs. 5.4% White, 5.1% Hispanic, and 4.0% Other) and 18–24 weeks (3.1% Black vs. 2.6% White, 2.7% Hispanic, and 3.0% Other).

Compared to higher-income patients, low-income patients living at or below 110% of the federal poverty level had a higher proportion of abortions between 12–14 weeks (9.4% higher-income vs. 14% low-income), 15–17 weeks (3.6% vs. 7.2%), and 18–24 weeks (1.2% vs. 4.6%). Of the 5507 patients seen at the three clinics that had nearly complete family size and income data, 60% ( $n = 3315$ ) lived at  $<100\%$  of the federal poverty level, 22% ( $n = 1235$ ) between 100–199% of the federal poverty level, 14% ( $n = 785$ ) at  $\geq 200\%$  of

**Table 1**  
Characteristics of Texas patients having an abortion from April 1, 2015 to March 30, 2016.

	Total	3–11 Weeks Gestation Abortion	12–24 Weeks Gestation Abortion	<i>p</i> -value <sup>†</sup>
<b>Total</b>	24,555	19,841 (80.8)	4,714 (19.2)	
<b>Race-Ethnicity*</b>				
White	3992 (26.6)	3155 (26.3)	837 (28.0)	
Black	3282 (21.9)	2502 (20.8)	780 (26.1)	
Hispanic	6747 (45.0)	5554 (46.3)	1193 (39.8)	
Other	976 (6.5)	792 (6.6)	184 (6.1)	<i>p</i> < 0.005
<b>Income Level**</b>				
≤110% fpl	9455 (53.5)	7020 (49.8)	2435 (67.5)	
>110% fpl	8232 (46.5)	7061 (50.2)	1171 (32.5)	<i>p</i> < 0.005
<b>Patient driving distance</b>				
1–24 miles	14,416 (58.7)	11,778 (59.4)	2638 (56.0)	
25–49 miles	6017 (24.5)	4846 (24.4)	1171 (24.8)	
50–99 miles	2153 (8.8)	1680 (8.5)	473 (10.0)	
100+ miles	1969 (8.0)	1537 (7.7)	432 (9.2)	<i>p</i> < 0.005

All data presented as *n* (%).

fpl = federal poverty level.

\* Race-ethnicity data unavailable from one Dallas site; 7838 (39.5%) missing for 3–11 weeks and 1720 (36.5%) missing for 12–24 weeks.

\*\* Houston clinic excluded since no income data available; 5760 (29.0%) missing for 3–11 weeks and 1108 (23.5%) missing for 12–24 weeks.

† *p*-values test for differences in the likelihood of obtaining abortion at 12–24 vs. 3–11 weeks gestation for each independent variable.

**Table 2**  
Odds of obtaining an abortion at 12–24 vs. ≤11 weeks and 15–24 weeks vs. ≤14 weeks among Texas patients from April 1, 2015 to March 30, 2016.

	12–24 vs. ≤11 weeks		15–24 vs. ≤14 weeks	
	Unadjusted OR (95% CI)	Adjusted OR <sup>^</sup> (95% CI)	Unadjusted OR (95% CI)	Adjusted OR <sup>^</sup> (95% CI)
<b>Race-Ethnicity*</b>				
White	ref	ref	ref	ref
Black	1.18 (1.05–1.31)	1.38 (1.19–1.59)	1.18 (1.00–1.39)	1.16 (0.92–1.47)
Hispanic	0.81 (0.73–0.89)	0.87 (0.77–0.98)	0.98 (0.84–1.13)	1.10 (0.91–1.35)
Other	0.88 (0.73–1.05)	0.94 (0.75–1.17)	0.87 (0.66–1.14)	0.84 (0.57–1.24)
<b>Income Level**</b>				
≤110% fpl	2.09 (1.94–2.26)	1.21 (1.06–1.38)	2.62 (2.33–2.95)	1.52 (1.21–1.91)
>110% fpl	ref	ref	ref	ref
<b>Patient driving distance</b>				
1–24 miles	ref	ref	ref	ref
25–49 miles	1.08 (1.00–1.16)	1.06 (0.93–1.20)	1.11 (1.00–1.23)	1.15 (0.94–1.40)
50–99 miles	1.26 (1.13–1.40)	1.32 (1.13–1.54)	1.18 (1.01–1.39)	1.40 (1.10–1.79)
100+ miles	1.25 (1.12–1.41)	1.30 (1.10–1.54)	1.48 (1.27–1.72)	2.05 (1.62–2.59)

ref = referent; fpl = federal poverty level.

\* Race-ethnicity data unavailable from one Dallas site.

\*\* Houston clinic excluded since no income data available.

<sup>^</sup> Multivariable model includes race-ethnicity, income level, and patient driving distance.

the federal poverty level, and 3% (*n* = 172) had missing data. Compared to those living at ≥200% of the federal poverty level, the lower-income groups had higher odds of abortion between 12–24 vs. ≤11 weeks gestation (OR 1.80, 95% CI 1.48–2.20 for <100% and OR 1.36, 95% CI 1.08–1.71 for 100–199% federal poverty level) and also between 15–24 vs. ≤14 weeks gestation (OR 1.87, 95% CI 1.32–2.66 for <100% and OR 1.27, 95% CI 0.85–1.91 for 100–199% federal poverty level).

Compared to patients with shorter driving distances, patients traveling 100+ miles to obtain care, had a higher proportion of abortions between 15–17 weeks (5% for 1–24 miles, 5.5% for 25–49 miles, 5.5% for 50–99 miles, 6.1% for 100+ miles) and 18–24 weeks (2.8% for 1–24 miles, 3.2% for 25–49 miles, 3.7% for 50–99 miles, 5.1% for 100+ miles).

#### 4. Discussion

In-clinic abortion availability is limited, care is delayed, and second-trimester abortion cases have increased in Texas since HB2 was enacted [3,4]. We found that Black and low-income

patients, as well as those with the farthest driving distance are more likely to receive in-clinic abortion at 12 or more weeks gestation in this environment. These same patients, who are also most likely to obtain care between 15–24 weeks gestation, may consequently be most affected if Texas Senate Bill 8 banning D&E goes into effect.

Our findings are consistent with national studies demonstrating that Black patients, those who qualify for funding assistance to pay for abortion services, and those living farther from the clinic where they obtained care were more likely to obtain second-trimester abortion [10,11]. Similarly, qualitative studies conducted among Texas patients seeking abortion after HB2 demonstrated that those whose nearest clinic closed were more likely to present in the second trimester [2,12]. Another study utilizing Texas vital statistics data found that patients living 50–99 miles from the nearest abortion clinic were more likely to obtain a second-trimester abortion compared to those living within 10 miles of a clinic [4].

Our study adds to the existing literature regarding who is more likely to obtain second-trimester abortion in Texas in the post-HB2 era by including a greater number of patients than those represented in qualitative studies and incorporating data not available

from state vital statistics. Namely, income and family size are not included in Texas state vital statistics. Using clinical data, we were able to evaluate the association between abortion at 12 or more weeks gestation and patient income level. Patient driving distances are also not included in state vital statistics data. Our results use actual patient driving distances, linking patients from where they lived to where they obtained care. Use of actual patient driving distances provides a more accurate picture about the impact of clinic closures on the accessibility of abortion care. Finally, by evaluating abortions between 12–24 weeks gestation in sub-categories, we were able to provide clinically relevant information about who might be most affected by a D&E ban.

Our study does not include all of the Texas clinics that provided abortion during this study time period, which may limit the findings. Our data represent 45% of the 54,310 abortions reported to the state in 2015, yet we captured 64% of abortions beyond 13 weeks gestation reported in that year. Our study sites include all Texas cities providing abortion care that met the requirements for an ASC and could provide care between 18–24 weeks gestation. The only Texas city with an open abortion clinic that was not represented in our study, El Paso, is located in far west Texas and did not provide services beyond 17 weeks. We also had missing race-ethnicity data for approximately 40% of patients included in this study since these data were not available from one site in Dallas. Dallas county has a higher Black population than the state of Texas overall, so we may have underestimated the odds of abortion at 12 or more weeks gestation among Black patients. Our results are also limited by missing income data (28%), yet we had fewer missing data for patients seeking care at 12 or more weeks gestation which is consistent with our results that patients obtaining care at later gestations were more likely to be poor and qualify for abortion funding assistance. Even though HB2 was ruled unconstitutional in June 2016, there are currently only 19 abortion facilities in Texas that provide services at 12 or more weeks gestation. As such, we believe our results hold true for the current state of in-clinic abortion availability in Texas.

Our results demonstrate that patients who likely face the greatest barriers in receiving in-clinic abortion care in Texas and obtain second-trimester abortion, particularly between 15–24 weeks

gestation, are Black, low-income, and drive 100+ miles to get care. It is these patients who may be most affected if SB8 banning D&E goes into effect leading to even greater health disparities among Texas women than currently exist.

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