



Original research article

## Predictors of timing of pregnancy discovery

Molly McCarthy<sup>a,\*</sup>, Ushma Upadhyay<sup>b</sup>, M. Antonia Biggs<sup>b</sup>, Renaisa Anthony<sup>c</sup>,  
Jennifer Holl<sup>b</sup>, Sarah CM Roberts<sup>b</sup>

<sup>a</sup>University of Nebraska Medical Center, College of Public Health, Department of Health Promotion, 984365 Nebraska Medical Center, Omaha, NE 68198-4365

<sup>b</sup>University of California, San Francisco, Oakland, CA

<sup>c</sup>Charles Drew Health Center, Omaha, NE

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### Abstract

**Objective:** Earlier pregnancy discovery is important in the context of prenatal and abortion care. We evaluated characteristics associated with later pregnancy discovery among women seeking abortion care.

**Study design:** Data come from a survey of women seeking abortion care at four family planning facilities in Utah. The participants completed a survey during the state-mandated abortion information visit they are required to complete prior to having an abortion. The outcome in this study was pregnancy discovery before versus after 6 weeks since respondents' last menstrual period (LMP). We used logistic regression to estimate the relationship between sociodemographic and health-related independent variables of interest and pregnancy discovery before versus after 6 weeks.

**Results:** Among the 458 women in the sample, 28% discovered their pregnancy later than 6 weeks since LMP. Most ( $n=366$ , 80%) knew the exact date of their LMP and a significant minority estimated it ( $n=92$ , 20%). Those who estimated the date of their LMP had higher odds of later pregnancy discovery than those who knew the exact date (adjusted odds ratio (aOR) = 1.81[1.07–3.07]). Those who used illicit drugs weekly, daily, or almost daily had higher odds of later pregnancy discovery (aOR=6.33[2.44, 16.40]).

**Conclusion:** Women who did not track their menstrual periods and those who frequently used drugs had higher odds of discovering their pregnancies later.

**Implications:** Women who estimated the date of their LMP and who frequently used drugs may benefit from strategies to help them recognize their pregnancies earlier and link them to care when they discover their pregnancies later.

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**Keywords:** Pregnancy discovery; Pregnancy recognition; Unintended pregnancy; Drug use during pregnancy

### 1. Introduction

The timing of pregnancy discovery is important in the context of pregnancies carried to term and abortion. In relation to pregnancies carried to term, earlier pregnancy discovery may help facilitate earlier entry to prenatal care and may lead to earlier adoption of health-promoting behaviors [1–3]. In relation to abortion, earlier pregnancy discovery may facilitate women's ability to obtain an abortion because first-trimester abortions are more accessible and less costly [4–6]. Earlier entry into abortion care allows women to choose whether to have an aspiration or medication abortion, which is available only earlier in pregnancy [7]. 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. Thus, it is important to understand factors that may contribute to later discovery of pregnancy.

While there is no standardized definition of late pregnancy discovery, most women in the United States detect their pregnancies within the first 6 weeks [1,3,8,9]. Many researchers define discovery of pregnancy after 6–8 weeks' gestation as "late" [1,2,8–11], although they have operationalized it in different ways, such as recognizing or learning about the pregnancy [8–10] or taking a pregnancy test [1,11].

Despite the fact that prior studies operationalize pregnancy discovery slightly differently, previous research shares common findings. One of the strongest predictors of the timing of pregnancy discovery is intendedness. Women

\* Corresponding author. Tel.: +1 402 559 9409.

E-mail address: molly.mccarthy@unmc.edu (M. McCarthy).

with unwanted or mistimed pregnancies tend to discover them later than women with intended pregnancies [2,3,9,10]. Branum and Ahrens found that women with intended, unwanted, and mistimed pregnancies learned of their pregnancies at 5.1, 6.1, and 6.3 weeks, respectively [9]. The proportions of women who discover their pregnancies early declines according to whether the pregnancy was intended, mistimed, or unwanted [8–10]. Later pregnancy discovery was associated with being younger, unmarried, non-white/Hispanic, of lower educational attainment, and of lower income in several studies which used Pregnancy Risk Assessment Monitoring System data and National Survey of Family Growth data [1–3,8,9]. Associations between the timing of pregnancy discovery and gravidity and/or parity are inconsistent [2,9]. Smoking is also associated with later pregnancy discovery [1,9].

Qualitative findings among women up to 1 year postpartum suggest that in addition to missing a menstrual period, most women needed to experience other symptoms of pregnancy, such as nausea, dizziness, and fatigue before seeking pregnancy testing [12]. Timing of pregnancy discovery was also linked to perceived support from others, with some women reporting that partners or family members prompted testing after noticing symptoms of pregnancy, while others feared rejection or pressure from their social networks and delayed acknowledging their pregnancy [12].

A few studies have examined predictors of the timing of pregnancy discovery among women seeking abortion [11,13–15]. Findings from existing research echo those within the prenatal care context [1–3,8,9,12]. A California-based study comparing delays in seeking abortion care found the greatest difference in delays among first- and second-trimester patients was in the time to pregnancy discovery after a missed menstrual period [13]. In a national sample of abortion patients, teens, Black women, women with two or more children, women who are obese, and those with lower educational attainment and lower income were also found to have longer intervals between suspecting and confirming pregnancy [14]. In the abortion context, the presence of pregnancy symptoms was associated with earlier pregnancy discovery, while history of irregular menstrual periods, uncertainty about dates of last menstrual period (LMP), drug/alcohol misuse, previous second-trimester abortion, and emotional factors, including fear of abortion and denial of pregnancy, were associated with delays [11,15].

The present study seeks to further examine factors associated with discovery of pregnancy after 6 weeks of gestation among women presenting for abortion care. Findings from this study will allow a better understanding of which women may be particularly impacted by state-level abortion restrictions and limited abortion service availability, and will inform the development of interventions that may assist particular groups of women to recognize their pregnancies earlier.

## 2. Materials and methods

This study is based on data collected as part of a prospective cohort study that evaluated women's experiences with Utah's 72-h waiting period for abortion law, the first such law to go into effect in the U.S. [16]. We have described study procedures elsewhere [17]. Briefly, we recruited women presenting for a state-mandated abortion information visit at family planning facilities in Utah between October 2013 and April 2014. Inclusion criteria included reading English or Spanish and age 15 years or older. Facility staff informed women about the study and invited women presenting for their abortion information visit to participate. All participants provided informed consent. Facility staff then administered an iPad-based survey prior to women receiving state-mandated information and routinely provided abortion counseling. The University of California, San Francisco Committee on Human Research granted ethical approval for the study. The response rate was 73% (500 consented out of 691 invited to participate).

We used timing of pregnancy discovery as the outcome variable. We estimated timing of pregnancy discovery by calculating the difference between the date of respondents' LMP and the date they reported finding out they were pregnant, or the number of weeks/months ago they had their LMP and the number of weeks/months ago they reported discovering their pregnancies. The survey asked, "When did you find out that you were pregnant?"; the survey then asked those who indicated they were not sure of the specific date "If you are not sure of the exact date, about how many weeks or months ago would you say it was when you found out you were pregnant?". In order to compare our findings to previous research [1,8,14,18,19], we dichotomized the gestational age at the time of pregnancy discovery using a cutoff point of 6 weeks since LMP.

Model covariates included *age* (<19, 19–24, 25–34, 35+), *race/ethnicity* (White, Black, Hispanic/Latina, and Other/mixed), *educational attainment* (less than high school, high school graduate or equivalent, some college, college graduate), *relationship with the man involved in the pregnancy (MIP)* (husband, partner/boyfriend/fiancé, ex-boyfriend/ex-partner/ex-husband/separated, friend/acquaintance, no relationship/don't know), *facility* at which they received information about abortion, *gravidity* (nulligravid vs. one or more previous pregnancies), *food and/or housing insecurity* (no vs. yes based on the following: in the last 12 months, not being able to pay mortgage, rent, or utilities; running out of food; worrying about running out of food; or cutting meal portions or skipping meals), *known date of LMP* (estimated LMP date vs. remembered exact LMP date), *illicit drug use frequency in the 12 months prior to discovering pregnancy* (never; monthly or less; or weekly, daily, or almost daily), *mental health history* (any prior diagnosis of depression, anxiety, or both vs. none based on reporting having been diagnosed with a depressive disorder, an anxiety disorder, or any other mental health condition),

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