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## Abortion and Mental Health: Findings From the National Comorbidity Survey-Replication

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### Abstract

**Objective**—To examine whether a first abortion increases risk of mental health disorders compared to a first childbirth, with and without considering prepregnancy mental health and adverse exposures, childhood economic status, miscarriage history, age at first abortion or childbirth, and race or ethnicity.

**Methods**—A cohort study compared rates of mental disorders (anxiety, mood, impulse-control, substance use, eating disorders, and suicidal ideation) among 259 women postabortion and 677 women postchildbirth aged 18 to 42 at the time of interview from The National Comorbidity Survey-Replication

**Results**—The percentage of women with no, one, two, and three or more mental health disorders before their first abortion was 37.8%, 19.7%, 15.2% and 27.3%, and before their first childbirth was 57.9%, 19.6%, 9.2%, and 13.3% respectively, indicating that women in the abortion group had more prior mental health disorders than women in the childbirth group,  $p < .001$ . Although in unadjusted Cox proportional hazard models, abortion compared to childbirth was associated with statistically significant higher hazards of postpregnancy mental health disorders, associations were reduced and became nonstatistically significant for five disorders after adjusting for the aforementioned factors. Hazard ratios (HR) and associated 95% confidence intervals dropped from 1.52 (1.08-2.15) to 1.12 (0.87-1.46) for any anxiety disorder; from 1.56 (1.23-1.98) to 1.18 (0.88-1.56) for mood disorders; from 1.62 (1.02-2.57) to 1.10 (0.75-1.62) for impulse-control disorders; from 2.53 (1.09-5.86) to 1.82 (0.63-5.25) for eating disorders; and from 1.62 (1.09-2.40) to 1.25 (0.88-1.78) for suicidal ideation. Only abortion and substance use disorders remained statistically significant, although the HR dropped from 3.05 (1.94-4.79) to 2.30 (1.35-3.92).

**Conclusions**—After accounting for confounding factors, abortion was not a statistically significant predictor of subsequent anxiety, mood, impulse-control, and eating disorders or suicidal ideation.

### Introduction

Thirty percent of U.S. women will have an abortion by the time they are age 45<sup>1</sup>. Understanding whether such a common procedure causes mental health problems is important for clinical practice and policy. Conflicting findings currently exist in the literature; these reflect limitations of available data and variations in methodological rigor allowing for control over confounding factors. Some of the strongest evidence has come

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from research linking Danish population registries reporting reproductive events and those reporting inpatient and outpatient psychiatric admissions. While analyses using these registries found higher rates of psychiatric admissions in the 12-months following abortion compared to the 12-months following birth, rates of these disorders were also higher during the 9 months before abortion compared to the 9 months before birth<sup>2</sup>.

It also addresses shortcomings in existing U.S. studies, including inappropriate comparison groups, inadequate measurement of mental health outcomes, and failure to control for confounding factors<sup>3-5</sup>. The study reported here tests whether women's risk of having clinical mental health problems, assessed by structured psychiatric interviews, is higher after a first abortion compared with after a first childbirth, contrasting findings with and without adjustment for possible confounding factors. Moreover, the study here also contrasts findings with another study using the same data set that examined the association between *lifetime* abortion (compared with no abortion) and *lifetime* mental health outcomes<sup>6</sup>, which means it did not assess when the mental health outcomes occurred relative to the abortion. The current study extends this research by using a U.S. national sample on which psychiatric disorders meeting DSM-IV criteria were assessed. This provides an evaluation of actual incidence of disorders that is not biased by health care utilization.

## Methods

The National Comorbidity Survey-Replication was designed to be representative of English-speaking adults ages 18 or older living in the non-institutionalized civilian household population of the continental U.S.<sup>7</sup> It was administered by trained lay interviewers using laptop computer-assisted personal interview (CAPI) methods between February 2001 and April 2003. National Comorbidity Survey-Replication data assess the prevalence of DSM-IV mental health disorders in the U.S. and their correlates<sup>7</sup> and is the most recent cohort of the National Comorbidity Surveys. More specific details on study design and measures may be found elsewhere<sup>7,8</sup>.

The National Comorbidity Survey-Replication interview had two parts. Part 1 assessed presence and past history of mental health disorders and suicidal behaviors. Part 2 assessed potential correlates of these disorders among a sub-sample of Part 1 respondents, consisting of those who screened positive for a mental health disorder in Part 1 supplemented by a probability subsample of other respondents. Since questions pertaining to pregnancy history and adverse exposures were administered in Part 2, the sample consisted of women who were administered both Parts 1 and 2. Of these, only those who were 13 or younger in 1973, when *Roe v. Wade*<sup>9</sup> legalized having an abortion in the U.S. ( $n = 1633$ ), were included to ensure women's entire reproductive lifespans occurred during the time when abortion was legal. Eighty-nine who reported not having had sex, 124 missing on pregnancy history information necessary for this study, and 484 who reported having had no children and no abortions were excluded, leaving 936 women aged 18 to 42 for analysis (see Appendix 1, available online at <http://links.lww.com/xxx> for flow diagram of sample). This research was exempt from the UCSF Committee on Human Research approval because data were de-identified.

Women were asked questions about previous abortions, childbirths, and miscarriages. Women were coded as having had an abortion if they reported having had an abortion, the number they had, and the age at their first abortion. Of the 986 women, 259 reported having had an abortion (191 only one and 68 more than one abortion). Women reporting an abortion were asked their age at first abortion, which was used to code when mental health problems occurred relative to a woman's first abortion.

Women reported the total number of children to which they ever gave birth and the current age of their biological children in three ranges up to 17 years old. Because no ranges went beyond 17 years old, we did not have age ranges for 110 women who had childbirths and no abortions and whose oldest child was 18 or older. Women were coded as having had a delivery if they reported having had no abortions and had all children aged 17 or younger. Women's exact age at first childbirth was not elicited. For those whose children were all aged 17 or younger, age at first birth can be bracketed to within a range based on the age of the respondent at the time of the interview and the age range (0-4 years, 5-12 years, or 13-17 years) within which the oldest biological child falls. This allowed us to compute a possible range for a woman's age at first childbirth to determine when mental health problems occurred relative to her first childbirth. Those who had children 18 or older ( $n = 110$ ) were excluded from analyses. The analyses presented below used the youngest possible age within the range because this attributes the maximum number of mental health disorders to be in the postpregnancy period and the mean age at first childbirth using the youngest possible age was the same as the mean age at first abortion. In Appendix 2, available online at <http://links.lww.com/xxx>, we explore sensitivity analyses to assess the affect of this choice.

Based on prior research with this data<sup>10-12</sup>, 20 mental health disorders that met the Diagnostic and Statistical Manual of Mental Disorders 4<sup>th</sup> edition, text revision<sup>13</sup> criteria and 3 suicidal behaviors were grouped into the following categories: anxiety disorders (panic disorder, agoraphobia, specific phobia, social phobia, generalized anxiety disorder, and post-traumatic stress disorder), mood disorders (major depression, bipolar disorder, and dysthymia), impulse-control disorders (attention deficit disorder, conduct disorder, oppositional defiant disorder, and intermittent explosive disorder), substance use disorders (alcohol abuse without dependence, alcohol dependence, drug abuse without dependence, drug dependence), eating disorders (anorexia, bulimia, and any binge eating disorder), and suicidal behaviors (thinking about suicide, making plans for suicide, attempt suicide).

For each category we computed whether a woman experienced a disorder postpregnancy and, if so, the number of years postpregnancy that the first disorder of that type occurred. The reported age of onset and most recent occurrence were linked to the woman's age at first abortion or age at first childbirth to determine whether mental health disorders occurred before or after her pregnancy outcome. If the disorder was recorded at exactly the age of the woman's first abortion or first childbirth, this was coded as occurring postpregnancy (at 0.5 months so it would be included in analyses). If a disorder occurred after a woman's first abortion or first childbirth, the number of years after this event that the disorder occurred was computed. Findings did not differ if we coded mental health disorders that occurred at the age of the woman's first abortion or childbirth as occurring before the pregnancy. Here we present findings with mental health outcomes as occurring at the same age as the pregnancy coded as occurring postpregnancy.

### Control factors

We examined factors that have been shown to differ between women who have abortions compared with women who do not<sup>14-21</sup>: number of pre-first abortion or pre-first childbirth (henceforth pre-pregnancy) mental health problems, number of pre-pregnancy adverse exposures, pre-pregnancy miscarriage history, age at first pregnancy, race or ethnicity, and childhood economic status (low compared with not low). *Number of pre-pregnancy mental health problems* was determined by assessing whether each of the mental health disorders occurred before women's first abortion (if having had an abortion) or first childbirth (if having had no abortions). The number occurring beforehand was then coded into none, one, two, and three or more mental health problems pre-pregnancy. *Number of pre-pregnancy adversities* was computed by summing the number of the following experiences that

occurred to the women in the sample, before their first abortion or childbirth: any parental loss (parental death, parental divorce, or the woman going away for 6 months or longer to foster care or to live with other relatives), any parental mental illness (depression, anxiety, or substance use disorder), parental criminal behavior, parental violent conflict, physical abuse, sexual abuse, childhood neglect, any personal safety threat, and intimate partner violence. Number of pre-pregnancy adversities was then coded into none, one, or two or more. *Sociodemographic factors* we included were: age at pregnancy event, race/ethnicity (non-Hispanic white, African American, Hispanic, Other) and childhood economic status (low compared with not low). Similar to another study with this dataset<sup>22</sup>, childhood economic status was coded as low if women reported growing up in a family which received government assistance for 6 months or more during childhood. In addition, if women reported living with only one parental figure and that parent had less than a high school education, reported living with two parental figures, both of whom had less than a high school education, or reported living with no parental figures. For 58 women who did not have information on parental education, we followed Green and colleagues' definition<sup>22</sup> in which women who grew up with both a male and female parental figure or in single-parent homes where the parent worked "most or all of the time" were coded as not growing up in low childhood economic status. We did not have information on respondent's marital status or education level at the time of the pregnancy event.

Survival analyses for each of the six categories of mental health problem were conducted using Cox proportional hazard models. The age at first abortion or childbirth was considered the entry point into the study and we analyzed time from then until a first mental health problem in that category, or if no mental health problem until their age at the time of interview. Following recommendations<sup>23</sup>, we checked that the proportional hazard assumption was met for the abortion compared with childbirth coefficient.

We considered several models with various levels of adjustment for confounding. Model 1 tested the relationship between first abortion compared with first delivery and time until postpregnancy onset of a mental health problem in an unadjusted Cox proportional hazards model. Model 2 adjusted for pre-pregnancy mental health only. Model 3 adjusted for pre-pregnancy adversities, pre-pregnancy miscarriage, age at time of pregnancy, and childhood economic status; and Model 4 controlled for all the factors in Models 2 and 3. The data were collected using a multi-stage cluster probability area sample, which requires special analytic care. Using Stata 10.1, we incorporated sampling weights for the Part 2 subsample to guarantee national representativeness and clusters and strata to correctly calculate standard errors with this design.

## Results

Women in the abortion group were more likely to have never been married,  $p = .001$ , to have had more prior adverse experiences,  $p = .049$ , and to have had a pre-pregnancy miscarriage,  $p = .044$ , than women in the childbirth group (Table 1). In addition, before their pregnancy, women who had abortions had significantly more mental health disorders overall,  $p < .001$ , and were significantly more likely to have had an anxiety disorder,  $p = .004$ , mood disorder,  $p < .001$ , substance use disorder,  $p < .001$ , and suicidal ideation,  $p < .001$ , and marginally more likely to have had an impulse-control disorder,  $p = .059$ , than women in the childbirth group (Table 2).

The total follow-up time for women was 8,095 years for anxiety disorders, 8,437 years for mood disorders, 8,909 years for impulse-control disorders, 8,923 years for substance use disorders, 9,645 years for eating disorders, and 8,920 years for suicidal ideation. In addition, 50% of women contributed 9 or more years for anxiety disorders, 10 or more years for mood

disorders, 12 or more years for impulse-control disorders, 12 or more years for substance use disorders, 12 or more years for eating disorders, and 13 or more years for suicidal ideation. Women who had abortions were more likely to have more mental health problems postpregnancy than women in the childbirth group,  $p < .001$  and to have each type of disorder or suicidal ideation at some point postpregnancy, all  $p$ -values  $< .045$  (Table 2). This is reflected in hazard ratios presented in Table 3, which shows that women who had an abortion had an increased hazard of having a postpregnancy anxiety disorder (HR = 1.52, 95% CI: 1.08-2.15), mood disorder (HR = 1.56, 95% CI: 1.23-1.98), impulse-control disorder (HR = 1.62, 95% CI: 1.02-2.57), substance use disorder (HR = 3.05, 95% CI: 1.94-4.79), eating disorder (HR = 2.53, 95% CI: 1.09-5.86), and suicidal ideation (HR = 1.62, 95% CI: 1.09-2.40) compared to women in the childbirth group, when no factors were considered in analyses (Model 1).

Adjustment for number of pre-pregnancy mental health disorders markedly attenuated the hazard ratios (Model 2). However, the hazard ratios for all of the psychiatric disorders remained significant after adjustment for pre-pregnancy adversities, pre-pregnancy miscarriage, age at time of pregnancy and childhood economic situation (Model 3). Adjustment for pre-pregnancy mental health and the factors included in Model 3 (Model 4) revealed hazard ratios similar to Model 2. Once pre-pregnancy mental health is included, none of the hazard ratios except for substance use disorders remained significant: anxiety disorders HR = 1.12, 95% CI: 0.87-1.46; mood disorders HR = 1.18, 95% CI: 0.88-1.56; impulse-control disorders HR = 1.10, 95% CI: 0.75-1.62; substance use disorders HR = 2.30, 95% CI: 1.35-3.92; eating disorders HR = 1.82, 95% CI: 0.63-5.25; suicidal ideation HR = 1.25, 95% CI: 0.88-1.78.

Appendix 3 (available online at <http://links.lww.com/xxx>) presents the hazard ratios of all factors in Model 4. Having three or more mental health problems compared to none before the pregnancy event significantly increased women's hazards of having postpregnancy mental health disorders, all  $p$ -values  $< .005$ . In addition, women who were younger at the time of their pregnancy event were more likely to have postpregnancy mental health problems for all disorders except mood and eating disorders, all  $p$ -values  $< .011$ .

To make the findings more concrete, Table 4 presents descriptive analyses giving the predicted probability of having a first postpregnancy mental health problem by 5 years postpregnancy for each of the 6 mental health outcomes for various prototypical women. For all outcomes, with the exception of substance use disorders, the likelihood of having a disorder was not statistically different between the abortion and childbirth groups (see Table 3). For instance, for a woman who is 20 at the time of her pregnancy, the predicted probability of having a mood disorder by 5 years postpregnancy for a woman with no pre-pregnancy mental health problems is .05 for both the abortion and childbirth groups.

Results from the sensitivity analysis, presented in Appendixes 4 and 5 (available online at <http://links.lww.com/xxx>), yielded findings consistent with the findings presented above. One difference, however, should be noted. When using the oldest possible age at first childbirth for the childbirth group, there was no statistically significant association between abortion and subsequent substance use disorders in Model 4, HR = 1.53, 95% CI: 0.91-2.56.

## Discussion

The current research adds to the literature by using a nationally representative U.S. sample, examining clinical-level mental health disorders, comparing women who abort to women who give birth, and controlling for a range of mental health disorders occurring prior to the pregnancy. We found that while abortion compared with childbirth was associated with all

six categories of disorders in unadjusted models, in models adjusted for pre-pregnancy mental health, the associations between abortion and subsequent anxiety, mood, impulse, and eating disorders and suicidal ideation were markedly attenuated and non-significant while substance abuse remained elevated. In addition, pre-pregnancy mental health was a strong predictor of postpregnancy mental health. These results, along with our findings that women having abortions had a higher number of pre-pregnancy mental health disorders lend support to the perspective that the link between abortion and subsequent mental health link may be driven by other factors—in this case prior mental health<sup>3,24</sup>. They also support other research showing that pre-pregnancy mental health is a strong predictor of postpregnancy mental health<sup>3-5,13-16,19,24,25</sup> and having abortions<sup>15,16,24</sup>.

Unlike the other disorders, the association between abortion and substance use disorders remained significant, though it was reduced, after controlling for pre-pregnancy mental health problems. This may reflect an actual association between abortion and substance use or merely inadequate control for all factors specifically related to substance use disorders such as women's risk-taking tendencies. Such risk-taking tendencies may be manifested by substance use and sexual behaviors that lead to having unwanted pregnancies (and abortions). Therefore, the association between abortion and substance use may have remained significant because we did not control for risk-taking tendencies. Alternatively, subthreshold substance use problems, which were not controlled for in analyses, are likely related to having both unwanted pregnancies and subsequent substance use disorders. It could also be that both the internal motivation and social pressure for women to avoid substance use during pregnancy carries over to the period of motherhood and contributes to a lower risk of substance use disorders after a childbirth relative to after an abortion. It should also be noted that this association was not statistically significant in supplementary analyses when oldest possible age at first childbirth was used (see Appendix 5, <http://links.lww.com/xxx>) and all factors were included, suggesting it may not be reliable.

These results differ from a prior analysis with the National Comorbidity Survey-Replication data which reported a significant association between lifetime abortion and lifetime mood disorders, anxiety disorders, substance use disorders, and suicidal ideation. Although the researchers controlled for age at interview, marital status, race, education, income, and violence experience<sup>6</sup>, they did not differentiate pre-pregnancy from postpregnancy mental disorders. By using lifetime mental health as the outcome, they could not determine if the mental health disorder occurred before or after the abortion. The current analysis coded mental health post-abortion or post-childbirth, illustrating the importance of considering timing of abortion relative to the mental health problem and controlling for prior mental health.

Although the birth group in the current study is better-matched to the abortion group than in other prior research, they are likely to differ in substantial ways, only some of which can be adequately adjusted. In the U.S., 95% of abortions and 37% of births are the result of unintended pregnancies<sup>25,26</sup>. Limiting the birth group to women who had delivered at least one child and reported no abortions meant that many women in the comparison group had successfully avoided unintended pregnancies and were thus less likely to have some of the risk factors for mental health disorders which are also risk factors for unintended pregnancy. That we found no significant association between abortion and subsequent mental health after accounting for pre-pregnancy mental health for five outcomes even with this differential selection provides strong evidence against the claim that abortion significantly harms women's mental health.

The use of the National Comorbidity Survey-Replication has both advantages and disadvantages. While data are representative of English-speaking non-institutionalized

women living in the continental U.S., they are not representative of those living in Hawaii or Alaska or who are not fluent in English. In addition, while clinical mental health disorders are assessed according to DSM-IV criteria, data are based on self-report and recall of life events. Although care was taken to maximize accuracy of reporting and diagnoses, some mental health inaccuracy in diagnoses and abortion underreporting are likely<sup>27,28</sup>. For instance, in a similar sample from the National Comorbidity Survey-Replication, we found that only 44% of abortions were reported<sup>21</sup>; this is similar to the level of underreporting of abortion from other national datasets<sup>28,29</sup>. It is not known how inaccuracy of mental health diagnoses or reporting of abortion influence the findings. Nevertheless, these findings support previous prospective research which has compared women who abort to women who give birth<sup>2,30,31</sup>. For instance, in a reanalysis of a sample from New Zealand, Fergusson and colleagues<sup>30</sup> found that, compared to women who gave birth to unwanted pregnancies, women who had abortions were not at a significant increased risk of subsequent anxiety disorders, depressive disorders, substance use disorders, and suicidal ideation when mental health at age 15, childhood adversities, and family environment were controlled in analyses. In addition, research using Danish registries data has found support for the notion that mental health problems around the time of abortion are driven by factors other than the abortion<sup>2,31</sup>.

Groups opposed to abortion have used studies showing associations between abortion and mental disorders to advocate for restrictive policies. The results reported here show that policies which require women be told that abortion increases their risk of anxiety, depression, and suicide<sup>32,33</sup> lack an evidence base. In this study, it was not abortion that increased women's risk of these mental health problems, but rather prior mental health problems that increased women's risk for both abortion and subsequent mental health disorders, and suicidal behaviors. This does not mean that abortion care settings should ignore mental health risk. Women seeking abortions may be at higher risk of prior mental health disorders and the abortion care setting may be an important intervention point for mental health screening and referrals.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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**Table 1**

## Descriptive Statistics of Study Sample by Pregnancy Group

	Childbirth Group	Abortion Group	<i>P</i>
<b>Unweighted n</b>	677	259	
<b>Weighted n</b>	573.9	172.9	
<b>Sociodemographic factors</b>			
<b>Age<sup>*</sup> (mean, SE)</b>	30.8 (.44)	31.3 (.56)	.479
<b>Age at pregnancy event (mean, SE)</b>	20.5 (.26)	20.5 (.41)	.918
<b>Education<sup>*</sup> (%)</b>			0.716
Less than high school	15.1	19.2	
High school	33.6	31.6	
Some college	31.1	31.5	
College grad or more	20.3	17.7	
<b>Marital status<sup>*</sup> (%)</b>			.001
Married/Cohabiting	68.5	51.6	
Divorced/Separated	14.3	17.0	
Never married	17.2	31.4	
<b>Race (%)</b>			.066
White	60.0	52.0	
Hispanic	19.6	18.1	
African American	16.0	19.7	
Other	4.4	10.3	
<b>Low childhood economic situation</b>			.774
Yes	26.6	27.8	
No	73.4	72.2	
<b>Adverse exposures<sup>†</sup> (%)</b>			.049
None	31.2	20.1	
One	29.4	31.4	
Two or more	39.4	48.6	
<b>Miscarriage before pregnancy (%)</b>	6.0	12.4	.044

\* At time of interview.

<sup>†</sup> Before 1<sup>st</sup> abortion if in the abortion group and first childbirth if in the childbirth group.

SE, standard error.

**Table 2**

Percent of Prepregnancy and Postpregnancy Mental Health Disorders by Pregnancy Outcome

	Pregpregnancy		Postpregnancy	
	Birth Group	Abortion Group	Birth Group	Abortion Group
Unweighted n	677	259	677	259
Weighted n	573.9	172.9	573.9	172.9
Any anxiety disorder	27.2*	39.3*	31.8*	46.4*
Any mood disorder	10.6*	21.0*	22.9*	36.0*
Any impulse-control disorder	17.8 <sup>§</sup>	25.9 <sup>§</sup>	15.0 <sup>†</sup>	23.3 <sup>†</sup>
Any substance use disorder	4.8*	13.4*	7.0*	19.9*
Any eating disorder	1.5	2.9	2.3 <sup>†</sup>	5.7 <sup>†</sup>
Any suicidal ideation	8.9*	20.5*	9.8 <sup>†</sup>	15.9 <sup>†</sup>
Number of disorders and suicidal behaviors	*	*	*	*
None	57.9	37.8	52.8	31.2
One	19.6	19.7	19.8	17.3
Two	9.2	15.2	8.7	16.9
Three or more	13.3	27.3	18.7	34.6

All p-values calculated using the chi-square test.

\*  $p < .005$ †  $p < .05$ §  $p < .10$  using chi-square test

**Table 3**

Hazard Ratios (and 95% Confidence Intervals) of Abortion Compared With Delivery for Each Disorder

Type of Disorder	Model 1	Model 2	Model 3	Model 4
Anxiety disorders	1.52 <sup>†</sup> (1.08-2.15)	1.12 (0.86-1.46)	1.50 <sup>†</sup> (1.08-2.09)	1.12 (0.87-1.46)
Mood disorders	1.56 <sup>*</sup> (1.23-1.98)	1.18 (0.91-1.52)	1.53 <sup>†</sup> (1.19-1.95)	1.18 (0.88-1.56)
Impulse-control disorders	1.62 <sup>†</sup> (1.02-2.57)	1.10 (0.74-1.65)	1.51 (0.99-2.31)	1.10 (0.75-1.62)
Substance use	3.05 <sup>*</sup> (1.94-4.79)	2.25 <sup>*</sup> (1.35-3.78)	2.86 <sup>*</sup> (1.86-4.39)	2.30 <sup>*</sup> (1.35-3.92)
Eating disorders	2.53 <sup>†</sup> (1.09-5.86)	1.79 (0.68-4.73)	2.39 (0.92-6.19)	1.82 (0.63-5.25)
Suicidal ideation	1.62 <sup>†</sup> (1.09-2.40)	1.25 (0.87-1.79)	1.52 <sup>†</sup> (1.05-2.19)	1.25 (0.88-1.78)

\*  $p < .005$ ,<sup>†</sup>  $p < .05$ 

Model 1 is unadjusted; Model 2 is adjusted for prepregnancy mental health disorders; Model 3 is adjusted for prepregnancy adversities, miscarriage before pregnancy event, age at pregnancy event, race or ethnicity, and childhood economic status; and Model 4 is adjusted for the factors in Models 2 and 3.

**Table 4**

Predicted Probability of a Woman\* Having Each Type of Postpregnancy Disorder at Less Than or Equal to 5 Years After Pregnancy by Age, Number of Prior Mental Health Problems, and Pregnancy Outcome

	No Prior Mental Health Problems		One Prior Mental Health Problem		Three or More Prior Mental Health Problems	
	Abortion	Childbirth	Abortion	Childbirth	Abortion	Childbirth
<b>Age 20 at Time of Abortion/Childbirth</b>						
Anxiety disorders	.04	.03	.27	.24	.43	.40
Mood disorders	.05	.05	.11	.10	.30	.26
Impulse-control disorders	.02	.02	.09	.08	.23	.21
Substance use disorders	.05	.02	.07	.03	.26	.12
Eating disorders	.007	.004	.007	.004	.05	.02
Suicidal ideation	.03	.03	.07	.06	.18	.15
<b>Age 30 at time of abortion/childbirth</b>						
Anxiety disorders	.03	.02	.20	.18	.33	.30
Mood disorders	.05	.04	.10	.09	.27	.23
Impulse-control disorders	.006	.005	.03	.03	.08	.08
Substance use disorders	.02	.007	.02	.01	.09	.04
Eating disorders	.005	.003	.005	.003	.03	.02
Suicidal ideation	.01	.008	.02	.02	.06	.05

\* This table gives predicted probabilities derived from model 4 reported in Table 3 and Appendix 3 (available online at <http://links.lww.com/xxx>). The covariates not given in Table 3 but in the model were set to race = White, number of prior adversities = 0, miscarriage history = none, and childhood economic situation = not low; these were the most common characteristics in this sample.