

# Primary Ovarian Insufficiency

## *Investigating Women's Views and Lived Experiences*

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**OBJECTIVE:** To elicit concerns that women with primary ovarian insufficiency (POI) hold and their views regarding how care for women with POI could be improved.

**STUDY DESIGN:** All women seen for POI care at a specialty clinic from May 2016 to December 2017 (n=55) were contacted by phone for consent. Women were asked about the impact of POI on their life and their satisfaction with care received. Impact of POI was described using the Likert scale, and narrative responses were collated to determine important themes.

**RESULTS:** Of the 55 women contacted, 41 gave phone consent and 26 completed the questionnaire. The participants' mean age was 38.5 years, and they had received their diagnosis a mean of 6.5 years prior. Approximately 60% of women felt that POI negatively impacted their life, and 46% reported still harboring fears. Women felt that greater access to healthcare providers who are knowledgeable about POI could help improve care.

**CONCLUSION:** Even years after diagnosis, women continue to be concerned about the impact of POI on their well-being. Because POI is a rare condition with limited availability of healthcare providers who have expertise, novel avenues of healthcare delivery, such as telemedicine, could potentially improve care for these women. (J Reprod Med 2019;64:171-177)

***Because ... knowledgeable health care providers [are] limited, novel avenues of health care delivery, such as telemedicine, could potentially improve care for these women.***

**Keywords:** menopause, premature; mental health; premature ovarian failure; primary ovarian insufficiency; quality of life; reproductive health services.

Approximately 1 in 100 women will develop primary ovarian insufficiency (POI),<sup>1,2</sup> a life-altering, chronic, incurable disease characterized by the presence of menopausal-level serum gonadotropins in association with irregular menses in women under 40.<sup>3</sup> For women with POI, ovarian function can be intermittent and unpredictable. POI can lead to a spectrum of health consequences due to depletion of oocytes and the drop in ovar-

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ian estrogen and progesterone production. Health consequences of POI include infertility, bone loss, vasomotor symptoms, and psychological distress.<sup>4</sup>

Previous studies have found that anger, depression, confusion, anxiety, and guilt are some of the many distressing emotions associated with the diagnosis of POI.<sup>5-7</sup> POI may negatively impact quality of life and sexual function,<sup>8</sup> as well as lead to concern regarding drop in fertility.<sup>9</sup> POI may challenge women to redefine their most basic conceptions of self, motherhood, family, and legacy.<sup>10</sup>

While there is an abundance of evidence to support the presence of emotional distress for women with POI, few studies have characterized how these women feel that their concerns could be best addressed. A study conducted at the NIH reported that accurate medical information and support of others were perceived as helpful in coping with the diagnosis.<sup>5</sup> In the UK, women reported that they wanted psychological support and more information targeted to their age group.<sup>6</sup> While these studies have begun to allow us to understand the perspective of women with POI, data from these studies were gathered at least a decade ago. It is also not clear if the findings about health care delivery from this study conducted in the UK,<sup>6</sup> a country with national health insurance, applies to women in the United States.

Our study aimed to build on the results of previous investigators regarding the emotional and psychological impact of POI. We also sought to gather data regarding how women with POI feel that care could be improved.

## Methods

This was a cross-sectional survey including both qualitative and quantitative measures conducted after approval of the Stanford Institutional Review Board. To identify potential participants, the Stanford electronic medical records system, EPIC, was used to search for all POI patients seen at the Stanford Fertility and Reproductive Health clinic between May 2016 and December 2017. POI was defined as having at least 4 months of amenorrhea or oligomenorrhea, in association with menopausal-range FSH levels ( $>30$  U/L) sampled at least 1 month apart. All 55 women with a POI diagnosis seen in this time frame were eligible for inclusion.

Each woman was first contacted by phone to determine if she was interested in participating in

the survey and, if so, to provide informed consent. Depending on participant preference, each woman responded to a questionnaire either during the initial phone call or by completion of an online survey instrument. The questionnaire was administered using the Research Electronic Data Capture (REDCap) system, a secure, HIPAA-compliant, online system. Demographic data were collected by review of medical records in EPIC. Women were aware that the data would be de-identified by the first author and that the senior author who provides patient care could not link the responses to the individual who provided the response.

Women were asked questions regarding the impact of POI on their life and their satisfaction with the care related to POI. The impact of POI on various aspects of patient lives, including job, sexuality, mental health, family and relationships, and self-esteem, was assessed using a Likert scale. The survey also included open-ended questions to allow participants to share their experiences and provide their view as to how care for women with POI could be improved.

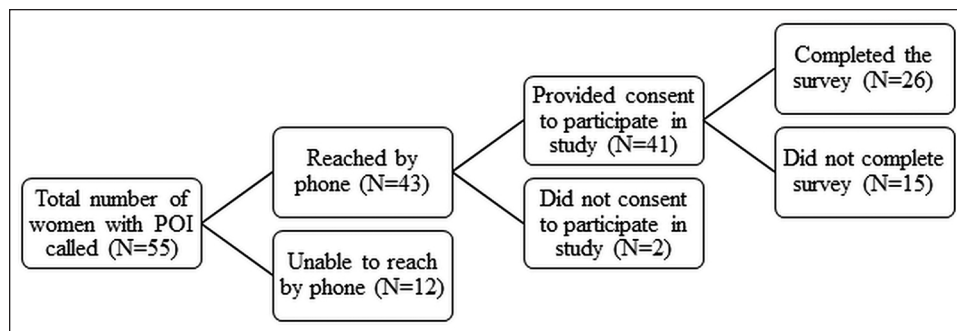
Means and percentages were calculated for quantitative data. One author (S.N.C.), who was not involved in the care of these patients, reviewed de-identified narrative responses and identified themes of importance for these narrative responses.

## Results

### Sample Characteristics

Of the 55 women with POI who we attempted to contact by phone (the only method of initial contact approved by our IRB), 26 completed the survey (Figure 1). The mean age at the time of diagnosis was approximately 33 years, ranging from 20 to 39 years (Table I). The respondents did not differ in age compared with the non-respondents (data not shown). The participants were mostly Caucasian and Asian. Nearly 52% of the participants had been pregnant at least once, and approximately 35% of the participants had never been pregnant.

At the time of survey completion, 80% of the participants were married or in a relationship, 69% were sexually active, and 61.5% expressed a desire for future child-bearing. Most of the participants did not know the cause of their POI diagnosis. When cross-checked with their medical records, this perception was accurate as 81% of participants had no identified cause for POI.



**Figure 1**  
Administering the survey questionnaire.

Overall, 77% of women reported at least 1 symptom associated with POI diagnosis (data not shown). Nearly 47% of the participants reported vaginal dryness, 31% had hot flashes, 35% indicated difficulty sleeping, 31% indicated decreased

sex drive, and 31% had dry-eye symptoms. Fewer than 20% of participants reported night sweats, GI problems, or visual changes. Approximately 15% of the participants were still having menstrual cycles that were not associated with the use of hormone therapy.

**Table 1** Characteristics of the Population

		No.	Range
Age (yrs)	38.5 (5.64)	26	25–49
Age at diagnosis (yrs)	32.7 (5.04)	22	20–39
Years since diagnosis	6.5 (6.73)	22	0–29
Weight		22	
Pounds	148.1 (30.8)		107–198
Kilograms	67.18 (13.97)		48.5–89.8
BMI	24.8 (4.58)	25	18–36
Race/ethnicity			
White	14 (53.9%)		
Asian	7 (26.9%)		
African American	2 (7.7%)		
Hispanic	2 (7.7%)		
Unanswered	1 (3.8%)		
Pregnancy history			
Never	9 (34.6%)		
1 time	10 (38.5%)		
2 times	3 (11.5%)		
Decline to answer	4 (15.4%)		
Relationship status			
Married	18 (69.2%)		
Significant other	3 (11.5%)		
No current relationship	5 (19.3%)		
Desire for future child-bearing			
Yes	16 (61.6%)		
No	4 (15.4%)		
Undecided	3 (11.5%)		
Decline to answer	3 (11.5%)		
Cause of POI			
Unknown	20 (76.9%)		
Autoimmune	2 (7.7%)		
FMR1 premutation	0 (0.0%)		
Unanswered/other	4 (15.4%)		

Data are presented as mean (standard deviation) or N (percent).

Participants reported multiple POI treatments (data not shown). With respect to hormone treatment, 47% of women were taking estrogen, 35% were taking progestin, and 27% were taking thyroid supplements. None of the patients were taking oral contraceptives or androgen. Of the 20 participants who reported experiencing at least 1 symptom associated with POI, only 9 were taking estrogen and/or progestin supplements. Nearly 47% were taking vitamin D, 35% were taking calcium, and 35% were taking a multivitamin. Furthermore, 35% used acupuncture, 23% took supplements/herbs, and 20% practiced yoga to help with POI symptoms. Approximately 15% of participants reported seeking psychotherapy, and 11% spoke with other MDs. Support groups, couples counseling, chiropractic, and Ayurveda were each sought by 1 person. Options for family building that participants utilized after POI diagnosis included trying on their own (expectant management), oocyte donation, ovulation induction and intrauterine insemination, adoption, and in vitro activation (an experimental treatment).

*Coping with POI*

Participants reported employing multiple coping strategies (Table II). One of the most common strategies involved learning as much as possible about POI and being knowledgeable about their diagnosis. For instance, 1 participant indicated this as the most valuable part of her POI care, saying, “Knowledge—the understanding of my

**Table II** Coping Strategies Found to Be Helpful by Participants

	No. (%)
Learning as much as possible about POI	12 (46.2)
Talking with friends and family	11 (42.3)
Developing new hobbies or other interests	10 (38.5)
Mind-body relaxation techniques	6 (23.1)
Psychotherapy	5 (19.2)
Talking with other women who have POI	5 (19.2)
Support groups	4 (15.4)
Other	4 (15.4)
None	3 (11.5)

condition and how I can help my daughter should she have the same problem." 43% of participants found it helpful to talk with friends and family, and 39% felt it was helpful to develop new hobbies or other interests. In addition, mind-body relaxation techniques, therapy, support groups, and talking with other women with POI were coping strategies that some women found to be beneficial.

#### *Emotional Response to POI Diagnosis*

Participants were asked to classify how disruptive POI was in their life, on a range of 1 to 10 (10 being most disruptive), compared to all the challenges they have faced. On average, participants ranked POI as 6.92 (standard deviation=2.18). When asked "Do you harbor any fears about your diagnosis?" 46% replied yes, 42% replied no, and 12% preferred not to answer.

Participants were also asked to rate the impact of POI on various aspects of their lives (Table III). 40% of participants rated the impact of POI on their job as very or somewhat negative, and 60% said the impact was neutral. On the other hand, over 60% of participants indicated that POI had impacted their family and relationships and sexu-

ality as very or somewhat negative. Approximately 35% of participants rated that POI had a neutral impact on these aspects, and 1 individual said that it had a very positive impact. Incidentally, this individual also indicated that she and her partner decided not to have any more children. Two-thirds of the participants (64%) indicated the POI had a negative impact on their mental health, while about a third (36%) noted it had a neutral effect. POI seemed to have the greatest impact on self-esteem, as 70% of participants felt that it affected them very or somewhat negatively and only 30% felt a neutral impact of POI on their self-esteem. One woman indicated her fear of "being less valuable as a partner as [her] fertility decreased," suggesting an impact of POI on self-esteem.

Participants indicated great concern about their diagnosis and what it means about their general health moving forward (Table IV). One participant said, "I fear I'll never have those moments again. You know, when you feel normal. ... This whole POI thing is something I couldn't control." Participants also expressed fears and concerns about not being able to have children in the future, their sexuality, and the possibility of passing on the condition to offspring.

#### *Care Satisfaction*

Women were asked open-ended questions regarding their POI care and experience (Table IV). When asked about which elements of their POI care that they had found to be the most valuable, most participants indicated that finding the right clinician having the right combination of expertise and interpersonal skills was the most important. One woman said, "My doctor being positive, but not unrealistic or giving up on me," was the most valuable element of her POI care. Some women also indicated that through learning more and being

**Table III** Impact of POI

	Very negative No. (%)	Somewhat negative No. (%)	Neutral No. (%)	Somewhat positive No. (%)	Very positive No. (%)
Job	5 (20.0)	5 (20.0)	15 (60.0)	0 (0.0)	0 (0.0)
Family and relationships	4 (15.4)	11 (42.3)	10 (38.5)	0 (0.0)	1 (3.8)
Sexuality	6 (23.1)	10 (38.5)	9 (34.6)	0 (0.0)	1 (3.8)
Self-esteem	6 (23.1)	12 (46.2)	8 (30.8)	0 (0.0)	0 (0.0)
Mental health	5 (20.0)	11 (44.0)	9 (36.0)	0 (0.0)	0 (0.0)

\*N=25 (job, mental health), N=26 (family and relationships, sexuality, self-esteem).

**Table IV** Care Satisfaction Narrative Responses

	No. (%)
<i>What elements of your care for POI have you found most valuable?</i>	
Finding the right clinician, including expertise and interpersonal skills	9 (52.9)
Empowerment through knowledge and understanding	4 (23.5)
Access to follow-up medical care	3 (17.6)
Complementary care services	2 (11.8)
<i>Conversely, are there any elements in your care that you feel have been counterproductive?</i>	
Physician's lack of knowledge about POI	5 (45.5)
Difficulty with follow-up and care	4 (36.4)
Distress at seeing the reality (i.e., test results)	3 (27.3)
Lack of counseling	1 (9.1)
<i>Based on your experience, how do you think your healthcare related to POI might be improved?</i>	
Better education/resources on POI for both physicians and patients	7 (53.8)
Better monitoring of hormone levels	3 (23.1)
Access to care	3 (23.1)
Positive lifestyle changes	1 (7.7)
<i>What kind of fears do you harbor about your diagnosis?</i>	
General health concerns	7 (61.5)
Never having children	3 (15.4)
Sexuality	1 (11.5)
Hereditry	1 (11.5)

N=17, 11, 13, 12, respectively.

more knowledgeable about their condition, they had felt more empowered.

On the other hand, when participants were asked about elements of their POI care that they felt had been counterproductive, most participants generally indicated that not finding the right doctor played a big role. Women described their experiences with doctors, indicating that some were not knowledgeable about POI, they had difficulty with follow-up and care, and there was a lack of counseling options.

Lastly, the participants were asked for their opinion on how they think healthcare for POI patients can be improved. Participants indicated that better education/resources on POI for both physicians and patients, as well as better monitoring of hormone levels, are some of the main ways to improve health care. One participant specifically indicated, "Taking the time to do lab work to measure levels while taking meds [would be a great way for] healthcare to really understand what POI is and how it affects an individual."

### Discussion

This study demonstrates that even at a mean of 7 years after POI diagnosis, women continue to harbor fears, concerns, and uncertainty about the impact of POI on their general health and well-

being. Few studies have examined the emotional impact of POI long after diagnosis. Our findings are consistent with those of Singer et al, who surveyed women in the UK at approximately 8 years after diagnosis.<sup>6</sup> Given these findings, it is important for healthcare providers to appreciate that time may not fully alleviate the concerns and the impact of the diagnosis for women with POI.

Narrative responses from our study indicated that patients felt that clinicians whom they initially saw lacked adequate knowledge or did not provide enough information about POI. These findings are consistent with those of others, who reported that participants felt that they did not receive sufficient information or have enough time with their physician when initially receiving their POI diagnosis.<sup>5,11</sup> Because POI is a rare diagnosis, it is not surprising that women would have difficulty finding a clinician who is knowledgeable about POI.

Telemedicine could potentially improve care by providing patients access to clinicians with POI expertise. For example, local primary care providers and women with POI could both potentially work with POI experts using telemedicine, with the local physician performing physical examinations or blood draws as needed. Such a strategy has been successfully employed in areas with a

shortage of neuroscientists, where telecommunication between physicians has helped to expedite expert consultations.<sup>12</sup> Patients have been able to participate in remote consultations via video conferencing. This feature has allowed for similar levels of spontaneity and interactivity that are present in in-person interactions. Telemedicine has also been utilized to allow greater access to genetic counselors and pediatricians with high satisfaction rates from patients.<sup>13</sup> This concept of "eHealth" could potentially save travel costs for patients<sup>14</sup> and would also allow for regular, direct contact between the physician and patients. Some patients have reported feeling more comfortable having consults in the comfort of their home instead of in a hospital setting.<sup>14</sup> Telemedicine may also allow clinical and research systems to be multi-disciplinary and integrated for women with POI, a goal previously suggested.<sup>15</sup> Our findings strongly suggest that women would likely value access to clinicians with POI expertise, and work in other fields of medicine suggests that telemedicine could potentially provide that access.

Learning as much as possible about POI was reported to be a helpful coping strategy in our study. These findings are consistent with prior reports that accurate and thorough medical information is helpful to women in coping with POI.<sup>5,10</sup> Creating dialogue and having open conversations are important in creating the flow of information needed and explicitly requested by the participants in their narrative responses.

In our study, women voiced their concerns about fertility, family building, and the potential impact POI will have on their offspring, if they are able to conceive. Having children is a common societal expectation which may lead to negative effect for women with POI.<sup>10</sup> The stigma associated with the difficulty to have children has been shown to be correlated with distress, anxiety, and depressive symptoms.<sup>16</sup> The impact of POI on fertility is, perhaps not surprisingly, one of the key concerns identified by women in our study.

Our results indicate that many women found counseling and speaking with other women with POI, family, and friends to be helpful coping strategies. Other investigators have reported that women with POI may fail to disclose their condition to people who could potentially serve as their social support system.<sup>17</sup> Ultimately, women with POI may end up having lower social support, which, consequently, results in low self-esteem.

Furthermore, without appropriate support, women may unknowingly seek avoidance coping strategies with hopes of "moving on" or "letting go" of their issues, a strategy that has been shown to be detrimental to well-being, as it does not solve any of the issues.<sup>18</sup> Other investigators reported that participating in spiritual and religious support groups may help with improving functional well-being and coping with the emotional issues associated with POI.<sup>19</sup> Health care providers should ideally be able to create an environment where the women will feel supported and heard and are given information about nearby or online support groups.<sup>11</sup> For these reasons, and in light of our findings, we recommend that health care providers encourage women with POI to build a support system and potentially seek counseling. However, few therapists have training in reproductive mental health, let alone understand about POI. In addition, POI support groups are almost nonexistent, despite being desperately needed. For this reason alone, telemedicine can help play a part and give patients access to online POI support groups and counseling.

Our study has several key strengths. The questionnaire allowed us to elicit responses to open-ended questions about concerns, questions, and fears of the women with POI. The findings indicated a variety of coping strategies that patients have found to be successful, which can be suggested to women with POI. Our study, of mostly Caucasian and Asian women in the western United States, adds to a relatively small body of literature regarding personal concerns of women with POI which has been reported from investigators in other parts of the world.<sup>5,6,8</sup> Our study also collected data recently, whereas data in some of the prior published studies were collected at least a decade ago.

The primary limitation of our study is small sample size. The absence of validated questionnaires can also be considered a limitation, although it should be noted that our primary objective was to elicit responses that have not been previously captured in other studies. One further limitation is that all the participants in this study were patients of a specialty clinic who may have been particularly motivated to seek out information about POI, and thus their responses may not necessarily be generalizable to all women with POI. Despite these limitations, we feel that this study does add to the limited literature in which

the views of women with POI have been specifically sought.

### Conclusion

In conclusion, even years after diagnosis, women continue to harbor concerns about the impact of POI on their well-being. Because POI is a rare condition and the availability of knowledgeable health care providers is limited, novel avenues of health care delivery, such as telemedicine, could potentially improve care for these women.

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