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Passage of abortion ban and women's accurate understanding of abortion legality

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Abstract

Background: Legislative and judicial procedures related to banning abortion after six weeks of gestation in Ohio occurred from November 2018 to July 2019. These activities could have increased the belief that abortion has become illegal even though, to date, the six-week ban has never been in effect.

Objectives: We sought to determine the prevalence and correlates of holding the belief that abortion is illegal in Ohio and to evaluate whether this belief increased over the time period in which the six-week ban was introduced, passed twice, and then blocked in Ohio.

Study Design: We analyzed data from the first wave of the Ohio Survey of Women, a population-based survey of adult, reproductive-aged Ohioan women conducted from October 2018 to June 2019. During each of the 8 survey months, a median of 240 women (range, 70-761) completed the survey, including the survey question “Based on what you know or have heard, is it legal to get an abortion in your state?” We used multivariable logistic regression to assess the prevalence and correlates of believing that abortion is illegal in the state. We also used multinomial logistic regression to evaluate whether this belief increased over the interval during which women completed the survey, which roughly corresponded to the interval marked by legislative and judicial activity surrounding the six-week ban.

Results: Most of the 2,359 participants understood abortion is legal in Ohio (64.0%) with the remainder believing it to be illegal (9.8%) or being unsure (26.2%). Correlates of believing abortion to be illegal included younger age, lower socioeconomic status, never married or married status, and Black, non-Hispanic race/ethnicity. Being unsure about legality did not change over time; however, the proportion who believed that abortion is illegal increased from the first month (4.5%) to the last month (15.9%). Each additional study month was associated with a 17%

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increase in the odds of believing abortion to be illegal, in both unadjusted and adjusted models (odds ratio [OR], 1.17; 95% confidence interval [CI], 1.08-1.27)

Conclusions: Even if unsuccessful, attempts to restrict abortion access could contribute to women mistakenly believing that abortion is illegal.

Condensation:

Attempts to pass legislation to restrict abortion access could contribute to women mistakenly believing that abortion is illegal.

Keywords

Abortion; Knowledge; Legality; Women

Introduction

Under the 1973 Supreme Court decision *Roe v. Wade*, abortion is legal until viability, the point at which a fetus can sustain survival outside the womb.¹ Legislation and regulations restricting abortion are increasingly common in the United States, with 479 restrictions enacted in 33 U.S. states from 2011 through the first five months of 2019.² Commonly referred to as “TRAP” (targeted regulation of abortion providers), these regulations have imposed, for example, mandatory waiting periods and ultrasound viewing, third-party authorizations, and reporting requirements in cases of rape.³ Other legislation has involved bans on certain types of abortion, such as those sought because of fetal anomalies or after a certain gestational age.

The discourse and debate stirred up by proposed legislation can foster beliefs among the public that abortion has become illegal whether or not the legislation is enacted. Furthermore, some argue that abortion laws are written in ambiguous terms to discourage people from seeking an abortion.⁴ Individuals with an unintended pregnancy who are uncertain about the legality of abortion may not seek a procedure because they assume the procedure is not obtainable or out of fear of prosecution for seeking or procuring it. Others might delay in seeking timely care or assume a greater burden of long-distance travel due to the belief that abortion is illegal in their own state. Few studies have measured people’s knowledge of abortion legality in the U.S.⁵⁻⁷

During November and December 2018, the Ohio House and Senate, respectively, passed a ban on abortion performed after six weeks of gestation, which the governor immediately vetoed (Figure 1). After a change in the gubernatorial administration in January 2019, the Ohio legislature again passed the ban and it was signed into law in April 2019.⁸ Such “heartbeat bills” in other states have been struck down as unconstitutional under *Roe v. Wade*.⁹ Consistent with these prior rulings, a federal court blocked the Ohio law before it took effect. Our objectives were to determine the prevalence and correlates of holding the belief that abortion is illegal in Ohio and to evaluate whether this belief increased over the time period in which the six-week ban was introduced, passed twice, and then blocked in Ohio. Our hypothesis was that even though abortion has been and remains (at the time of this writing) legal up to 20 weeks of gestation in Ohio, the protracted legislative activity

surrounding the 6-week ban might have led people to believe that abortion was prohibited by law.

Material and Methods

Survey overview

We analyzed data from the first wave of the Ohio Survey of Women, a population-based survey on contraceptive use and reproductive health practices of adult, reproductive-aged women (18-44 years) in Ohio. Women in the present analysis were surveyed only once; we assessed population-level shifts in knowledge about abortion legality over the interval in which the survey was fielded, October 11, 2018 and June 13, 2019. The survey employed the same methodology as similar surveys in several other states.¹⁰ NORC at the University of Chicago conducted the survey and their institutional review board (IRB) approved it. The Ohio State University IRB determined the present analysis of deidentified data to be exempt from review. Women provided consent before participation.

The survey used a multimodal design, in which households were randomly selected from a sampling frame consisting of households that received mail in June 2018 according to the computerized delivery sequence (CDS) file of the United States Postal Service. NORC appended area-level demographic information from the American Community Survey (ACS) onto the geocoded households before matching the address frame to a list of addresses identified by Marketing Systems Group as likely containing women 18-44 years of age. NORC then oversampled women who were on both the CDS and the age-targeted lists. NORC recruited women 18-44 years of age in the randomly selected households via a letter sent through the postal service and asked them to complete the online questionnaire through a secure, web-based system. Non-respondents were sent a paper survey to complete. Women in the 31 counties that comprise rural Appalachia region of Ohio were oversampled by ~60%. The expected survey response rate was 26.5% with a target sample size of 2,000; however, the actual survey response rate was 33.5% with a total of 2,529 participants completing the survey. For all analyses, we used statistical weights provided by NORC to adjust for the probabilities of selection, non-response, and post-stratification imputation and raking, which were based on Ohio demographics from the ACS.

Beliefs about abortion illegality in Ohio

To measure understanding of abortion legality, we used the question “Based on what you know or have heard, is it legal to get an abortion in your state?” with response options “yes,” “no,” “don’t know/not sure” and “decline.” We excluded participants who declined to answer or who had no response. We evaluated the following demographic factors as potential correlates of believing abortion to be illegal: age, socioeconomic status (four-level composite variable based on educational level and income), marital status (never married vs. married vs. separated, widowed, or divorced), race/ethnicity (non-Hispanic black vs. other), and region of residence (rural Appalachia vs. all other areas). We included rural Appalachia because of its unique identity in the state, often viewed as a culturally distinct and insular region.¹¹ Rural Appalachian counties are economically depressed and its residents consistently have been shown to have worse health access compared to those

in rural non-Appalachian areas in the state.¹² We used derived variables that NORC created using hot-deck imputation to fill in missing data for age (n=31), socioeconomic status (n=290), marital status (n=32) and race/ethnicity (n=9). We conducted logistic regression with each potential correlate in an individual model with the outcome of believing abortion to be illegal; we then fit a multivariable model with all selected factors.

For the primary analysis of the trend over time in women's beliefs about abortion legality, we treated the independent variable, month, as a continuous variable in unadjusted and adjusted multinomial logistic regression models. To represent historical time, we created a continuous variable for the eight months during which participants completed the survey (e.g., month 1 consisted of October 11, 2018 to November 10, 2018). We excluded data captured after June 10, 2019 given that few surveys (n=5) were collected after that date. We first estimated the unadjusted trend, and then repeated the analysis with adjustment for age, social economic status, marital status, region of residence, and race/ethnicity. As a secondary analysis, we used multinomial logistic regression with indicator variables for the 8 months to estimate changes over time in the odds of believing abortion to be illegal or being unsure ("don't know/not sure") compared to the reference of believing abortion to be legal.

Media exposure

To illustrate the potential exposure to media coverage of the 6-week ban in Ohio, we used NewsBank, a database of media reports (e.g., newspaper titles, newswires, transcripts, and periodicals),¹² to quantify the number of news reports related to abortion in Ohio during the eight months in which the Survey was fielded. Specifically, we searched NewsBank for reports in the U.S. with the terms "abortion" and "Ohio" in the headline. We reported the number of reports published each month as well as the cumulative number of reports published between the start of data collection (October 11, 2018) and the end of each month.

Results

Overall, 2,529 women completed the survey. We excluded respondents who declined to answer (n=19) or provided multiple responses to the legality question (n=3), were missing the survey date (n=143), or answered the survey after June 10, 2019 (n=5); thus, the final analytic sample consisted of 2,359 women. Weighted to reflect women aged 18-44 years in Ohio, nearly half (44.5%) of women were 18-29 years of age, and 45.5% were in the lowest socioeconomic status category (i.e., had some college or less and an annual household income of <\$75,000) (Table 1). Most women identified as white, non-Hispanic (75.6%) with a smaller proportion identifying as Black, non-Hispanic (13.8%). Over the study period, most women reported abortion in Ohio to be legal (64.0%) with the remaining reporting it to be illegal (9.8%) or responding that they were unsure (26.2%).

In the unadjusted and adjusted analyses, each of the demographic factors evaluated were associated with believing abortion to be illegal in Ohio except for region of residence (Table 2). In the adjusted analysis, women who were 18-29 years of age had an odds of believing abortion to be illegal 1.28 times (95% confidence interval [CI], 1.27-1.30) that of women who were 40-44 years of age. Those in the lowest socioeconomic status category had higher odds of believing abortion to be illegal compared to those in the highest

category (adjusted odds ratio [aOR], 1.25; 95% CI, 1.24-1.27). Compared to those who were separated, divorced or widowed, women who were never married (aOR, 1.29; 95% CI, 1.26-1.32) or married (aOR, 1.32; 95% CI, 1.29-1.34) also had a higher odds of believing abortion to be illegal. Finally, Black, non-Hispanic women had an odds of believing abortion to be illegal 1.31 times (95% CI, 1.30-1.33) that of women who were non-Black.

Turning to the main concern in this research, the proportion of women believing abortion is illegal increased over the eight months of the survey (Figure 2), from 4.5% in the first month to 15.9% in the last month. The percentage who were unsure about the legal status of abortion in Ohio remained essentially unchanged.

In the multinomial logistic regression models with month modelled as a continuous predictor, we found no change over the eight study months in the odds of women being unsure about abortion legality, compared to believing abortion to be legal, in the unadjusted (OR, 0.98; 95% CI, 0.93-1.04) and adjusted models (aOR, 0.97; 95% CI, 0.92-1.03). However, believing that abortion is illegal increased over time: each additional month in the study was associated with a 17% increase in the odds of believing abortion to be illegal, compared to believing abortion to be legal, in both unadjusted and adjusted models (OR, 1.17; 95% CI, 1.08-1.27).

The adjusted multinomial models with month modelled as an indicator variable also indicated that the odds of being unsure about the legality of abortion (versus believing abortion to be legal) in Ohio did not change over time, while the odds of believing abortion to be illegal increased over the survey period (Table 3). Differences in estimates from the unadjusted and adjusted multinomial models were negligible. Compared to the referent of believing abortion to be legal in Ohio, women who completed the survey in months 4 – 8 had an adjusted odds ratio of believing abortion to be illegal that exceeded 2.0 in every month (with all but month 5 being statistically significant at 95% level). The odds ratio increased over the months 5 through 8. As time increased, the odds of believing abortion to be illegal, compared to believing abortion to be legal, increased as well. In the last month, the odds of believing abortion to be illegal (versus believing abortion to be legal) was 3.86 (95% CI, 1.69-8.78) times that of women who completed the survey in the first month.

Content analysis of NewsBank suggested that the timing of articles published in the U.S. with “abortion” and “Ohio” in the headlines (Figure 3) roughly corresponded to the legislative and judicial activity surrounding the 6-week ban (Figure 1). The first month (October 11, 2018 to November 10, 2018) had only 1 article with these terms in the headline, while the second month (November 11, 2018 to December 10, 2018) had 55 new articles and a cumulative total of 56 articles. In the final month (May 11, 2019 to June 10, 2019), 100 new articles were published with a cumulative total of 537 articles.

Comment

We found an increase over time in the fraction of women who mistakenly believed that abortion is illegal in Ohio. The time period under study corresponded to the period in which a six-week ban on abortion was passed by the state legislature, signed into law, and

subsequently enjoined by the courts before ever being enacted. While the monthly increase in the proportion of women who believe abortion to be illegal was only 17%, over the eight months of the survey administration the proportion increased from 4.5% to 15.9%.

Little evidence exists on people's understanding of abortion laws. A recent systematic review on this topic revealed no studies conducted in the U.S.¹³ Subsequently, Lara and colleagues analyzed older survey data collected in 2008 from a convenience sample of low-income women (N=1,262) attending for medical care in San Francisco, Boston or New York.⁵ They found that 47% of women underestimated the gestational age limit for accessing a legal abortion, with an additional 17% reporting that they did not know the legal gestational limit. In a population-based survey of adult, reproductive-age women (N=799) in Texas, White et al. reported that 36% were not "very aware" of the restrictive laws that had recently been passed in the state and 19% had not heard of them.⁶ Finally, in an internet survey of reproductive-age adults in the U.S., Bessett et al. found that 17% of participants did not know that abortion before 12 weeks is legal.⁷ The present findings are consistent with these earlier studies that demonstrated low levels of understanding of abortion laws.

The present analysis identified several demographic characteristics that were correlated with holding the misconception of abortion illegality. Younger age, lower socioeconomic status measured by education and income, never married and married status (compared to being separated, divorced or widowed), and Black, non-Hispanic race/ethnicity were associated with believing abortion to be illegal in Ohio. Consequently, people who already are vulnerable to disparities in accessing abortion¹⁴ might have an additional barrier to accessing the time-sensitive procedure.

Besides holding an important role in influencing public opinion,^{15,16} the news media likely serves as a key source for influencing people's understanding of state-level legislation. According to NewsBank, media reports on abortion in Ohio appeared to occur during the study interval around the times of legislative and judicial activity related to the 6-week ban. The function of news media is to report on new events, rather than informing the public about the status quo (i.e., abortion remaining legal). Thus, even if the news media reports were accurate, the cumulative effect of these reports on the numerous, and potentially confusing, steps involved in the challenges to legal abortion in the state could have contributed to misunderstanding about the legal status of abortion. Communications via other modes, such as television, radio, direct mailings or social media, by those who supported or opposed the law could have influenced women's understanding of abortion legality. Future research could consider how multiple media forms, along with other information sources, such as family, friends, health care providers, websites, and social media posts, are associated with knowledge of abortion legality and the role they could play in disseminating accurate information.

New attempts to restrict abortion access in Ohio continue: in late March 2020 when the Ohio Department of Health ordered all non-essential surgeries to stop because of the COVID-19 pandemic, the Ohio Attorney General sent cease-and-desist letters to several abortion clinics interpreting the order as prohibiting almost all surgical abortions.¹⁷ A temporary restraining order was issued on April 8, 2020 to allow abortion services to continue during the litigation

process. Whether this new challenge has further contributed to people's misunderstanding of the current legal status of abortion in Ohio is unknown. Given the frequency with which new abortion restrictions are proposed throughout the U.S.,² uncertainty and misconceptions about abortion legality could be widespread in other states as well.

Strengths and limitations

Primary strengths of the present analyses included the large sample that was representative of adult, reproductive-age women in Ohio. The analysis took advantage of the timing of the survey completion, which spanned the interval of time with legislative and judicial activity related to the six-week ban. Recruitment to survey participation occurred in random "replicates," random subsamples of the overall sample drawn for the survey. Thus, the timing of survey completion should be unbiased in terms of selection into the study. This is supported by our finding that the estimates for the changes in beliefs over time did not differ after adjustment for participant characteristics. A study weakness was the relatively low response rate. However, we used post-stratification weights to adjust for nonresponse. Finally, the generalizability of the findings to other settings is unknown. Given the volume of proposed legislation on abortion, it would be helpful to conduct research in multiple states that examines how public understanding of abortion access is influenced by legislative activity and the amount of media coverage this garners; most existing research instead examines the effect of enacted laws and policies.

Conclusions

The misconception that abortion is illegal could cause people to delay accessing abortion services. Abortion is a safe procedure;¹⁸⁻²⁰ however, risks increase as gestational age advances.^{21,22} Ability to access timely abortion care is also important for preventing maternal mortality among people with high-risk pregnancies due to comorbidities.²³ Regulations that restrict abortion, and the resulting closure of abortion clinics, cause people to have to travel further to access abortion care.^{24,25} It is unknown whether misconceptions about abortion legality leads people to travel to another state to obtain an abortion or to forego seeking a legal abortion from a licensed medical provider, and instead attempt self-manage abortion. Health care providers should not assume that people know that abortion remains legal; providers should consider providing information about the legality of abortion to patients

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AJOG at a Glance:**Why was the study conducted?**

We wanted to understand whether women mistakenly believe that abortion is illegal and whether proposed legislation might increase misunderstandings about legality.

What are the key findings?

Many women in Ohio were unsure whether abortion is illegal in the state (26.2%); a smaller subset (9.8%) believed it to be illegal. The prevalence of believing that abortion in Ohio is illegal increased during the study interval, which corresponded to the interval marked by legislative and judicial activity surrounding the six-week ban in Ohio.

What does this study add to what is already known?

Even if abortion restrictions never go into effect, the resulting discourse and debate about the legislation could lead to some women mistakenly believing that abortion has become illegal.



Figure 1.
Timeline of six-week abortion bans in Ohio in 2018-2019

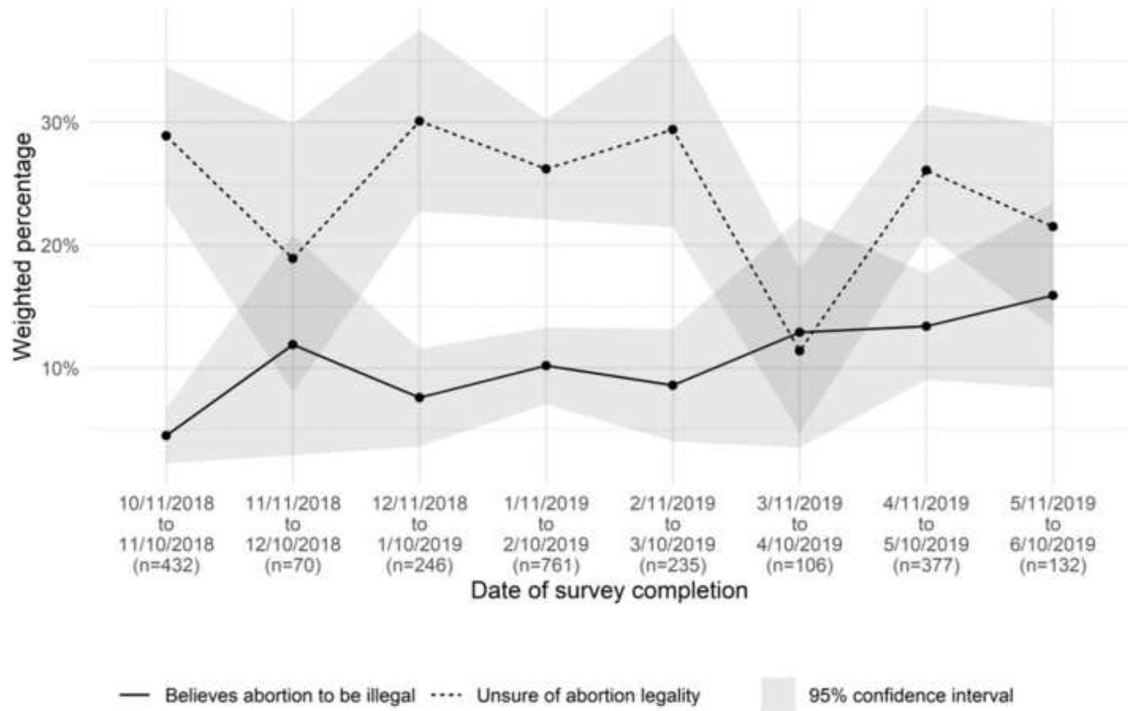


Figure 2. Changes over time in beliefs about abortion legality in Ohio among adult, reproductive-age women in Ohio

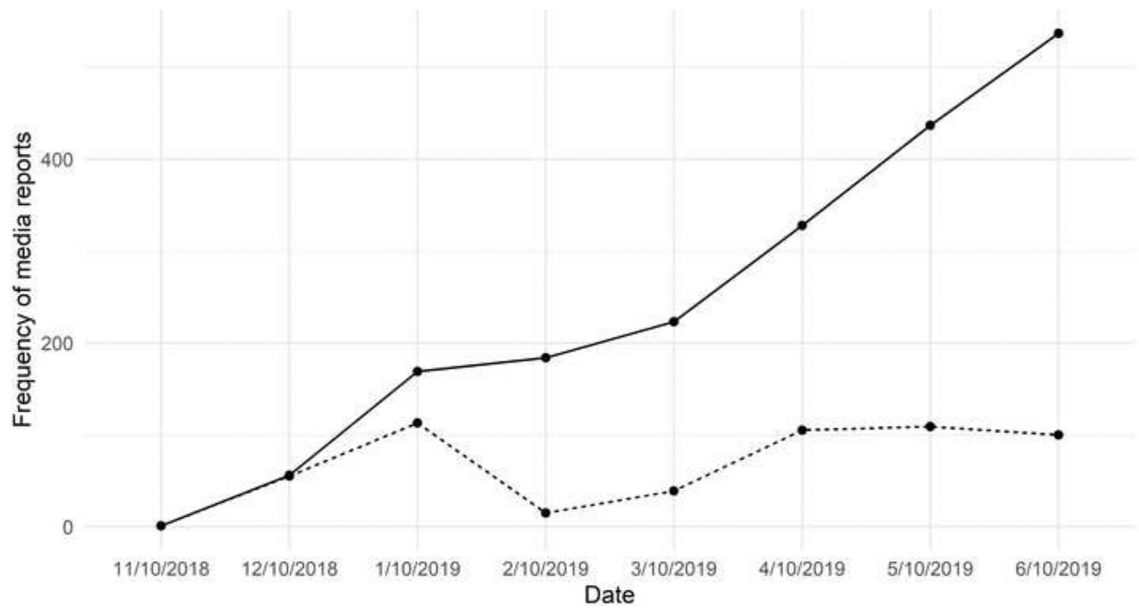


Figure 3. Media reports on abortion in Ohio from Newsbank, October 11, 2018 to June 10, 2019

Table 1.

Demographic characteristics, Ohio Survey of Women (N=2,359)

	No. ^a	(%) ^b
Age in years		
18-29 years	746	(44.5)
30-39 years	1033	(38.1)
40-44 years	580	(17.4)
Socioeconomic status		
Some college or less, <\$75,000	885	(45.5)
Some college or less, \$75,000	308	(10.6)
Bachelor's degree or higher, <\$75,000	501	(23.6)
Bachelor's degree or higher, \$75,000	665	(20.3)
Marital status		
Never married	902	(50.5)
Married	1254	(40.6)
Separated, divorced, widowed	203	(8.9)
Region of residence		
Rural Appalachia	513	(14.6)
All other areas	1846	(85.4)
Race and ethnicity		
Black, non-Hispanic	131	(13.8)
Other ^c	2228	(86.2)

^aUnweighted numbers^bWeighted percentages^cOther consists of white, non-Hispanic (75.6%), multiple or other races, non-Hispanic (6.6%), Hispanic (2.4%), Asian, non-Hispanic (1.5%) and Native Hawaiian or Pacific Islander, non-Hispanic (0.04%).

Table 2.

Correlates of believing abortion in Ohio to be illegal among adult, reproductive-age women in Ohio (N=2,359)

	Believes abortion is illegal in Ohio ^a					
	No. ^b	(%) ^c	OR ^c	(95% CI) ^c	aOR ^{c,d}	(95% CI) ^c
Age in years						
18-29 years	85	(11.2)	1.35	(1.33, 1.37)	1.28	(1.27, 1.30)
30-39 years	89	(8.8)	1.06	(1.04, 1.07)	1.02	(1.01, 1.04)
40-44 years	51	(8.3)	1.00		1.00	
Socioeconomic status						
Some college or less, <\$75,000	94	(11.0)	1.36	(1.34, 1.37)	1.25	(1.24, 1.27)
Some college or less, \$75,000	28	(9.2)	1.14	(1.12, 1.16)	1.07	(1.05, 1.09)
Bachelor's degree or higher, <\$75,000	47	(9.3)	1.14	(1.13, 1.16)	1.06	(1.04, 1.07)
Bachelor's degree or higher, \$75,000	56	(8.1)	1.00		1.00	
Marital status						
Never married	93	(10.7)	1.46	(1.43, 1.49)	1.29	(1.26, 1.32)
Married	117	(9.2)	1.26	(1.24, 1.29)	1.32	(1.29, 1.34)
Separated, divorced, widowed	15	(7.3)	1.00		1.00	
Region of residence						
Rural Appalachia	58	(9.8)	1.01	(0.99, 1.02)	1.00	(0.99, 1.02)
All other areas	167	(9.8)	1.00		1.00	
Race and ethnicity						
Black, non-Hispanic	16	(12.5)	1.33	(1.31, 1.35)	1.31	(1.30, 1.33)
Other	209	(9.4)	1.00		1.00	

OR, odd ratio; CI, confidence interval; aOR, adjusted OR ratio

^aUnweighted^bWeighted^cBelieve abortion in Ohio is illegal compared to reference of those who believe abortion is legal or are unsure^dAdjusted for all variables listed in table

Table 3.Changes over time in beliefs about abortion legality in Ohio^a among adult, reproductive-age women in Ohio

	Unsure of abortion legality compared to referent of believing abortion to be legal		Believes abortion is illegal compared to referent of believing abortion to be legal	
	OR (95% CI)	Adjusted OR ^b (95% CI)	OR (95% CI)	Adjusted OR ^b (95% CI)
Month 1 (10/11/2018-11/10/2018)	1.00	1.00	1.00	1.00
Month 2 (11/10/2018-12/10/2018)	0.63 (0.29, 1.39)	0.63 (0.28, 1.40)	2.56 (0.91, 7.18)	2.57 (0.88, 7.47)
Month 3 (12/10/2018-1/10/2019)	1.12 (0.71, 1.75)	1.07 (0.68, 1.70)	1.82 (0.83, 3.99)	1.88 (0.85, 4.15)
Month 4 (1/10/2019-2/10/2019)	0.95 (0.67, 1.34)	0.92 (0.65, 1.31)	2.38 (1.26, 4.49)	2.34 (1.24, 4.43)
Month 5 (2/10/2019-3/10/2019)	1.09 (0.68, 1.77)	1.08 (0.67, 1.75)	2.07 (0.93, 4.60)	2.02 (0.91, 4.48)
Month 6 (3/10/2019-4/10/2019)	0.35 (0.17, 0.72)	0.34 (0.16, 0.70)	2.54 (0.94, 6.87)	2.68 (1.00, 7.20)
Month 7 (4/10/2019-5/10/2019)	1.00 (0.67, 1.48)	0.95 (0.64, 1.41)	3.30 (1.71, 6.36)	3.36 (1.73, 6.55)
Month 8 (5/10/2019-6/10/2019)	0.79 (0.44, 1.41)	0.75 (0.42, 1.35)	3.79 (1.72, 8.36)	3.86 (1.69, 8.78)

OR, odds ratio; *CI*, confidence interval^aEstimates from a multinomial regression model using weights compared to referent of believing abortion to be legal^bAdjusted for age, social economic status (education and household income), marital status, region of residence, and race/ethnicity.