

Fertility Beliefs and Menstrual Experiences Among Women Entering Opioid Use Disorder Treatment

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Objectives: Although many people with OUD may believe they are infertile due to chronic opioid use contributing to menstrual irregularities, minimal data exists on how opioid cessation and OUD treatment may impact fertility. We examine fertility perceptions and menstrual cycle characteristics of treatment-seeking women with OUD.

Methods: Data came from the Survey of Key Informants' Patients (SKIP) Program, a US-based opioid surveillance study of individuals newly entering OUD treatment. The SKIP Program recruits adults newly entering treatment for OUD to complete anonymous, self-report surveys. Respondents who identified as female or non-binary from 49 SUD treatment programs in 25 states were asked questions about their perceptions of fertility and menstrual cycle characteristics from January to March 2024. Analyses were restricted to women 18–49 years old with no history of hysterectomy.

Results: Of 637 respondents, 179 met criteria for analysis. The average age was 34.8 years (SD 7.0), 15.1% identified as Black, 10.6% Native American/Alaskan Native, and 58.7% White. The most common OUD treatment was buprenorphine (47.5%). Of respondents, 51.5% (85/165) did not believe they could become pregnant. Half (57.0%, 102/179) reported either irregular or no menstrual cycles in the year prior. Respondents who believed they could become pregnant were younger (32.0 vs. 37.1 y, $P < 0.0001$) than those who believed they were infertile.

Conclusions: Menstrual irregularities and perceptions of infertility were high among a nationally representative sample of treatment-seeking women with OUD, highlighting the need for

patient-provider discussions about these topics in the context of OUD treatment.

Key Words: fertility, menstrual cycles, opioid use disorder, pregnancy.

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Women with opioid use disorder (OUD) have higher rates of unintended pregnancies and lower rates of contraception use than the general population.^{1,2} At the same time, chronic opioid use is associated with menstrual cycle irregularities (amenorrhea and reduced probability of conceiving), likely through suppression of the hypothalamic-pituitary-ovarian axis.^{3–5} Treatment-seeking women with OUD often believe they cannot become pregnant,^{3,6} a perception that may stem from engagement in unprotected sex without conceiving while using opioids.^{7,8} For women entering OUD treatment, whether or not medications are used, accurate understanding of fertility status is critical for reproductive planning.

A significant gap exists in our understanding of women's knowledge of their fertility and menstrual cycles while using opioids and after initiating treatment. Although studies call for increased access to and uptake of contraception by women with OUD to prevent pregnancy,^{2,7,8} few prioritize women's lived experiences, and existing OUD-related fertility research has disproportionately focused on men.⁹ Understanding women's

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fertility perceptions and menstrual experiences is not only a reproductive justice issue, but also essential for supporting reproductive autonomy, whether women wish to conceive, delay pregnancy, or avoid pregnancy altogether. We aim to describe women's self-reported fertility perceptions and menstrual cycle characteristics among individuals seeking treatment for OUD.

METHODS

Study Sample

Data were sourced from the Survey of Key Informants' Patients (SKIP) Program, a national opioid surveillance study of individuals entering treatment with a primary diagnosis of OUD that began in 2011 and includes 154 treatment programs yielding ~3000 respondents annually from 47 states. This serial, cross-sectional survey is part of the Researched Abuse, Diversion and Addiction-Related Surveillance (RADARS) system, owned by Denver Health and Hospital Authority, and includes programs that collect and analyze US drug trend data.¹⁰ The SKIP Program recruits individuals aged at least 18 years who are newly entering treatment with a primary diagnosis of OUD to complete anonymous, self-report surveys (85% response rate). Data have been validated against other national drug surveillance programs.^{10,11} Respondents from 49 SUD treatment programs in 25 states were administered questions on fertility perceptions and menstrual cycle characteristics added to surveys distributed from January to March 2024.

Measures

Survey items, informed by the authors' clinical experience, assessed: perceived ability to become pregnant (yes/no) and reasons for this belief; menstrual cycle presence in the prior 12 months; cycle regularity (21–28 d vs. <21 or >35 d); and reasons for amenorrhea (eTable 1, Supplemental Digital Content 1, <http://links.lww.com/JAM/A816>). Demographic factors included age, race/ethnicity, pregnancy history, OUD treatment type, and treatment for psychiatric disorders. Although current contraceptive use was not explicitly assessed, respondents could self-report use of long-acting reversible contraception (LARC; intrauterine devices or implants) and permanent sterilization.

Study Sample and Analysis

Of 637 total respondents, 222 identified as women or non-binary, of which 184 were 18–49 years old, and 179 had an intact uterus (no history of hysterectomy; eFigure 1, Supplemental Digital Content 2, <http://links.lww.com/JAM/A817>). Respondents who reported use of LARC or permanent sterilization (tubal ligation, bilateral salpingectomy, or Essure) were included in the analytic sample due to the reversible nature of LARC and the possibility of assisted reproductive technologies among people with permanent sterilization allowing potential future pregnancies. We used summary statistics, proportions, and means to summarize survey responses. To

identify covariates (demographics, comorbidities, pregnancy history, and menstrual cycle characteristics) associated with perceived fertility, we used *t* tests for continuous variables and chi-square and Fisher exact tests for categorical variables. SAS Proc 9.4 was used for all analyses. All study materials and protocols were approved by Washington University in St. Louis' institutional review board.

RESULTS

Among 179 respondents of childbearing age with an intact uterus, 32 reported permanent contraception, 3 reported LARC use, and 2 reported other contraceptive methods. Mean age was 34.8 years (SD 7.0); 15.1% identified as Black, 10.6% as Native American/Alaskan Native, and 58.7% as White. OUD treatments included buprenorphine (47.5%), psychosocial treatment without medication (24.0%), methadone (24.0%), and extended-release naltrexone (5.0%; Table 1).

Most respondents reported at least one prior pregnancy (82.4%); however, 51.5% (85/165) did not believe they could become pregnant, most commonly due to permanent contraception (37.6%). Among respondents not using LARC or permanent contraception (*n* = 130), 38.5% perceived infertility, most often citing lack of conception despite regular unprotected sex (22.0%). Overall, 74.3% reported at least one menstrual cycle in the prior 12 months; 42.1% reported irregular cycles and 25.7% amenorrhea. Opioid use was the most commonly cited reason for amenorrhea or irregular cycles (22/93; 23.7%).

Respondents perceiving infertility were older than those perceiving fertility (37.1 vs. 32.0 y; *P* < 0.0001). Perceived fertility was more common among respondents with zero or one prior pregnancy compared to respondents with 2 or more pregnancies (19.7% vs. 14.6% and 22.4% vs. 7.2%, respectively; *P* = 0.03). Perceived fertility did not differ by race/ethnicity, menstrual regularity, OUD treatment type, or psychiatric history (Table 2).

DISCUSSION

Reproductive-age women with OUD in this study shared important insights about their menstrual history and perceptions of fertility after treatment entry. Over a third of respondents without permanent sterilization believed they were infertile, almost 3 times higher than estimates from women in the general population.¹² The most common reason for this belief among respondents not using LARC or permanent contraception was prior experiences of not conceiving despite regular unprotected sex, which could reflect reduced ability to conceive related to OUD or other unmeasured factors. Consistent with this belief, two-thirds reported irregular or absent periods in the prior year, with nearly 30% attributing menstrual irregularities to opioid use. Unexpected pregnancy under these circumstances can destabilize early recovery, underscoring the need to address fertility perceptions and reproductive health needs. Finally, increasing age and

TABLE 1. Demographics, Fertility Perceptions, and Menstrual Cycle Characteristics of Women With Opioid Use Disorder (N = 179)*

Variable	N (%)
Age (mean, SD)	34.8 (7.0)
Race	
Asian	2 (1.1)
Black	27 (15.1)
Latinx	11 (6.2)
Multiracial	12 (6.7)
Native American/American Indian	19 (10.6)
Other	3 (1.7)
White	105 (58.7)
Treatment type for OUD	
Buprenorphine	85 (47.5)
Methadone	43 (24.0)
Naltrexone (long-acting depo)	9 (5.0)
Psychosocial without medication	43 (24.0)
Ever treated for a psychiatric disorder (n = 171)	106 (62.0)
No. pregnancies (n = 170)	
0	30 (17.7)
1	23 (13.5)
2–3	68 (40.0)
4–5	28 (16.5)
6 or more	21 (12.4)
Fertility perceptions (n = 165)	
Does not believe can become pregnant	85 (51.5)
Reason for belief of infertility (n = 85)	
Does not have periods	10 (11.8)
Has not gotten pregnant having regular unprotected sex	11 (12.9)
Was told by a doctor	10 (11.8)
Partner cannot have children	3 (3.5)
Not sexually active with a male partner	8 (9.4)
Permanent sterilization procedure	32 (37.6)
LARC method	3 (3.5)
Birth control method	2 (2.3)
Menstrual cycle characteristics (n = 179)	
Had a menstrual period in the last 12 mo	133 (74.3)
Regular periods	77 (57.9)
Irregular periods†	56 (42.1)
No menstrual period in the last 12 mo	46 (25.7)
Reasons for amenorrhea or irregular menstrual cycles in the past 12 mo (n = 93)	
Opioid use	22 (23.7)
Unsure	21 (22.6)
Pregnancy or breastfeeding	5 (5.4)
Medical reasons	8 (8.6)
Other reasons‡	11 (11.8)

*Denominator is 179 respondents unless otherwise indicated.

†More than 35 days, <21 days, or so irregular cannot calculate interval.

‡Other reasons include being on drugs (not specifically opioids), birth control, overweight.

OUD indicates opioid use disorder.

number of prior pregnancies were associated with perceived infertility, consistent with the known association between these factors and permanent sterilization.¹³

Potential contributors to amenorrhea among people who use opioids include severe stress and untreated metabolic disturbances related to barriers to care.¹⁴ Studies suggest opioids have differential effects on the hypothalamic-pituitary-ovarian (HPO) axis. Methadone has been associated with increased amenorrhea and menstrual irregularity, although its effects on fecundability may differ from illicit heroin use due to more consistent dosing.⁴ Limited data suggest possible HPO axis adaptation, with longer

TABLE 2. Demographics and Menstrual Cycle Characteristics of Women With Opioid Use Disorder by Belief Can Become Pregnant (n = 165)

	Believe You Can Become Pregnant		P
	Yes	No	
	N (%)	N (%)	
Age (mean, SD)	32.0 (7.1)	37.1 (6.2)	<0.0001
Race			
Asian	1 (1.3)	1 (1.2)	
Black	14 (17.5)	13 (15.3)	
Latinx	5 (6.3)	5 (5.9)	
Multiracial	5 (6.3)	7 (8.2)	
Native American/American Indian	8 (10.0)	10 (11.8)	
Other	0	2 (2.4)	
White	47 (58.8)	47 (55.3)	0.9328
Treatment type for OUD			
Buprenorphine	37 (46.3)	42 (49.4)	0.6845
Methadone	18 (22.5)	21 (24.7)	0.7389
Naltrexone (long-acting depo)	5 (6.3)	4 (4.7)	0.7407
Psychosocial without medication	21 (26.3)	19 (22.4)	0.5594
Ever treated for a psychiatric disorder (n = 159)	48 (61.5)	51 (63.0)	0.8530
No. pregnancies (n = 159)			
0	15 (19.7)	12 (14.5)	0.0314
1	17 (22.4)	6 (7.2)	
2–3	25 (32.9)	38 (45.8)	
4–5	13 (17.1)	14 (16.9)	
6 or more	6 (7.9)	13 (15.7)	
Had a menstrual period in the last 12 mo	64 (80.0)	62 (72.9)	0.2861
Regular periods	36 (56.3)	39 (62.9)	0.4469
Irregular periods*	28 (43.8)	23 (37.1)	
No menstrual period in the last 12 mo	12 (15.0)	21 (24.7)	0.1193
Reason has not had a period in the past 12 mo (n = 85)			
Opioid use	14 (34.2)	6 (13.6)	0.0259
Unsure	8 (19.5)	12 (27.3)	0.3993
Pregnancy or breastfeeding	3 (7.3)	0	0.1079
Medical reasons	1 (2.4)	5 (11.4)	0.2036
Other reasons†	5 (12.2)	6 (13.6)	0.8432

*More than 35 days, <21 days, or so irregular cannot calculate interval.

†Other reasons include being on drugs (not specifically opioids), birth control, overweight.

OUD indicates opioid use disorder.

methadone exposure associated with return of menstrual cyclicity.^{4,5} However, most existing data reflect older opioid formulations. Substantial gaps remain regarding individuals using potent synthetic opioids such as fentanyl, polysubstance use, and treatment with buprenorphine or naltrexone, limiting clinicians' ability to counsel patients on menstrual and fertility expectations during treatment.

Study strengths include amplifying women's experiences on a largely unexplored issue affecting women's health and families in a racially, ethnically, and geographically diverse sample of treatment-seeking women with OUD. Study limitations include the self-reported nature of survey data and limited data on other factors that may impact fertility and menstruation including

pregnancy intentions and contraception use. Despite these limitations, women's fertility perceptions represent their authentic beliefs that cannot be easily captured with other measures.

CONCLUSIONS

This analysis is an important first step in documenting fertility perceptions and menstrual experiences among treatment-seeking women with OUD. These findings have important implications for sexual and reproductive health behaviors at a time when women are unlikely to have their reproductive health needs addressed.¹⁵ Understanding women's fertility experiences during OUD treatment can guide research and inform clinician counseling on opioid-related fertility effects, supporting women in their reproductive goals.

REFERENCES

1. Heil SH, Jones HE, Arria A, et al. Unintended pregnancy in opioid-abusing women. *J Subst Abuse Treat*. 2011;40(2):199–202.
2. Terplan M, Hand DJ, Hutchinson M, et al. Contraceptive use and method choice among women with opioid and other substance use disorders: a systematic review. *Prev Med*. 2015;80:23–31.
3. Daniell HW. Opioid endocrinopathy in women consuming prescribed sustained-action opioids for control of nonmalignant pain. *J Pain*. 2008;9(1):28–36.
4. Schmittner J, Schroeder JR, Epstein DH, et al. Menstrual cycle length during methadone maintenance. *Addiction (Abingdon, England)*. 2005;100(6):829–836.
5. Santen FJ, Sofsky J, Bilic N, et al. Mechanism of action of narcotics in the production of menstrual dysfunction in women. *Fertil Steril*. 1975;26(6):538–548.
6. Corsi DJ, Murphy MSQ. The effects of opioids on female fertility, pregnancy and the breastfeeding mother-infant dyad: a review. *Basic Clin Pharmacol Toxicol*. 2021;128(5):635–641.
7. Britton LE, Judge-Golden CP, Wolgemuth TE, et al. Associations between perceived susceptibility to pregnancy and contraceptive use in a national sample of women veterans. *Perspect Sexual Reprod Health*. 2019;51(4):211–218.
8. Bornstein M, Gipson JD, Bleck R, et al. Perceptions of pregnancy and contraceptive use: an in-depth study of women in Los Angeles Methadone Clinics. *Womens Health Issues*. 2019;29(2):176–181.
9. Yee A, Loh HS, Hisham Hashim HM, et al. Clinical factors associated with sexual dysfunction among men in methadone maintenance treatment and buprenorphine maintenance treatment: a meta-analysis study. *Int J Impot Res*. 2014;26(5):161–166.
10. Dart RC, Severtson SG, Bucher-Bartelson B. Trends in opioid analgesic abuse and mortality in the United States. *N Engl J Med*. 2015;372(16):1573–1574.
11. McDaniel H, Severtson S, Bartelson BB, et al. Comparing Prescription Opioids, Methadone, and Heroin Endorsement Rates from the Treatment Episode Data Set to the RADARS® System Treatment Center Programs. *RADARS® System Technical Report, 2016-Q3*. 2016. Accessed August 11, 2025. <https://www.radars.org/system/publications/2016%203Q%20RADARS%20System%20QTR.pdf>
12. Anyalechi GE, Hong J, Kreisel K, et al. Self-reported infertility and associated pelvic inflammatory disease among women of Reproductive Age-National Health and Nutrition Examination Survey, United States, 2013–2016. *Sex Transm Dis*. 2019;46(7):446–451.
13. Chan LM, Westhoff CL. Tubal sterilization trends in the United States. *Fertil Steril*. 2010;94(1):1–6.
14. Lania A, Gianotti L, Gagliardi I, et al. Functional hypothalamic and drug-induced amenorrhea: an overview. *J Endocrinol Invest*. 2019;42(9):1001–1010.
15. Klamon SL, Lorvick J, Jones HE. Provision of and barriers to integrating reproductive and sexual health services for reproductive-age women in opioid treatment programs. *J Addict Med*. 2019;13(6):422–429.