



MICHIGAN BRFSS SURVEILLANCE BRIEF

A NEWSLETTER FROM THE CHRONIC DISEASE EPIDEMIOLOGY UNIT, MDCH

The Prevalence of Infertility and Pregnancy Loss in Michigan

Background. The desire to have one’s own biological children can be compelling and building a family is a sensitive choice. The effects of infertility, defined as the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected intercourse¹, and pregnancy loss (miscarriage, stillbirth) can be a devastating experience for families. Infertility affects a significant proportion of men and women of reproductive age in the United States, with 6.0% of married women aged 15-44 years and 12% of men aged 25-44 years reporting infertility and 10.9% of women aged 15-44 years reported difficulty getting pregnant or carrying a pregnancy to term in 2006-2010.² Many conditions have been associated with infertility including genetic abnormalities, infectious disease, environmental agents, behavioral risk factors and the natural aging process. Awareness of infertility and pregnancy loss as important public health problems has increased. Prior to this report, state-level estimates of infertility were based solely on survey of those who sought treatment, thus the prevalence of infertility in some groups may have been underestimated as financial barriers limit access to diagnostics, evaluation and treatment.³

In collaboration with the Centers for Disease Control and Prevention (CDC), Michigan has developed an infertility surveillance plan. As part of this plan, the Behavioral Risk Factor Surveillance System (BRFSS) is used to better understand the burden of infertility and pregnancy loss in our state.

Methods. Questions related to infertility, pregnancy loss (miscarriage or stillbirth), selected health conditions/behaviors and respondent demographics were included within the 2012 Michigan Behavioral Risk Factor Survey (MiBRFS).

Infertility and pregnancy loss were determined based on responses to the following question: Have you or your spouse/partner ever experienced infertility or difficulty carrying a pregnancy due to miscarriage or stillbirth? Responses of those who were not married/coupled were based on personal history only.

Respondents who indicated that they or their spouse/partner had ever experienced infertility or pregnancy loss were asked a follow-up question to determine the type of condition experienced. Respondents who experienced infertility or pregnancy loss were also asked about the treatments they received for these conditions.

These data were used to assess the prevalence of infertility (men and women) and miscarriage or stillbirth (women only) among Michigan adults aged 18-50 years. Demographic and health condition/behavior subpopulations were compared to determine if significant differences existed in infertility and pregnancy loss. The treatments utilized by those who experienced infertility and/or pregnancy loss were also examined.

Results. In 2012, an estimated 5.8% of Michigan adults aged 18-50 years who were trying to get pregnant reported having ever

Table 1. Infertility and Pregnancy Loss among Michigan Adults Aged 18-50 Years That Have Tried to Get Pregnant, 2012 Michigan BRFS

	Ever Experienced Infertility (men and women)		Ever Experienced Miscarriage or Stillbirth (women only)	
	%	95% CI	%	95% CI
Total	5.8	(4.8-6.9)	23.0	(20.3-25.9)
Age				
18-39 years	5.0	(3.9-6.5)	24.8	(20.9-29.2)
40-50 years	6.9	(5.5-8.8)	20.8	(17.4-24.6)
Race				
White, non-Hispanic	6.3	(5.1-7.6)	22.8	(19.9-26.0)
Other	4.5	(2.9-6.9)	22.8	(17.2-29.5)
Marital Status				
Married/Coupled	7.7	(6.3-9.3)	20.7	(17.8-24.0)
Divorced/Widowed/Separated/ Never Married	3.9	(2.7-5.6)	27.2	(22.1-32.9)
Education				
Some College or Less	5.5	(4.3-6.9)	22.7	(19.4-26.4)
College Graduate or Higher	6.8	(5.3-8.7)	23.7	(19.9-28.0)
Annual Household Income				
Less than \$75,000	5.9	(4.7-7.5)	23.6	(20.1-27.4)
\$75,000 or more	6.7	(5.1-8.7)	22.0	(18.0-26.7)
Health Insurance				
Yes	6.1	(5.0-7.4)	22.8	(20.1-25.9)
No	4.6	(2.8-7.5)	24.1	(16.5-33.8)
Personal Health Care Provider				
Yes	6.6	(5.5-7.9)	22.7	(19.9-25.8)
No	3.3	(1.8-5.7)	25.2	(17.7-34.5)

MiBRFSS News

- Data collection for the 2013 MiBRFS was completed in January 2014. This data is currently being weighted by the CDC and should be available for analysis in April or May 2014. Updated prevalence estimates from these data should be available in June or July 2014.
- Data collection for the 2014 MiBRFS started on January 15th, 2014 and will continue throughout the entire calendar year.
- Did you miss an issue of Michigan BRFSS Surveillance Brief? Back issues are available on our website (www.michigan.gov/brfs).

experienced infertility (Table 1). Only 2.7% of male respondents within this age group reported ever having experienced infertility (data not shown). Furthermore, an estimated 23.0% of Michigan women aged 18-50 years that were trying to get pregnant reported having ever experienced a miscarriage or stillbirth (Table 1). Respondents who were married/coupled reported higher prevalences of infertility and miscarriage/stillbirth than their non-coupled counterparts. Respondents with a personal health care provider also reported a higher prevalence of infertility than those without a health care provider (6.6% vs. 3.3%).

The prevalence of infertility and miscarriage/stillbirth was significantly higher among those with certain health conditions/behaviors (Table 2). The prevalences of both infertility and miscarriage/stillbirth were significantly higher among those who were ever told they had asthma or depression. Those who were ever told they had arthritis reported a higher prevalence of infertility (9.1% vs. 5.1%), while current smokers reported a higher prevalence of miscarriage/stillbirth (29.4% vs. 20.2%).

Among adults aged 18-50 years with a history of infertility or miscarriage/stillbirth, 51.6% and 18.1%, respectively, sought treatment for these conditions (data not shown). Among those with a history of infertility, the majority (75.9%) reported using a non-assisted reproductive technology (non-ART) treatment, while only 20.1% reported using ART. Among those who reported a history of miscarriage/stillbirth, 57.7% reported using non-ART treatments, while only 21.9% reported using ART.

Conclusions. These findings suggest that the prevalence of infertility or pregnancy loss among Michigan adults aged 18-50 years does not significantly differ based on age, race, education or household income, which is in contrast to previous analyses where infertility treatment was more prevalent among Whites and among adults with more years of education and higher income.⁴ Findings also confirm that barriers exist between those affected by infertility and treatment. Nearly half of respondents with infertility in this survey reported that they did not seek treatment and of those who sought treatment the vast majority reported using non-ART methods. Surveillance of maternal and infant health related to ART is the focus of a CDC-led collaborative, but information about outcomes subsequent to non-ART treatment is lacking.

Nearly one-quarter of Michigan women aged 18-50 reported a pregnancy loss such as a miscarriage or stillbirth. In addition, the lifetime rate is higher among women who smoke or who have chronic conditions such as arthritis, asthma and depression. Although a temporal relationship can not be established, further analysis of these data may be useful to better understand factors associated with pregnancy loss.

References

- ¹ Zegers– Hochschild F, Adamson GD, de Mouzon J, et al. International Committee for Monitoring Assisted Reproductive Technology and the World Health Organization revises glossary of ART terminology. *Fertil Steril* 2009; 92:1520-4.
- ² Chandra A., Copen CE, Stephen EH. Infertility and Impaired Fecundity in the United States, 1982-2010: Data from the National Survey of Family Growth. *National Health Statistics Reports*;No.67. Hyattsville MD: National Center for Health Statistics. 2013.
- ³ Peterson MM. Assisted reproductive technologies and equity of access issues. *J Med Ethics* 2005;31:280-5.
- ⁴ Fussman C, Grigorescu V. Use of infertility treatments among Michigan adults. *Michigan BRFSS Surveillance Brief*. Vol. 5, No. 3. Lansing, MDCH, July 2011.

Table 2. Infertility and Pregnancy Loss among Michigan Adults Aged 18-50 Years That Have Tried to Get Pregnant by Health Condition/Behavior, 2012 Michigan BRFS

	Ever Experienced Infertility (men and women)		Ever Experienced Miscarriage or Stillbirth (women only)	
	%	95% CI	%	95% CI
Body Mass Index				
Less than 25.0	5.0	(3.7-6.8)	23.5	(19.3-28.3)
25.0-29.9	5.1	(3.6-7.1)	24.9	(19.6-31.2)
30.0 or more	7.2	(5.3-9.8)	19.7	(15.2-25.2)
Ever Told Arthritis				
Yes	9.1	(6.3-13.1)	27.5	(21.9-33.8)
No	5.1	(4.2-6.3)	21.8	(18.9-25.2)
Current Smoking				
Yes	5.9	(4.0-8.7)	29.4	(23.6-36.0)
No	5.7	(4.7-6.9)	20.2	(17.5-23.3)
Current Asthma				
Yes	10.8	(7.0-16.1)	35.7	(26.9-45.5)
No	5.3	(4.3-6.4)	20.8	(18.1-23.8)
Ever Told Depression				
Yes	8.4	(5.9-11.8)	29.6	(23.9-36.2)
No	5.2	(4.2-6.3)	20.2	(17.4-23.4)

The Michigan Behavioral Risk Factor Surveillance System (MiBRFSS)
 The MiBRFSS comprises annual, statewide telephone surveys of Michigan adults aged 18 years and older and is part of the national BRFSS coordinated by the CDC. The annual Michigan Behavioral Risk Factor Surveys (MiBRFS) follow the CDC BRFSS protocol and use the standardized English core questionnaire that focuses on various health behaviors, medical conditions, and preventive health care practices related to the leading causes of mortality, morbidity, and disability. Landline and cell phone interviews are conducted across each calendar year. Data are weighted to adjust for the probabilities of selection and a raking weighting factor that adjusts for the distribution of the Michigan adult population based on eight demographic variables. All analyses are performed using SAS-callable SUDAAN® to account for the complex sampling design.

Suggested citation: Fussman C, McKane P. Infertility and Pregnancy Loss among Michigan Adults. *Michigan BRFSS Surveillance Brief*. Vol. 8, No. 1. Lansing, MI: Michigan Department of Community Health, Lifecourse Epidemiology and Genomics Division, Surveillance and Program Evaluation Section, Chronic Disease Epidemiology Unit, February 2014.

