

## Original Research Article

## Timing of pregnancy discovery among women seeking abortion

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## ABSTRACT

**Objective:** Little is known about the incidence and causes of delay in recognition of pregnancy. Delay in pregnancy recognition is associated with later presentation for abortion and exacerbates the burdens in accessing care. Using Turnaway study data, this study assessed the prevalence of later pregnancy recognition among a sample of people who obtained or were denied a wanted abortion.

**Study design:** The Turnaway Study included telephone interviews of 956 women who sought an abortion in the first trimester or just over or under the gestational limit of one of 30 abortion facilities across the United States and in-depth interviews with 31 who completed 5 years of surveys. We describe women's experiences discovering pregnancy and conducted multivariate analyses assessing factors associated with later pregnancy discovery (after 13 weeks since last menstrual period [LMP]).

**Results:** Most women seeking second trimester abortions recognized their pregnancy more than 8 weeks after their LMP; more than 1 in 5 recognized pregnancy after 20 weeks. In interviews, women explained that recognition was delayed because of a lack of pregnancy symptoms or concurrence of other conditions with symptoms similar to pregnancy. According to multivariate analyses, women who had never given birth (adjusted odds ratio [aOR] = 1.71; 95% confidence interval [CI]: 1.24, 2.35) and those who used hormonal contraceptives in the month of conception (aOR = 1.83; 95% CI: 1.35, 2.47) were more likely to discover pregnancy after 13 weeks.

**Conclusion:** Laws imposing gestational limits will make abortion unavailable to people who discover pregnancy after the limit. Such bans are likely to disproportionately affect people using contraceptive methods to prevent pregnancy and those who have never given birth.

**Implications:** Some pregnant people have few pregnancy symptoms and/or have conditions with symptoms similar to pregnancy, such as irregular periods or chronic pain. Gestational limits to abortion are likely to disproportionately affect people who recognize pregnancy later in pregnancy, particularly those without prior pregnancy experiences and who are using contraception.

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## 1. Introduction

Not recognizing pregnancy in the first few weeks increases the likelihood of needing an abortion in the second trimester, which can exacerbate barriers to care. Most obviously, one cannot get an abortion in the first trimester if one only realizes that one is pregnant in the second. But the delays associated with later recognition are not limited to just the time it takes to suspect and test for pregnancy. When a pregnant person is past the first trimester, the logistical barriers to getting an abortion—the cost of the procedure and travel, the time off required, the need for transportation and finding childcare for existing children—increase [1]. The further along they are in pregnancy, the higher the cost of an abortion

and the farther they must travel to find one of the few existing clinics able to provide one at their stage in pregnancy. In the Turnaway Study, we found that later recognition of pregnancy, beyond 10 weeks, sets off a cascade of delays [2].

Delays in recognition can have important effects on the ability to receive care, especially given that restrictions on abortion can delay care and even lead to denial of services, particularly where gestational age limits establish a cut off for abortion services across a whole state and in states with mandatory waiting period laws. Furthermore, seeking abortion early in pregnancy allows people the option of a medication abortion (often only available through 11 weeks of pregnancy) for those who prefer it over an in-clinic procedure [3]. First trimester abortion is also substantially less expensive than second trimester abortions [4]. Given the restrictions on funding, abortion, particularly later procedures, can be a catastrophic health expenditure for many pregnant people [5].

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Yet, few studies have explored the factors that influence the timing of pregnancy recognition, especially in pregnancies ending in abortion. A study of women seeking abortion in California found that among those in the second trimester, one fifth suspected they were pregnant and over half (58%) confirmed they were pregnant in the second trimester [6]. The study found that pregnancy symptoms, such as nausea and vomiting, shortened the time to recognize pregnancy while not keeping track of one's menstrual period was associated with a longer time to recognize pregnancy. Another study among women in Utah similarly found that women who did not track their menstrual periods, as well as those who frequently used drugs, had higher odds of discovering their pregnancies later [7].

The Turnaway Study was a longitudinal study of nearly 1000 women in the United States who either received or were denied an abortion because they were just under or just over the gestational limit at the clinic in which they sought care. This study provides a unique sample of people seeking abortion later in pregnancy. Previous analyses from the US Turnaway Study found that many women, including those seeking abortion in the first trimester (104/273 38%), just under the gestational limit (194/452 43%) and just over the gestational limit (111/231 48%), report that not realizing that they were pregnant was a cause of delay [1]. However, the point in pregnancy at which they discovered pregnancy was very different for those receiving an abortion within the first 14 weeks and those receiving an abortion after 20 weeks (5 weeks vs 12 weeks). Understanding the prevalence and predictors of later recognition of pregnancy sheds light on the impact of policies which restrict access to abortion based on gestational age.

## 2. Data and methods

The Turnaway Study was a 5-year longitudinal study of women who presented for abortion care at 1 of 30 facilities throughout the United States between 2008 and 2010. Gestational limits at the study facilities ranged from the end of the first trimester to the end of the second. Each facility had the latest gestation age limit of any provider within 150 miles. Study participants were pregnant with no known fetal anomalies or demise who spoke English or Spanish and were aged 15 years or older. Participants were enrolled into 3 study groups in a two-to-one-to-one ratio on the basis of ultrasound dating of gestational age relative to each facility's limit: (1) Near Limits presented for abortion up to 2 weeks under the facility's gestational age limit and obtained wanted abortions, (2) Turnaways presented for abortion up to 3 weeks over a facility's limit and were denied abortions, and (3) First Trimesters received abortions at gestations up to 14 weeks. Study participants completed a baseline telephone interview 1 week after either receiving or being denied an abortion and telephone interviews every 6 months.

The Turnaway Study also included semistructured in-depth qualitative telephone interviews with 31 participants who had completed the 5 years of interviews; all respondents had discovered their index pregnancy at least 5 years before the interview. Twenty-eight were randomly selected from the pool of participants who had completed the 5-year semi-annual interviews by October 2014 and had agreed to future contact by the researchers. An additional 3 participants who did the interviews in Spanish or who had voluntarily placed a baby for adoption were also interviewed. The qualitative interviews took place between December 2015 and March 2015 and ranged from 30 minutes to 2 hours in length. The interview guide was designed to elicit open ended responses about participants' reflections about their pregnancy experiences. Questions explored participants' pregnancy-related experiences including when they first discovered they were pregnant, when they sought pregnancy-related care (abortion, prenatal care, birth), as

well as significant life changes that occurred in the intervening years related to work, school, family, and relationships. Data were coded using deductive methods using the interview guide and inductively through open coding in Atlas.ti7. We developed thematic summaries and, for this paper, focused in on the experiences of pregnancy discovery.

Using the baseline quantitative surveys and in-depth qualitative interview Turnaway study data, this current analysis explores the reasons for delayed recognition of pregnancy among people seeking abortion. To measure timing of pregnancy recognition, we asked all participants at the baseline interview, "When did you find out that you were pregnant?" We recorded answers as each woman reported it: a precise date, weeks of gestation, or elapsed time. We converted all answers to weeks of pregnancy from last menstrual period. We asked about the number of previous births and date of the most recent birth. We asked the woman's household income in the past month and the number of people who shared this income to calculate the ratio of the household's income to the federal poverty threshold. We asked the woman's height and weight and calculated each woman's body mass index. We asked about the woman's physical health prior to pregnancy recognition on a 5-point scale from very good to very poor. We asked whether the woman had ever received a diagnosis of depression (includes depression, dysthymia or bipolar disorder) or a diagnosis of an anxiety disorder like panic, obsessive-compulsive, anxiety, or post-traumatic stress disorder. We asked about recreational drug use in the month prior to pregnancy recognition and whether she experienced problem alcohol symptoms including drinking more than 5 drinks on an occasion, having a drink first thing in the morning or having been unable to remember what happened the night before due to drinking. We asked whether the woman had been using a method of contraception in the month she became pregnant and what type of method she had used. We present bivariate analyses where the test for significance adjusts for clustered sites of recruitment. We use a multivariate model, also adjusted for clustered recruitment, to predict factors associated with discovery of pregnancy in the second trimester, at 14 weeks and beyond. We use a multivariate model, adjusted for clustered recruitment, to predict factors associated with discovery of pregnancy in the second trimester, at 14 weeks and beyond. In this model, we included all variables hypothesized to be associated with late discovery, based on our interviews and the literature, that were contained in our quantitative data collection. These include demographics (age, race/ethnicity, household income relative to the federal poverty threshold, and education), health variables (self-reported physical health prior to pregnancy recognition, body mass index prior to pregnancy, diagnosis of depression or anxiety, and drug use or problem alcohol symptoms prior to discovering pregnancy) as well as 2 reproductive health variables (contraceptive use in the month of conception, and when and whether she had given birth previously).

## 3. Results

### 3.1. Women's reports of later discovery of pregnancy

In our in-depth interviews, several people reported not having experienced the typical pregnancy symptoms such as fatigue, nausea, breast tenderness or missed menstrual periods. Some women reported chronic conditions or other experiences that masked the symptoms of pregnancy. For example, some women said that their periods are often irregular because they are young, over or under weight, are using hormonal contraceptives, or have recently given birth. A 24-year-old woman from New York told us, "I just thought it was nothing new because really I hadn't had a period for, like, 8 or 9 months at that point just because I was kind of underweight

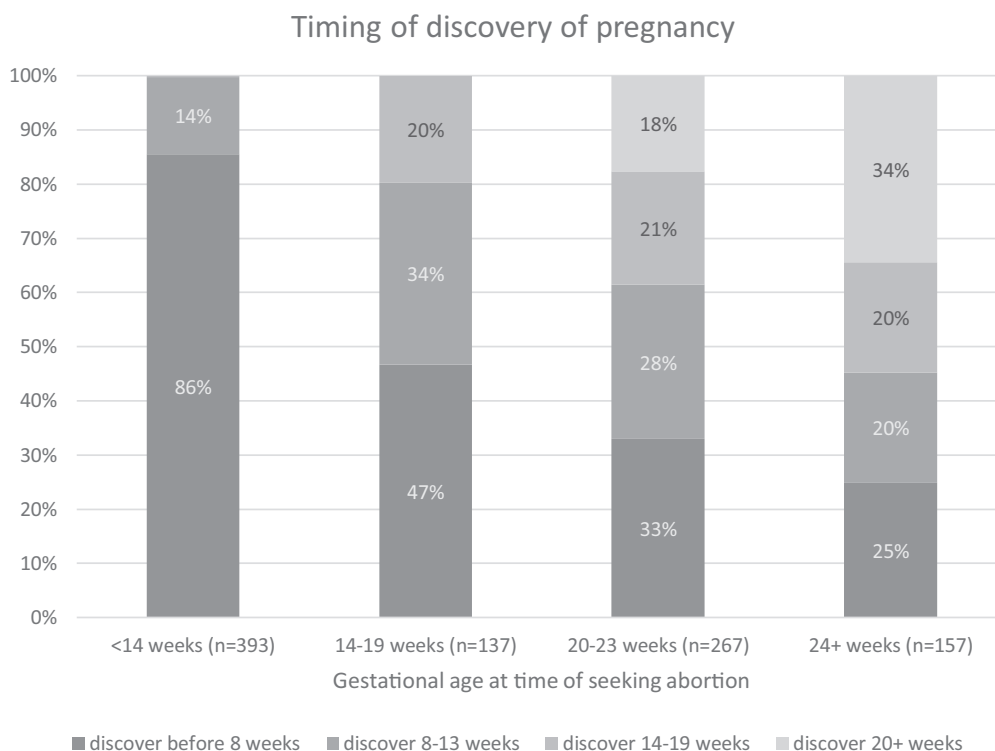


Fig. 1. Timing of discovery of pregnancy, by gestation at the time of seeking an abortion, Turnaway study 2008-2010.

... I just wasn't having them. I thought it was nothing new until I felt something kick." A 26-year-old woman from New Jersey recognized her 2 previous pregnancies early—she was regularly nauseated; she could see her body's physical changes. But with her third pregnancy, she did not gain weight; she had regular spotting; she was not nauseated; and she did not notice any fetal movement.

It is not uncommon for people to have irregular periods or to spot during early pregnancy. For people who don't expect to be pregnant, spotting can seem like a light period. An 18-year-old from California didn't recognize the symptoms of pregnancy for many months, until it was too late for an abortion. She told us, "I never have had periods regularly ever. When I had morning sickness, my boyfriend at the time had the flu. I wasn't aware of the body changes that I was going through. They weren't familiar to me, so I couldn't really tell what was going on until finally I realized that pregnancy must be the only answer."

Interviews with study participants who report discovering their pregnancy after the first trimester challenge the common assumption that all women who discover their pregnancy later must know at some level and be in denial. A 19-year-old from California told us:

"I actually found out I was pregnant when I was about five to six months along. I didn't know I was pregnant because I was still menstruating. I didn't get nauseous. I wasn't vomiting—all the things that I knew were symptoms of a pregnancy. I would see it on TV, but you think it can never happen to you. I went to the emergency room because I didn't know what was going on with me. I told them I'm bleeding excessively, which is something that is not normal for me. The first thing they asked me was if I was pregnant. And I said, no, not that I know of. I'm not having any symptoms, any normal pregnancy symptoms. But when they did a pregnancy test, it came out positive. And I couldn't believe it. So they did a sonogram on me, and they told me I was already five months pregnant. At that time I was ecstatic. I was really ecstatic."

A few women did report that they had pregnancy symptoms but were in denial about being pregnant. Two of the 31 qualitative interviewees described themselves as being in denial for period of time during their pregnancies. These participants' reports reflect the sometimes gradual process people go through to become aware of a pregnancy they were not expecting. This process varies according to a person's emotions and knowledge of pregnancy risk, symptoms, and biological process. A 19-year-old from Illinois who received an abortion at 23 weeks, told us:

"I really didn't even think about the fact that I would get pregnant. It's just something that happened. Even up until the time that I knew I was pregnant, I was in denial. For so long my friends were asking me was I pregnant, because I guess they saw the changes in me, but I didn't see it. And when I finally got confirmation that I was pregnant, it was just kind of a relief knowing that I was and ready to figure out what I was going to do next... In a week's time, I found out about the pregnancy and I had the abortion. I was almost 20 weeks, and I didn't even know because I was in so much denial. I knew I didn't have much time to make a decision. And if I wanted to get an abortion, I would have to do it right away. If I waited any more weeks, then I probably would have had to give birth to a baby and then I would have had to figure out my life and someone else's life."

### 3.2. Timing of discovery of pregnancy

Most (336/393, 86%) women seeking a first trimester abortion discovered their pregnancy within 8 weeks of their last menstrual period. A smaller proportion of women seeking second trimester abortions discovered they were pregnant by 8 weeks gestation; 47% (64/137) of those seeking early second trimester abortions, 33% (88/267) of those seeking late second trimester and 25% (39/157) seeking abortion after 24 weeks. In fact, many of those seeking later abortions were already in the second trimester when

**Table 1**  
Gestational age at discovery of pregnancy by selected characteristics of US women seeking abortion, Turnawaystudy 2008-2010.

		<8 weeks n = 527	8-13 weeks n = 210	14-19 weeks n = 116	20+ weeks n = 101	Total n = 954	
Demographics		Column percentage					p value
Age	15-19	16	20	24	20	18	0.64
	20-24	36	37	33	40	36	
	25-29	24	23	22	28	24	
	30-34	17	11	14	5	14	
	35-46	7	9	8	8	8	
Race/ethnicity	White, non-Hispanic	39	34	34	34	37	0.42
	Black, non-Hispanic	27	29	36	35	29	
	Asian/Pacific Islander	2	2	3	7	3	
	Other	11	12	5	3	10	
	Hispanic	20	22	23	21	21	
Poverty threshold	Below 100% FPL	35	38	30	19	34	<0.001
	100%-200% FPL	23	20	21	19	22	
	Above 200% FPL	15	9	12	11	13	
	Not reported	27	33	37	51	32	
Education	Less than high school diploma	19	21	21	16	20	0.77
	High School	33	32	33	37	33	
	More than High School	47	46	47	48	47	
Health	Physical health prior to pregnancy recognition						0.08
	Very good	32	30	37	40	33	
	Good	49	48	49	45	48	
	Fair	16	17	10	14	15	
	Poor/very poor	3	5	3	2	4	
	Body mass index prior to pregnancy						0.35
	<=19	14	17	14	16	15	
	20-25	45	50	53	43	47	
	26-30	21	16	22	24	20	
	31-40	14	14	8	10	13	
>40	3	1	1	3	2		
Not reported	2	2	3	5	3		
Depression diagnosis	25	19	17	11	21	<0.001	
Anxiety diagnosis	18	17	15	10	16	0.01	
Drug use week prior to discovering pregnancy	17	14	9	15	15	0.1	
Problem alcohol symptoms prior to discovering pregnancy	6	7	5	6	6	0.95	
Reproductive health	Contraceptive use at conception						<0.001
	No method	42	30	29	28	36	
	Nonhormonal method	37	38	36	45	38	
	Hormonal method	21	31	34	28	26	
	Timing of previous births						<0.001
Never (nulliparous)	35	32	44	52	38		
In the past year	10	12	9	10	10		
More than a year ago	54	56	47	38	52		

they first suspected that they were pregnant: 20% (27/137) of those in the early second trimester, 40% (103/267) of those in the late second trimester and 55% (86/157) of those seeking abortion after 24 weeks (Fig. 1).

### 3.3. Predictors of later discovery of pregnancy

Some of the factors that delayed or facilitated detection of pregnancy among participants in the in-depth interviews were also measured in surveys administered to all Turnaway Study participants, allowing us to more precisely examine estimates of the magnitude of these effects. In bivariate analysis, never having given birth was associated with later recognition of pregnancy—nulliparous women were much more common among those recognizing pregnancy at or beyond 20 weeks (53/101, 52%) than among those who discovered it in the first 8 weeks (187/527, 35%) ( $p < 0.001$ ). Women who reported using hormonal methods of contraception in the month they conceived were a fifth of the sample who discovered their pregnancy in the first 8 weeks (113/527 21%)

but almost a third of the sample who discovered their pregnancy at or after 8 weeks (134/427, 31%) ( $p < 0.001$ ). Women who reported a past mental health diagnosis were less likely to discover their pregnancy later, including those with a diagnosis of depression ( $p < 0.001$ ) or anxiety disorder ( $p = 0.01$ ). We find no significant bivariate associations of gestational age at discovery of pregnancy with age, race/ethnicity, education, high reported body mass index, physical health, drug use, or problem alcohol symptoms. Women who had given birth in the past year did not experience later pregnancy recognition (Table 1).

In multivariate logistic regression predicting discovery of pregnancy in the second trimester (at 14 weeks or beyond), 2 reproductive health characteristics were associated with an increase in likelihood of discovery of pregnancy in the second trimester: never having given birth (odds ratio [OR] = 1.71; 95% confidence interval [CI]: 1.24, 2.35) and hormonal contraceptive use in the month of conception (OR = 1.83; 95% CI: 1.35, 2.47). One other factor—not reporting household income in the baseline interview (OR = 1.75; 95% CI: 1.06, 2.89) was also associated with an increase in later

**Table 2**

Variables associated with discovery of pregnancy in the second trimester among US women seeking abortion services according to multivariable logistic regression analyses, Turnaway Study 2008–2010 ( $n = 934$ ).

			Adjusted odds ratio	[95% confidence interval]	
Socio/demographics	Age of woman	15–19	0.57	[0.16, 2.11]	
		20–24	0.65	[0.30, 1.39]	
		25–29	0.84	[0.34, 2.07]	
		30–34	0.58	[0.28, 1.19]	
		35–46	ref		
	Race/ethnicity	White, non-Hispanic	ref		
		Black, non-Hispanic	1.27	[0.69, 2.36]	
		Asian/Pacific Islander	1.48	[0.73, 3.00]	
		Other	0.62	[0.17, 2.30]	
		Hispanic	1.11	[0.60, 2.03]	
	Poverty threshold	below 100% FPL	0.88	[0.60, 1.29]	
		100%–200% FPL	1.12	[0.69, 1.81]	
		above 200% FPL	ref		
	Education	Not reported	1.75*	[1.06, 2.89]	
Less than high school diploma		ref			
High school		1.07	[0.73, 1.57]		
Health	Physical health prior to pregnancy recognition	More than High School	0.98	[0.66, 1.45]	
		Very good	ref		
		Good	0.91	[0.68, 1.23]	
		Fair	0.84	[0.60, 1.17]	
	Body mass index prior to pregnancy	Poor/very poor	1.19	[0.48, 2.95]	
		<=19	ref		
		20–25	1.12	[0.81, 1.55]	
		26–30	1.41	[0.90, 2.22]	
		31–40	0.76	[0.50, 1.15]	
		>40	0.76	[0.19, 3.14]	
Anxiety diagnosis	Not reported	1.39	[0.48, 3.97]		
Depression diagnosis		0.97	[0.64, 1.46]		
Drug use week prior to discovering pregnancy		0.68	[0.45, 1.02]		
Problem alcohol symptoms prior to discovering pregnancy		0.74	[0.46, 1.20]		
Reproductive health	Contraceptive use at conception		1.12	[0.51, 2.46]	
		No method	ref		
		nonhormonal method	1.32	[0.91, 1.90]	
	Timing of previous births	hormonal method	1.83*	[1.35, 2.47]	
		None	1.71*	[1.24, 2.35]	
	in the past year	1.25	[0.76, 2.05]		
	more than a year ago	ref			

discovery of pregnancy (Table 2). Not reporting household income was concentrated among young women living with adult family members who were not primary earner in the household. Other factors significant in the bivariate analyses were not significant in the multivariate model.

#### 4. Discussion

The Turnaway Study is unique in its large sample of women seeking abortions later in pregnancy, enabling us to look at how delays in recognition of pregnancy contributes to abortion seeking later in pregnancy. We found that among the almost one thousand US women who participated in the study, those seeking second trimester abortions were more often nulliparous and using hormonal contraception when they became pregnant than those seeking earlier abortions. In our in-depth interviews, we learned that some women never experienced pregnancy symptoms. Some women experienced severe nausea and others experienced none. Some have an immediate stop to their menstrual periods and others experience spotting for many months. Having few pregnancy symptoms is part of the large range of normal physiological responses to pregnancy [8].

Our finding that people who had not previously carried a pregnancy to term were more likely to be delayed in recognizing pregnancy may have several explanations. A lack of familiarity with symptoms may have resulted in delayed recognition. Nulliparity is also associated with younger age and, therefore, irregular periods and a lower chance in noticing a missed period [9]. In this study, hormonal contraceptive use was also associated with later

recognition—some methods stop menstrual periods altogether and so a woman has one less pregnancy symptom to observe. Effective contraceptive use may also have delayed recognition if the woman believed she was protected from the chance of conception or if symptoms of pregnancy were mistaken for side effects of contraception.

Although a small number of women in the Turnaway Study reported that they were “in denial” about the pregnancy, this does not seem to explain much of the observed delay in recognizing pregnancy. More often, women did not have clear symptoms that indicated that they were pregnant. Several previous studies have shown that unplanned pregnancies are discovered later than intended ones [10,11]. When a person is not expecting to be pregnant, symptoms stemming from other causes, such as a chronic health condition and having recently delivered a child, were not attributed to a new pregnancy. Previous studies have also found that drug use and smoking are associated with later onset of symptoms or pregnancy discovery [7,11,12]. We did not find that these factors were associated with later discovery of pregnancy in our quantitative analyses or in the study as a whole, although they may have been important factors for individual women.

We were not able to measure all the factors that may have slowed women down from recognizing pregnancy earlier; the study was not primarily designed to evaluate the causes of delay in discovery and so did not contain questions on experience of pregnancy symptoms or history of tracking menstrual periods, limiting our ability to evaluate some of the known contributors to later discovery. Further research should focus on how the experience of symptoms affects the timing of pregnancy recognition.

Late detection of pregnancy can cause a cascade of problems for people who do not want to carry a pregnancy to term. Previous work from the Turnaway study has shown that initial delays lead to greater burdens of travel, cost and logistics [1]. As McCarthy and colleagues point out in their study of women in Utah, “Early pregnancy discovery is particularly important for women who may face additional constraints in obtaining abortion care, such as those living in states with mandated waiting periods, gestational limits for abortion, limited availability of second-trimester abortion services, and who live a considerable distance from an abortion provider.” [7]

Access to early abortion may become even more important with the possibility of the Supreme Court allowing pre-viability bans on abortion (Dobbs vs Jackson Women’s Health to be decided by the US Supreme Court in 2022). Laws imposing gestational limits make abortion unavailable to people who discover pregnancy after the limit. Such laws do not consider the varied and understandable reasons people have for seeking abortion care later in pregnancy. Our findings suggest that such bans will disproportionately affect people who were using contraceptive methods to prevent pregnancy and people who have never given birth before. Backers of gestational limits may assume that people are delaying their search for abortion services for reasons that are in their control. Yet we find that many people who seek abortion services later in pregnancy seek care as expeditiously as they can after discovering that they are pregnant [2]. In the current policy environment, delay in discovery of pregnancy results in greater costs, farther travel and often precludes the option of abortion altogether. Removing gestational age limits would help to ensure that people who discover their pregnancies at later gestational ages are not excluded from abortion services.

### Declaration of Competing Interests

The authors declare no conflict of interest.

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