Socioeconomic Outcomes of Women Who Receive and Women Who Are Denied Wanted Abortions in the United States

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Objectives. To determine the socioeconomic consequences of receipt versus denial of abortion.

Methods. Women who presented for abortion just before or after the gestational age limit of 30 abortion facilities across the United States between 2008 and 2010 were recruited and followed for 5 years via semiannual telephone interviews. Using mixed effects models, we evaluated socioeconomic outcomes for 813 women by receipt or denial of abortion care.

Results. In analyses that adjusted for the few baseline differences, women denied abortions who gave birth had higher odds of poverty 6 months after denial (adjusted odds ratio [AOR] = 3.77; $P < .001$) than did women who received abortions; women denied abortions were also more likely to be in poverty for 4 years after denial of abortion. Six months after denial of abortion, women were less likely to be employed full time (AOR = 0.37; $P = .001$) and were more likely to receive public assistance (AOR = 6.26; $P < .001$) than were women who obtained abortions, differences that remained significant for 4 years.

Conclusions. Women denied an abortion were more likely than were women who received an abortion to experience economic hardship and insecurity lasting years. Laws that restrict access to abortion may result in worsened economic outcomes for women. (*Am J Public Health.* 2018;108:407–413. doi:10.2105/AJPH.2017.304247)

Since 2011, hundreds of state-level restrictions on abortion have been implemented in the United States. Little is known about the socioeconomic consequences for women and families if women are not able to obtain a wanted abortion. When women are asked why they want to end a pregnancy, the most common reasons are financial—in particular, not having enough money to raise a child or support another child.[1–3] Yet no research has evaluated the economic consequences for US women of being unable to terminate an unwanted pregnancy and carrying the pregnancy to term.

The lack of evidence about the socioeconomic consequences of barriers to abortion services is largely the result of methodological challenges related to study design and the identification of appropriate comparison groups.[4–6] Given that preexisting economic difficulties contribute to a woman's decision to terminate a pregnancy, studies that compare socioeconomic outcomes of women who receive abortion services to women who do not choose to terminate a pregnancy may not identify the effects of abortion, but instead may reflect the characteristics that lead women either to seek abortions or carry a pregnancy to term, such as poverty, lack of education, and younger age.[7,8]

We aimed to examine the effects of receiving versus being denied a wanted abortion on women's socioeconomic well-being by following a group of women who all sought abortions, some of whom were denied services. Facility and state-imposed gestational age limits restrict abortion for women whose pregnancies are past the limit. Women who request services immediately before a facility's gestational limit are potentially similar to women who seek services immediately after the limit, but women in the former group receive the abortion whereas the latter do not. Gestational limit thresholds provide a quasi-experiment that can reveal the consequences of denial of abortion services on household structure, employment, income, use of public assistance, and poverty in the 5 years after seeking abortion.

METHODS

We used data from the Turnaway Study, 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.[9] Study participants were pregnant women 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

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in a 2-to-1-to-1 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. The unequal study groups reflect fewer women meeting the criteria for the turnaway group.

Study participants completed a baseline telephone interview 1 week after either receiving or being denied an abortion and follow-up interviews by phone every 6 months for 5 years. Other studies from the Turnaway Study have examined the effect of abortion received and denied on outcomes including mental health,[10] emotions,[11] physical health,[12] violence,[13] and achievement of 1-year plans.[14] To our knowledge, this is the first to examine socioeconomic outcomes.

Outcome Measures

Household structure variables included household size and whether the woman was living with adult family members, with a male partner, or without either a male partner or adult family members. Three employment outcomes were assessed: full-time employment, part-time employment, and not employed. We evaluated 3 outcomes related to past-month receipt of public assistance from Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), Temporary Assistance for Needy Families (TANF), and Supplemental Nutritional Assistance Program (SNAP), also known as food stamps. We assessed access to health insurance as a binary indicator for having either private or public health insurance.

Outcomes related to financial security included personal monthly income from employment, child support, and government assistance; household monthly income of all adults living with the respondent who share expenses; poverty, a binary indicator for household income at or below 100% of that specific year's US Census Bureau federal poverty level (FPL) based on household composition and income[15]; and subjective poverty, a dichotomous indicator that the woman reported that she did not always have enough money to meet basic living needs such as food, housing, and transportation in the month before the interview.

Analysis

The quasi-experiment established by abortion facility gestational limits allowed a comparison of socioeconomic outcomes between those who received an abortion and those who were denied. As some women in the turnaway group had an abortion or miscarriage subsequent to being turned away, the turnaway group was divided into birth and no birth for analysis purposes. Comparing the near-limit abortion group to the turnaway–birth group is the primary comparison for this analysis—a comparison that identifies the effect of receiving an abortion versus carrying an unwanted pregnancy to term. We compared turnaway–no births to near limits; if turnaway–no births are more similar to the turnaway–births, this would suggest that characteristics associated with presenting late to an abortion facility predict subsequent socioeconomic outcomes. If turnaway–no births are more similar to the near-limit abortion group, this would suggest that carrying an unwanted pregnancy to term is the cause of changes in subsequent socioeconomic outcomes. The comparison of the first-trimester group to the near-limit group assesses whether women who present for an abortion earlier in pregnancy, at a gestation when the majority of abortions occur nationally, have a different socioeconomic trajectory than do women who present later.

Because the gestational limits of facilities vary such that a woman could obtain an abortion at the same gestation at one site that she would be denied at another, and because within sites, women who received versus were denied were only a few weeks different in gestation, we expected the near-limit and turnaway groups to be similar at the baseline interview (1 week after seeking abortion). We empirically assessed this by comparing baseline characteristics between near limits and turnaway–births and turnaway–no births with linear and logistic mixed effects models to account for clustering of individuals by facility.

Longitudinal analyses used multivariate mixed effects linear and logistic regression models with random intercepts for both recruitment facility and individual. In the models, we measured time in months since the mean expected date of delivery, 4.4 months after recruitment, because we expected socioeconomic trajectories to diverge after the birth of a child. Models included a main effect of study group, continuous time in months, and an interaction between study group and months (interpreted as the difference between study groups in rate of change in the outcome). In all longitudinal models, we adjusted for baseline age, parity, and the baseline value of the dependent variable. Ability to report household income was associated with household structure—women living with adult relatives, such as parents, were less likely to know their household income. Therefore, we also controlled for household type at baseline (living with a partner or spouse, with adult family members, or other) to remove systematic bias in household income reporting models in which household structure was not an outcome. In graphs, we presented predicted values derived from our adjusted models by time since seeking abortion from 6 months to 5 years. For baseline values, we plotted predicted values at baseline, with control for age, parity, and household structure. We assessed differences in predicted probabilities of outcomes at 6-month intervals by using postestimation margins commands.

To examine the effect of denial of abortion, regardless of whether the woman received an abortion elsewhere, we present supplementary intent-to-treat (ITT) analyses comparing near limits women to all turnaway women. In this supplementary analysis, we used instrumental variables analyses to estimate the effects of giving birth associated with being denied an abortion, comparing the near-limits women to all turnaway women and accounting for the fraction of turnaway women who either miscarried or obtained an abortion at another facility (Appendix A, available as a supplement to the online version of this article at http://www.ajph.org, provides detailed methods description and the results of ITT and treatment-on-treated [TOT] analyses). All analyses were conducted in Stata version 14.0 (StataCorp LP, College Station, TX).

RESULTS

Among eligible women approached for study participation, 37.5% (n = 1132) consented to take part in the 5-year study. Among those who consented, 85% (n = 956) completed the baseline interview. Participation did not differ between near-limit and turnaway–birth groups. Ninety-two percent of participants who completed the baseline interview were retained at the 6-month follow-up interview and an average of 95% were retained at each subsequent 6-month interview. Of women interviewed at baseline, 58% were retained at the 5-year follow-up, with no differential loss to follow-up between study groups through 5 years.

A total of 452 women were recruited into the near-limit abortion group, 231 women to the turnaway group, and 273 women to the first-trimester group. We removed 76 participants from 1 facility with a gestational limit of 10 weeks from the analysis because more than 90% of turnaways from that facility in the study ultimately received abortions elsewhere. We excluded an additional 2 participants in the near-limit abortion group and 1 in the first-trimester group from analyses because they later reported that they had not had the abortion. Among women in the turnaway group, 5 experienced a miscarriage or stillbirth and 44 received an abortion at a different facility subsequent to being turned away; these women constitute the turnaway–no birth group. Sixty-four of the remaining women completed only the first interview and did not provide follow-up data, bringing the total for this analysis to 813. The final counts by study group include 382 women in the near-limit abortion group, 146 in the turnaway–birth group (including 15 who placed their child for adoption), 45 in the turnaway–no birth group, and 240 in the first trimester group.

Women seeking abortion reported economic hardships at the time of abortion seeking—half (51%) were living below 100% of the federal poverty level; 3 quarters (76%) reported not having enough money to cover housing, transportation, and food. Most (63%) already had children. Recruitment of participants above and below the gestational limit at each clinic resulted in similar turnaway–birth and near-limit abortion groups. There were no differences by study group in race, education, or marital status at baseline (Table 1). However, there were age, parity, family structure, and income reporting differences between the turnaway–birth and near-limit groups. Compared with women in the near-limits group, those in the turnaway–birth group were more likely to be aged younger than 20 years (30% vs 16%; $P = .001$), less likely to have children (54% vs 67%; $P = .007$), more likely to be unemployed (60% vs 45%; $P = .002$), more likely to be living with other adult family members (49% vs 36%; $P = .024$), and less likely to report household income at baseline (60% vs 73%; $P = .004$). The association between turnaway–births and missing data on income was largely eliminated by adjustment for household composition, age, and parity (adjusted $P = .205$). Reporting of household income improved over time—85% reported their household income at 5 years with no difference by study group. First-trimester participants had higher household incomes and were less likely to be living in poverty than were women in the near-limit or turnaway groups. Turnaway–no birth participants were more similar to near-limit women than to turnaway–births, including a similar, lower gestational age, which may have permitted them to find abortion services elsewhere.

Changes in Household Structure

Household size and composition differed by study group over time (Table 2). Turnaway–births had more people (B = 1.00; 95% confidence interval [CI] = 0.78, 1.22) in their household than near limits at the 6-month interview, which occurred an average of 1.6 months after the expected date of delivery. The difference in household size slowly narrowed over 5 years as women ceased living with adult family members. Turnaway–birth and near-limit women had similar odds of living with a male partner throughout the 5-year follow-up. By 5 years, women in the turnaway–birth group were more likely than were those in the near-limit group to be raising children alone without adult family members or a male partner (47% vs 39%; $P = .040$).

Changes in Employment

Over 5 years, women in the near-limit group gradually increased full-time employment—from 40% working full time at 6 months to more than 50% at 5 years. At 6 months, only 30% of women in the turnaway–birth group were working full time, significantly lower than those in the near-limit group (adjusted odds ratio [AOR] = 0.37; 95% CI = 0.20, 0.68; Table 2). Women in the turnaway–birth group increased full-time employment relative to those in the near-limit group over time so that by 4 years, there was no statistically significant difference between groups. Participants in the turnaway–birth group had more than 3 times the odds of not working at 6 months compared with those in the near-limit group (AOR = 3.06; 95% CI = 1.78, 5.25), a difference that was no longer statistically significant by 3 years.

Public Assistance and Health Insurance

Turnaway–births had 6-times-higher odds of receiving TANF (AOR = 6.26; 95% CI = 2.63, 14.88) at 6 months, when slightly more than 15% of turnaway–births but less than 8% of near limits were receiving TANF (Table 2). Receipt of TANF decreased over time for both groups; by 5 years, the difference between near limits and turnaway–births was no longer statistically significant. At 6 months, one third (33%) of near limits and 44% of turnaway–births received food assistance (SNAP), a significantly higher odds of receipt among turnaway–births (AOR = 2.54; 95% CI = 1.45, 4.44) that remained statistically significant across the 5 years. At 6 months, 8% of near limits and 50% of turnaway–births were receiving WIC benefits, an AOR of 48 (95% CI = 21, 109). The difference remained significant over 2 years despite substantial decreases in turnaway–birth WIC receipt over the time period. Turnaway–births were more likely than near-limit women to have health insurance at 6 months (AOR = 2.54; 95% CI = 1.48, 4.36) but did not retain this advantage after 1 year.

Changes in Income and Poverty

Personal income was lower among turnaway–births compared with near limits at 6 months (–$175; 95% CI = $–342, $–8) but differed little from near limits for the rest of the study period (Table 2). There were no

TABLE 1—Characteristics of Study Participants Who Completed More Than 1 Interview, by Study Group: United States, 2008–2016

Characteristics	Near-Limit Abortion (n = 382), Mean ±SD or %	First-Trimester Abortion (n = 240), Mean ±SD or %	Turnaway–Birth (n = 146), Mean ±SD or %	Turnaway–No Birth (n = 45), Mean ±SD or %	Total (n = 813), Mean ±SD or %
Gestational age, weeks	19.9 ±4.1	7.8 ±2.4	23.4 ±3.4	19.3 ±4.0	16.9 ±7.0
Age, y					
15–19	16	15	30*	20	18
20–24	40	28	34*	42	35
25–51	44	57	36*	38	46
Race/ethnicity					
White	32	40*	25	38	33
Black	32	32	35	31	33
Hispanic/Latina	21	20	27	16	21
Other	15	8*	14	16	13
Nulliparous	33	36	46*	40	37
Highest level of education					
< high school	18	16	23	18	18
High school or GED	34	30	36	24	33
Associates, some college, or technical school	41	43	35	49	41
College	7	11	6	9	8
Marital status					
Single, never married	80	76	84	78	79
Married	8	11	10	4	9
Separated, divorced, widowed	12	13	6	18	12
Employment					
Full time	34	42	22	29	34
Part time	21	23	18	20	21
Not employed	45	35*	60*	51	45
Household structure					
Living with adult family members	36	24*	49*	40	35
Living with spouse or partner	25	32	22	20	26
Living without male partner or family	38	44	29*	40	38
No. of people in the household	3.7 ±1.8	3.3 ±1.6*	3.9 ±1.9	3.6 ±1.6	3.6 ±1.7
Income and poverty					
Personal monthly income, $	891 ±861	1337 ±1281*	743 ±973	935 ±821	996 ±1040
Household monthly income, $ (n = 586)	1758 ±1461	2502 ±2384*	1700 ±1649	2166 ±2517	2007 ±1915
Not reporting household income	27	23	40*	36	28
Not enough money to make ends meet	78	70	83	73	76
Below FPL	57	40*	56	52	51
Receives TANF assistance	12	5*	12	11	10
Receives WIC assistance	14	13	18	11	14
Receives food stamps	31	26	34	40	31
Health insurance	69	69	75	67	70

Note. FPL = federal poverty level[15]; GED = general equivalency diploma; TANF = Temporary Assistance for Needy Families; WIC = Special Supplemental Nutrition Program for Women, Infants, and Children.

*$P < .05$ compared with near-limit abortion group; differences assessed by using mixed effects linear or logistic regression to account for clustering of observations by recruitment facility.

differences in household income between turnaway–births and near limits at 6 months or over time, but, because of increases in household size, turnaway–births were more likely to live in poverty. Turnaway–births' average household income was at 110% of the FPL compared with 144% among near limits at 6 months with 61% of turnaway–births and 45% of near limits below the FPL. At 6 months, turnaway–births had almost 4-times-higher odds of being below the FPL (AOR = 3.77; 95% CI = 1.96, 7.25), a difference

TABLE 2—Effect of Receiving or Being Denied a Wanted Abortion on Public Assistance, Health Insurance, and Household Structure Over 5 Years, With Control for Baseline Study Group Differences: United States, 2008–2016

Characteristic	Near Limit (Ref)	First Trimester	Turnaway–Birth	Turnaway–No Birth	Months	First Trimester × Month	Turnaway–Birth × Month	Turnaway–No Birth × Month
Public assistance and health insurance, AOR (95% CI)								
Receipt of WIC,[a]	1	1.23 (0.53, 2.85)	47.86 (21.04, 108.91)	2.16 (0.48, 9.83)	1.04 (0.99, 1.09)	0.97 (0.90, 1.05)	0.89 (0.83, 0.95)	0.90 (0.77, 1.05)
Receipt of TANF	1	0.56 (0.23, 1.37)	6.26 (2.63, 14.88)	0.03 (0.00, 0.48)	0.98 (0.97, 0.99)	1.01 (0.995, 1.04)	0.99 (0.97, 1.01)	1.06 (1.001, 1.13)
Receipt of food stamps	1	0.77 (0.46, 1.26)	2.54 (1.45, 4.44)	0.92 (0.34, 2.46)	1.01 (1.002, 1.01)	1.00 (0.99, 1.01)	1.00 (0.99, 1.01)	0.99 (0.97, 1.01)
Health insurance	1	0.87 (0.56, 1.36)	2.54 (1.48, 4.36)	1.55 (0.64, 3.73)	1.02 (1.01, 1.03)	1.01 (0.995, 1.02)	0.97 (0.96, 0.99)	1.01 (0.98, 1.03)
Household structure								
Resides with family, AOR (95% CI)	1	0.69 (0.39, 1.23)	1.96 (1.01, 3.82)	0.74 (0.24, 2.28)	0.98 (0.97, 0.99)	1.01 (0.999, 1.02)	0.97 (0.96, 0.98)	0.99 (0.96, 1.01)
Resides with a male partner, AOR (95% CI)	1	0.88 (0.48, 1.62)	1.05 (0.51, 2.16)	1.50 (0.47, 4.82)	1.02 (1.01, 1.03)	1.01 (0.99, 1.02)	1.00 (0.99, 1.02)	1.05 (1.02, 1.07)
Resides without adult family or male partner, AOR (95% CI)	1	1.45 (0.84, 2.49)	0.55 (0.29, 1.06)	1.26 (0.45, 3.49)	1.00 (0.99, 1.01)	0.98 (0.97, 0.995)	1.02 (1.01, 1.04)	0.96 (0.94, 0.98)
No. of people in the household, B (95%CI)	0	−0.11 (−0.29, 0.08)	1.00 (0.78, 1.22)	−0.34 (−0.70, 0.02)	0.001 (−0.001, 0.004)	0.00 (−0.003, 0.01)	−0.01 (−0.02, −0.01)	0.01 (−0.003, 0.02)
Employment, AOR (95% CI)								
Full time	1	1.01 (0.62, 1.66)	0.37 (0.20, 0.68)	0.98 (0.38, 2.51)	1.02 (1.01, 1.03)	0.99 (0.98, 1.001)	1.01 (0.997, 1.02)	1.02 (1.001, 1.04)
Part time	1	1.27 (0.84, 1.92)	0.71 (0.43, 1.17)	1.87 (0.85, 4.07)	0.99 (0.98, 0.996)	1.01 (0.996, 1.02)	1.02 (1.01, 1.03)	0.98 (0.96, 1.003)
Not working	1	0.78 (0.49, 1.25)	3.06 (1.78, 5.25)	0.51 (0.20, 1.33)	0.99 (0.99, 0.998)	1.00 (0.99, 1.01)	0.98 (0.97, 0.99)	0.98 (0.96, 1.01)
Income and poverty								
Personal income, B (95% CI)	0	104.51 (−38.11, 247.14)	−175.08 (−342.03, −8.12)	−54.22 (−325.16, 216.73)	9.88 (7.13, 12.63)	−2.18 (−6.62, 2.27)	2.44 (−2.88, 7.75)	6.79 (−2.08, 15.67)
Household income,[b] B (95% CI)	0	148.81 (−131.28, 428.90)	−91.63 (−435.17, 251.91)	−240.05 (−795.96, 315.86)	16.08 (10.65, 21.51)	0.73 (−7.93, 9.40)	−3.19 (−13.83, 7.45)	19.1 (1.35, 36.86)
Below the FPL,[b] AOR (95% CI)	1	0.85 (0.50, 1.45)	3.77 (1.96, 7.25)	1.10 (0.38, 3.20)	1.00 (0.99, 1.01)	1.01 (0.997, 1.03)	0.99 (0.97, 1.01)	0.99 (0.96, 1.02)
Percentage of FPL,[b] B (95%CI)	0	0.13 (−0.05, 0.32)	−0.34 (−0.57, −0.12)	−0.05 (−0.41, 0.31)	0.00 (0.0001, 0.01)	0.00 (−0.01, 0.002)	0.00 (−0.005, 0.01)	0.01 (−0.001, 0.02)
Subjective poverty, AOR (95% CI)	1	0.71 (0.46, 1.12)	1.54 (0.88, 2.68)	2.27 (0.91, 5.64)	0.98 (0.97, 0.99)	1.01 (0.998, 1.03)	1.01 (0.99, 1.03)	0.97 (0.94, 0.999)

Note. AOR = adjusted odds ratio; CI = confidence interval; FPL = federal poverty level[15]; TANF = Temporary Assistance for Needy Families; WIC = Special Supplemental Nutrition Program for Women, Infants, and Children. n = 813 women, 6373 observations except WIC (n = 812 women and 2273 observations) and household income and poverty measures (n = 762 women and 4980 observations). All models were adjusted for baseline age, parity, household structure, and the baseline value of the dependent variable. Study group coefficients and AORs indicate the difference 4.4 months after receipt or denial of abortion services. For consistency with the 6-mo increments of our interviews and of the predicted values, we report these as occurring at 6 months in the text of the article. Months refers to the change over time for near limits. Study Group × Month shows how change for that group differs from that of near limits. Estimates presented are AORs for binary outcomes and Bs for continuous outcomes.

[a]Model for receipt of assistance from the WIC program is limited to the first 2 years of the study because of rapidly declining participation over time.

[b]Baseline value is FPL coded as a 3-part categorical variable (below 100% FPL, at or above 100% FPL, missing FPL).

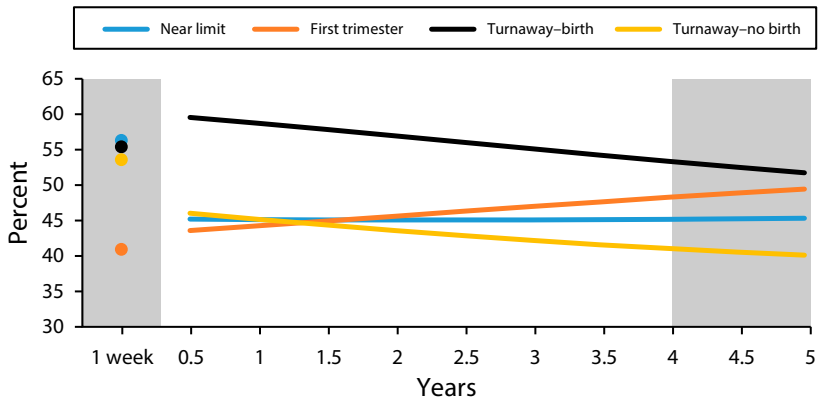
that persisted through 4 years (Figure 1). Throughout the period between 1 and 5 years after seeking an abortion, turnaway–birth women were more likely than near limits to report subjective poverty—not having enough money to cover basic living expenses (Appendix B, available as a supplement to the online version of this article at http://www.ajph.org).

Intent-to-Treat Analyses

Both ITT and TOT effect estimates showed similar results as the primary analyses (Appendix A). In ITT analyses, we combined the turnaway–birth and turnaway–no birth groups into 1 turnaway group and compared them to near limits; we excluded first trimesters (Appendix A, Table A, available as a supplement to the online version of this article at http://www.ajph.org). The ITT estimates assessed the effect of turning a woman away from a requested abortion, regardless of whether she subsequently carried the pregnancy to term. The TOT estimates described the effect of carrying a pregnancy to term for those women who did so as a result of being denied an abortion. Both ITT and TOT estimates indicated that economic hardship is associated with denial of abortion services. As expected, given that more than three quarters of turnaway women carried their pregnancies to term, ITT and TOT effect estimates were similar. For all outcomes, the difference between near limits and turnaway–births was similar or greater than that between near limits and all turnaways (Appendix A, Tables B and C, available as a supplement to the online version of this article at http://www.ajph.org). Appendix A, Figure A (available as a supplement to the online version of this article at http://www.ajph.org) shows trends in selected ITT and TOT outcomes by receipt versus denial of abortion services in the United States.

DISCUSSION

Many women seeking abortion face economic hardship; half live below the FPL and three quarters struggle to pay for food, housing, and transportation. Denial of



Note. Model adjusted for baseline age, parity, household structure, and the baseline value of household poverty. One-week values are given for reference. Remaining outcomes can be found in Appendix B, available as a supplement to the online version of this article at http://www.ajph.org. Unshaded areas represent time periods in which the turnaway–birth group are significantly different ($P < .05$, based on a postestimation test) from the near-limit abortion group.

FIGURE 1—Trends in Household Poverty for 5 Years After Receipt or Denial of Abortion: United States, 2008–2016

abortion services exacerbates this hardship. We found large and statistically significant differences in the socioeconomic trajectories of women who were denied wanted abortions compared with women who received abortions—with women denied abortions facing more economic hardships—even after we accounted for baseline differences. Differences over time in employment, poverty, and receipt of public assistance suggest that public assistance programs served an important role in mitigating the loss of full-time employment for women denied an abortion. However, public assistance was not sufficient to support the increase in household size resulting from a new baby, and did not keep households of women denied an abortion from living in poverty. Differences in economic outcomes gradually converged over the 5 years. At the time of seeking an abortion, more than a quarter of all women in the study were living in a household as the only adult with children, and this increased significantly for women who were denied an abortion, indicating that the burden of raising a child often falls to women alone rather than to couples or an extended family.

Strengths and Limitations

This study had several notable strengths that distinguish it from past research and address the major evidence gap regarding the economic consequences of policies regulating access to abortion. By studying women who wanted an abortion and comparing women who arrived just before the gestational age limit to women who arrived just after, we removed the major confounding factors related to whether a pregnancy was unwanted. This design enabled us to isolate the effects of receiving a wanted abortion, separate from need or desire to receive an abortion. Our results are robust to several different analytic approaches, confirming that the economic hardship comes not from being denied an abortion itself but from carrying the unwanted pregnancy to term.

Second, our models controlled for baseline values of each outcome variable. Ideally, this baseline value would have been measured before women learned whether they could obtain an abortion. However, our baseline values were measured 1 week after receipt or denial of abortion. To the extent that women had already reacted to impending parenthood by enrolling in public assistance programs, stopping full-time work, or reporting income inadequacy in the week after being denied an abortion, controlling for these baseline values will underestimate the impact of being denied an abortion.

This study had several limitations. A substantial fraction of women did not know their total household income, particularly at baseline. This missingness was highly associated with household composition—women who lived with adult family members (often parents) were less likely to know their total household income than women who were the sole adult in the household. To account for this, we controlled for household structure at first interview, which had no missingness, resulting in unbiased estimates, assuming that income values were missing at random conditional on household structure.[16] The participation rate in this study was 37.5%, within the range of other large-scale prospective studies with 5 years of follow-up.[17] Participation was not associated with our main comparison of interest (receipt vs denial of abortion). For ease of interpretation, we have used linear models of trends to summarize patterns that are probably not perfectly linear.

Finally, despite our quasi-experimental design, there were differences in economic well-being at baseline between study groups; we controlled for these differences in our models. Consistent with the literature showing that young age and nulliparity are associated with delay in recognition of pregnancy,[18–20] we found differences in age and parity by study group. The finding that turnaway–births were less likely to be employed at baseline is consistent with reports of lower past-month personal income among this group at baseline, likely ruling out the possibility that women had stopped working within the week once they learned they were going to carry a pregnancy to term. We controlled for differences in employment at baseline, yet we still found marked differences in trajectories of poverty and public assistance over time between women who received abortions and those who did not. Child support was too low to measure as an independent outcome but was included in household income.

Public Health Implications

Given the dynamic and intergenerational relationship between poverty and health, our finding of the close link between obtaining abortion care and subsequent poverty is important for providers and policymakers. The majority of women in the study were living in poverty at baseline, and carrying the unwanted pregnancy to term led to almost

a 4-fold increase in the odds that a woman's household income was below the FPL. Restrictions on abortion that prevent women from obtaining wanted abortions may result in reductions in full-time employment, increased incidence of poverty, more women raising children alone, and greater reliance on public assistance. The net result may have serious adverse economic consequences for women and children. Laws that impose a gestational limit for abortion or otherwise restrict access to abortion will result in worsened economic outcomes for women. AJPH

CONTRIBUTORS

D. Greene Foster contributed to study concept, design, funding, and supervision. D. Greene Foster, M. A. Biggs, L. Ralph, and S. Roberts drafted the article. D. Greene Foster, L. Ralph, S. Roberts, and M. M. Glymour performed statistical analysis. All authors performed analysis or interpretation of data and critical revision of the article for important intellectual content.

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HUMAN PARTICIPANT PROTECTION

The Turnaway Study was approved by the University of California, San Francisco, Committee on Human Research.

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