VIRTUAL
ACOG Annual Clinical and Scientific Meeting
April 30–May 2, 2021

Self-reported pregnancy rate among clinically subfertile women using a wearable fertility tracker

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INTRODUCTION

- **1 in 8 women** will seek **infertility services**[1]
- Fertility treatments can be **expensive** and are not always covered by insurance.[2]
- Almost 75% of women do not know the best time in their cycle to have conceptive intercourse.[3]
- **Wearable sensor technology,** together with artificial intelligence (AI), has previously been shown **to predict a 5-day fertile window** in regularly menstruating women **with 90% accuracy**,[4] thereby enabling women to better time conceptive sex.
- To date, little research has focused on how wearable devices can help subfertile women conceive.

AIM

To **determine the efficacy of wearable sensor technology** and AI in **helping clinically subfertile women conceive in** a **real-world** setting

METHOD

Study 1:

- Emailed purchasers of a wearable device (Ava Fertility Tracker, see Figure 1) to complete an online survey
- The wristworn medical device tracks changes in heart rate, breathing rate, skin temperature, heart rate variability & perfusion while the user sleeps
- Survey consisted of 30 questions, with conditional flow (see Figure 2) asking about Fertility Service Usage, Insurance Coverage & Employer Benefits

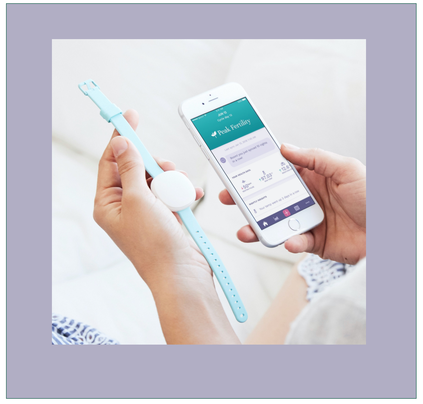

Figure 1. The wearable device includes a temperature sensor, accelerometer and photoplethysmograph sensor and pairs with a complementary AI-driven mobile app

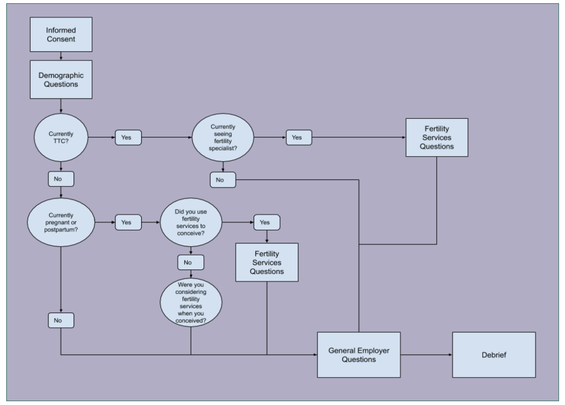

Figure 2. Study 1 survey flow based on participants' responses

Study 2:

- Analyzed data from 26,686 real-world users of the Ava Fertility Tracker to identify women who met clinical definition of subfertility (i.e., ≥35 years old & trying to conceive [TTC] for ≥6 months, or <35 years old & TTC for ≥12 months)
- Calculated 1-year pregnancy rate and mean time to pregnancy for subfertile cohort based on self-reported positive pregnancy test or switching to "pregnancy mode" in-app for ≥30 days

RESULTS

Study 1:

- N=1758, mean age = 32.51 years (SD=4.01)
- Most respondents (n=947) had been using the wearable fertility tracker for <6 months
- 61% of women were currently TTC (n=1083); 35% currently pregnant or postpartum (n=622)
- **54%** respondents TTC met definition of **clinical subfertility**
- Almost **30%** of respondents have **at least 1 diagnosed condition affecting their reproductive health**, including Polycystic Ovary Syndrome (PCOS; 9%), endocrine system disorders (8%), uterine fibroids and/or polyps (6%), and Endometriosis (5%)
- **29%** of respondents **were undergoing or required fertility services to conceive**
- **75% of women** requiring fertility services used or are using their wearable device in conjunction
- Among pregnant or postpartum women, **88% conceived using the wearable fertility tracker** with **26% (n=172) reporting a previously diagnosed fertility condition** (mean = 0.31 diagnoses, SD=0.58)

Table 1. Most common fertility services used in conjunction with a wearable device

Service	N	Percent of Sample Requiring Fertility Services (n=495)	Percent of Overall Sample (n=1756)
Hormonal testing for her	222	45%	13%
Consultation with RE	218	44%	12%
Sperm/semen analysis	206	42%	12%
Clomid/medicated cycle	182	37%	10%
HSG Test	179	36%	10%
Intrauterine insemination	92	19%	5.2%
Hormonal testing for him	77	16%	4.4%
In vitro fertilization	30	6%	1.7%
Egg freezing	7	1%	0.4%

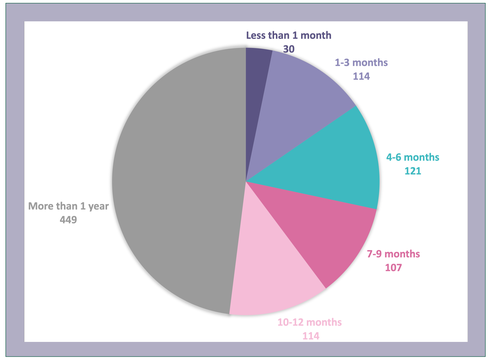

Figure 3. Duration TTC at time of survey in Study 1 (n=935)

Study 2:

- **31% users** (mean age = 33.98, SD=4.72) **met clinical definition of subfertility** when they began using the wearable fertility tracker (n=8175)
  - 3582 women ≥35 years who had been TTC ≥ 6 months
  - 4593 women <35 years who had been TTC ≥ 12 months
- Within 1 year, **28% of the subfertile cohort reported a pregnancy in-app** (n=2251; average time to pregnancy = 150 days, SD = 1.9 days)
- **Subfertile users accounted for a fifth of all pregnancies reported in-app** using the Ava Fertility Tracker

CONCLUSIONS

Despite clinical validation among healthy, eumenorrheic women only, wearable fertility trackers nevertheless attract subfertile users. Our findings demonstrate how women may be relying on these devices in addition to their fertility treatments, with some self-reported success.

CONTACT INFORMATION

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