Characterizing anxiety at the first encounter in women presenting to the clinic: the CAFÉ study

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BACKGROUND: Clinically based anxiety questionnaires measure 2 forms of anxiety that are known as state anxiety and trait anxiety. State anxiety is temporary and is sensitive to change; trait anxiety is a generalized propensity to be anxious.

OBJECTIVE: Our study aims to characterize the reasons for anxiety among women about the initial consultation for their pelvic floor disorders to measure change in participant state anxiety after the visit and to correlate improvement in anxiety with visit satisfaction.

STUDY DESIGN: All new patients at our tertiary urogynecology clinic were invited to participate. After giving consent, participants completed pre- and postvisit questionnaires. Providers were blinded to pre- and postvisit questionnaire responses. The previsit questionnaires included the Pelvic Floor Distress Inventory, the Generalized Anxiety Disorder-7, and the 6-item short form of the Spielberg State Trait Anxiety Inventory. Participants were also asked to list their previsit anxieties. The postvisit questionnaires comprised of the Spielberg State Trait Anxiety Inventory, patient global impression of improvement of participant anxiety, patient satisfaction, and the participant's perception of whether her anxiety was addressed during the visit. The anxieties listed by participants were then reviewed independently and categorized by 2 of the authors. A separate panel arbitrated when there were disagreements among anxiety categories.

RESULTS: Fifty primarily white (66%) women with a median age of 53 years (interquartile range, 41—66) completed the study. The visit diagnoses included stress urinary incontinence (54%), urge urinary incontinence (46%), myofascial pain (28%), pelvic organ prolapse (20%), and recurrent urinary tract infection (12%). Less than one-quarter of participants (22%) had a history of anxiety diagnosis. The average previsit Spielberg State Trait Anxiety Inventory score was 42.9 (standard deviation, 11.98) which decreased by an average of 12.60 points in the postvisit (95% confidence interval, −16.56 to −8.64; $P<.001$). Postvisit decreased anxiety was associated with improvements in the patient global impression of improvement anxiety ($P<.001$) and participants' perception that their anxiety symptoms had been addressed completely ($P=.045$). The most reported causes for consultation related anxiety were lack of knowledge of diagnosis and ramifications, personal or social issues, and fear of the physical examination. Participants reported that improvements in anxiety were related to patient education and reassurance, medical staff appreciation, and acceptable treatment plan. Participants who reported complete satisfaction demonstrated a greater decrease in the postvisit Spielberg State Trait Anxiety Inventory scores compared with the participants who did not report complete satisfaction ($P=.045$). Changes in the Spielberg State Trait Anxiety Inventory score were not associated with the Pelvic Floor Distress Inventory ($P=.35$) or Generalized Anxiety Disorder-7 scores ($P=.78$).

CONCLUSION: Women with the highest satisfaction after their initial urogynecology visit also demonstrated the largest decreases in anxiety after the visit. Changes in anxiety scores were not correlated with the Pelvic Floor Distress Inventory or with measures of generalized anxiety (Generalized Anxiety Disorder-7). Recognizing and addressing patient anxiety may help physicians better treat their patients and improve overall patient satisfaction.

Key words: anxiety, patient satisfaction, pelvic floor disorder, urogynecology

Pelvic floor disorders, such as pelvic organ prolapse (POP) and urinary incontinence, are common in women, with an estimated prevalence of 30%[1] and 40%,[2] respectively. Symptoms affect many aspects of a woman's life, including psychologic, occupational, domestic, physical, and sexual domains.[3,4] Qualitative data suggest that a woman's psychologic well-being is related intimately to her pelvic floor symptoms. Ghetti et al[5] described the emotional burden of POP in women who seek care, with feelings of annoyance, frustration, and irritation emotions of depression, anxiety, and sadness. Feelings of anxiety were often associated with a feeling of uncertainty that "something's wrong"; women described concern and anxiety relating to the fear of having cancer. Some women found it difficult to discuss their symptoms, with depression and anxiety hindering women from seeking care. If not properly addressed, anxiety potentially may impact a woman's health care. Therefore, a better understanding of the nature and impact of anxiety in women who seek care for their pelvic floor symptoms is needed.

Anxiety, a state of unrest or uneasiness, can be measured in various ways. There is a conceptual distinction between state anxiety and trait anxiety.[6] State anxiety is temporary, usually directed at a specific condition, and is sensitive to change. On the other hand, trait anxiety refers to a personality characteristic or propensity to be more anxious given a broad range of conditions. The State-Trait Anxiety Inventory (STAI) can be used to measure one's current symptoms of anxiety (state anxiety) and generalized propensity to be anxious (trait anxiety). STAI has been used extensively in research and clinical practice and is the most widely cited measure of anxiety.[7,8] Generalized anxiety disorder (GAD) can be regarded as a clinical manifestation of trait anxiety. Prevalence of GAD in the United States has been reported to be 5.1[9]—11.9%.[9]

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AJOG at a Glance

Why was this study conducted?

This study aims to better understand the anxiety that is experienced by patients with pelvic floor disorders about their initial visit to the urogynecology clinic.

Key findings

Patients with pelvic floor disorders have significant condition-specific anxiety.

What does this add to what is known?

Addressing patient anxiety is an important component of patient care that impacts patient satisfaction.

It is twice as common in women as it is in men[10] and probably is the most common anxiety disorder among the elderly population.[11] Recent studies have shown an association between anxiety and pelvic floor disorders.[12,13] GAD was found in almost 20% of postmenopausal women with symptoms of POP.[14] Although most women who seek care for their pelvic floor symptoms may not meet criteria for the clinical diagnosis of GAD, we predict that women may have a high level of state anxiety when they first seek care for their pelvic floor symptoms.

Therefore, the purpose of this study was to improve our understanding of the nature and degree of state and trait anxiety in women who seek an initial evaluation of their pelvic floor disorders. We aim to determine (1) whether a patient's state anxiety level improves after the initial encounter, (2) whether patients perceive that their anxieties were addressed by the physicians, and (3) whether improvement in a patient's state anxiety is correlated with overall patient satisfaction. By advancing our understanding of patient anxiety, this information ultimately may improve the quality of care provided by urogynecologists.

Methods

After institutional review board approval was obtained, women who were seen at the Loyola University Female Pelvic Medicine and Reconstructive Surgery Outpatient Clinic for the initial evaluation of their pelvic floor symptoms between April 2018 to June 2018 were invited to participate in this study. Non—English-speaking patients, pregnant women, those under 18 years of age, and those who reported to have had a previous consultation with a specialist in Female Pelvic Medicine and Reconstructive Surgery for their pelvic floor symptoms were excluded from the study. All new patients were asked via a screening questionnaire whether they would like to participate in a study about anxiety. Those who indicated interest were then approached by our research coordinators to discuss the study and obtain consent.

Previsit questionnaires

After giving informed consent and before an evaluation by the treating physician, participants completed previsit questionnaires that were administered by the research coordinators. The previsit questionnaires included the Pelvic Floor Distress Inventory (PFDI),[15] Generalized Anxiety Disorder-7 (GAD-7), and the Spielberg State Trait Anxiety Inventory (STAI) Y6.[16] The STAI-Y6 is a validated 6-item short-form questionnaire that was derived from the STAI; the total scores range from 20—80, and higher scores of the STAI-Y6 correlate with higher levels of state anxiety. GAD-7 was used to assess the severity of trait anxiety; the total scores range from 0—21, and higher scores represent worse GAD symptoms. With the cutoff score of 10, the GAD-7 has a sensitivity of 89% and a specificity of 82% to screen for GAD.[17] Demographic information, medical and surgical history, current medication use, goals for the initial visit, and the results of the Pelvic Floor Distress Inventory were collected via our standard patient intake questionnaire and the electronic medical record. Finally, all participants were asked to describe the 3 most significant causes for anxiety related to their consultation. Once the participants had completed the study questionnaires, the study coordinator notified the patient's nurse to begin the routine intake process. All new patients are seen initially by either a resident or a fellow then presented to the attending. The plan of care was made after a discussion that involved the patient, resident/fellow, and attending. All the physicians were blinded to participants' responses on all of the study questionnaires but had access to the patient information in our standard new patient intake questionnaire. After the consultation, the study coordinator returned to have the patient complete the postvisit questionnaires.

Postvisit questionnaires

The postvisit questionnaires consisted of the STAI-Y6, patient global impression of improvement (PGI-I)[18] of participant anxiety, a nonvalidated patient satisfaction question that we have used in previous studies,[19,20] and a nonvalidated question that queried the participant's perception of how their anxiety was addressed during the visit. The PGI-I assessed patients' perception of their change in anxiety after their visit, with 7 possible responses that ranged from "very much worse" to "very much better." Patient satisfaction had 5 possible responses from "completely satisfied" to "not at all satisfied." Participant perception of how their anxiety was addressed had 5 possible responses that ranged from "completely addressed" to "not at all addressed." Finally, patients were asked to list factors that made their anxiety better (or worse) during the clinical encounter. The questionnaires were collected by the research coordinators and entered in a database[21] for data management.

Categorization of patient anxieties

The patient-reported causes for anxiety and factors that affected anxiety during the clinical encounter were reviewed independently by 2 authors (T.T.P. and Y.B.C.) and categorized. A third-party panel arbitrated when there were disagreements among anxiety categories. All of the physicians who were involved

in categorization of the participant anxieties were blinded to any of the pre- and postvisit questionnaire responses before the categorization review.

Sample size determination

Sample size calculation was based on the ability to detect a difference in STAI score of 6.66 between pre- and post-consultation anxiety (correlating to a 2-point difference on the STAI-Y6 questionnaire) and standard deviation of 11.0 (based on previously published data regarding STAI scores in various female populations) with power set at 80% and with a 0.05 significance.[7,22,23] Adding an additional 10% of participants to account for incomplete questionnaires yielded a sample size of 50 patients.

Statistical analysis

All statistical analyses were completed by a statistician (W.A.), using SAS software (version 9.4; SAS Institute Inc, Cary, NC). Exact Wilcoxon rank-sum tests were used to test for an association between participants' previsit STAI score and visit diagnoses (POP, urge urinary incontinence [UUI], stress urinary incontinence, recurrent urinary tract infection [UTI], and myofascial pelvic pain), their GAD status, PGI-I anxiety status, and whether or not the perception of their anxiety was completely addressed. Pearson correlation coefficients were used to assess the association between a participant's previsit STAI score and the total score and the PFDI subscores (the pelvic organ prolapse distress inventory [POPDI-6], urinary distress inventory [UDI-6], and colorectal-anal distress inventory [CRADI-8] scores) and the total GAD score. Finally, a paired samples *t*-test was used to test for a significant change in the STAI from the previsit to the postvisit, and Pearson correlation coefficients were used to assess the association between STAI score changes and a patient's total GAD score and PFDI scores.

Results

Fifty women, with a median age of 53 years (interquartile range [IQR], 41−66) were enrolled and completed the study. Demographics are shown in Table 1. The participants were primarily white (66%).

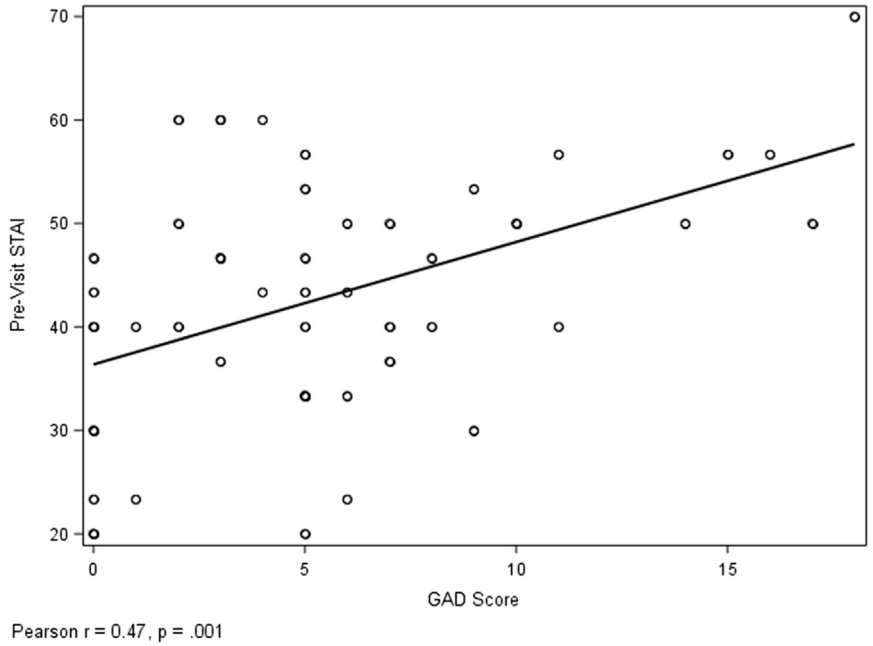
TABLE 1
Patient demographics

Variable	Measure
Race, n (%)	
White	33 (66)
Black	5 (10)
Hispanic	9 (18)
Asian	1 (2)
Other	2 (4)
Median age, y (interquartile range)	53 (41−66)
Diagnosis, n (%)	
Pelvic organ prolapse	10 (20)
Urgency urinary incontinence	23 (46)
Stress urinary incontinence	27 (54)
Recurrent urinary tract infections	6 (12)
Myofascial pain of the pelvic floor	14 (28)
Urinary urgency/frequency	5 (10)
Previous surgery, n (%)	
Obstetric/gynecologic surgery	23 (46)
Hysterectomy	8 (16)
Cesarean section delivery	5 (10)
Adnexal surgery	8 (16)
Other (eg, curettage, myomectomy)	3 (6)
General surgery, n (%)	
Appendectomy	4 (8)
Cholecystectomy	5 (10)
Bowel resection	2 (4)
Breast surgery	2 (4)
Other (eg, fundoplication, tonsillectomy)	2 (4)
Other surgery, n (%)	
Orthopedic surgery	2 (4)
Vascular surgery	2 (4)
History of anxiety diagnosis, n (%)	11 (22)
Taking anxiety/depression medications, n (%)	11 (22)

Pham et al. Characterizing anxiety at the first urogynecology visit. Am J Obstet Gynecol 2019.

Almost one-half of them (46%) have had a history of surgery that did not include pelvic floor reconstructive surgery. Of those who had previous surgery, almost all (96%) had previous gynecologic surgeries (hysterectomy, cesarean delivery, adnexal surgery, or other minor gynecologic surgeries). Nearly one-quarter of them (22%) had a previous diagnosis of anxiety (with or without depression). All of these participants were being treated with medications for anxiety: all of whom them were on selective serotonin reuptake inhibitors; 3 participants were also treated with benzodiazepines. The visit diagnoses included stress urinary incontinence (54%), urge urinary incontinence, (46%), myofascial pain of the pelvis (28%), POP (20%), and recurrent UTI (12%). Previsit STAI

FIGURE 1
Association between the Generalized Anxiety Disorder-7 total score and the previsit State-Trait Anxiety Inventory score



Association of Generalized Anxiety Disorder-7 scores with participants' State-Trait Anxiety Inventory score prior to their urogynecology visit.

GAD-7, Generalized Anxiety Disorder-7; *STAI*, State-Trait Anxiety Inventory.

Pham et al. Characterizing anxiety at the first urogynecology visit. Am J Obstet Gynecol 2019.

scores were not associated with POP (P=.08), stress urinary incontinence (P=.24), or myofascial pain (P=.51). However, participants with UUI had higher previsit STAI scores (median, 50; IQR, 40−57) than participants without UUI (median, 40; IQR, 30−47; p = .004), and participants with recurrent UTI had higher previsit STAI scores (median, 52; IQR, 50−57) than those without recurrent UTI (median, 40; IQR, 33−50; P=.02).

PFDI and previsit STAI

The median PFDI total score for the participants was 77.60 (IQR, 48.96−129.17). The median PFDI subscale scores were POPDI, 16.67 (IQR, 4.17−33.33), UDI, 50.00 (IQR, 29.17−62.50), and CRADI, 17.19 (IQR, 0−34.38). There was no association between the previsit STAI score and the POPDI-6 (Pearson r, −0.01; P=.94), UDI-6 (Pearson r, 0.21; P=.14), CRADI-8 (Pearson r, −0.20; P=.16), and the PFDI total score (Pearson r, 0.18; P=.22).

GAD-7 and previsit STAI

GAD scores were associated positively with previsit STAI score (Pearson r, 0.47; P=.001; Figure 1). With the use of the GAD-7 cutoff score of 10 to screen, only 9 women (18%) met criteria for GAD. These participants reported higher previsit STAI scores compared with those with GAD <10 (50.0 vs 40.0; P=.003).

Postvisit anxiety and satisfaction

After their visit, 80% participants reported much better or very much better improvement in their anxiety. Most women (74%) perceived that their provider completely addressed their visit-related anxiety, and 80% of participants were completely satisfied with their visit. For the 10 women (20% of participants) who did not report an improvement in their anxiety per PGI-I, 40% (4/10) had GAD >10. For the other 40 women (80%) of the cohort who did report an improvement in their anxiety, only 12.5% (5/40) had GAD >10. Although this may indicate a trend, there was no statistically significant association between a participant's impression of improvement of anxiety and GAD score.

Change in previsit and postvisit STAI scores

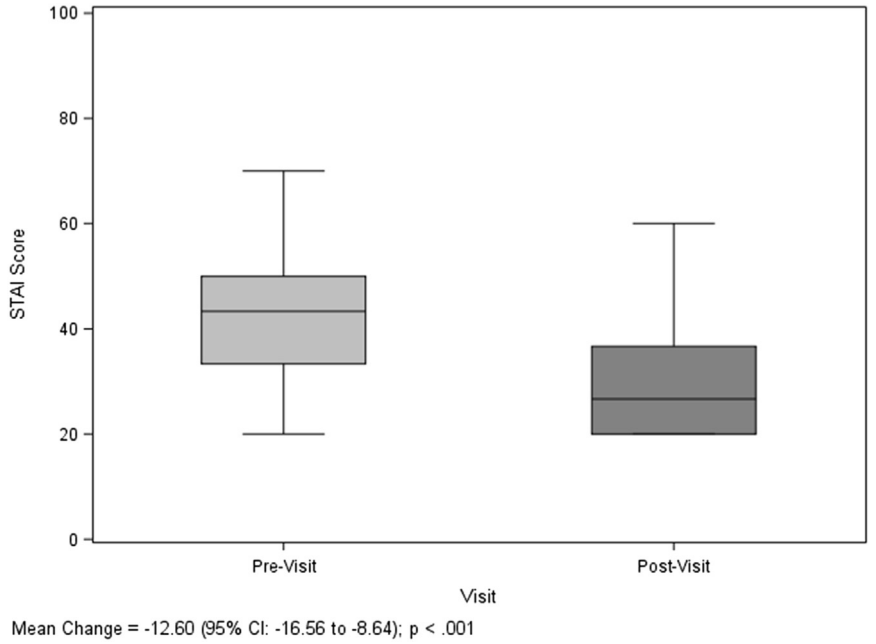
The mean previsit STAI score was 42.93 (standard deviation, 11.98), which declined to an average postvisit STAI score of 30.33 (standard deviation, 12.75), and represented a decrease of approximately −12.60 (95% confidence interval, −16.56 to −8.64) points (P<.001; Figure 2). Improvements in anxiety were associated with PGI-I anxiety scores (P<.001) and with the perception that participant anxiety was completely addressed (P=.045). Those who reported complete satisfaction after their visit had a greater improvement in their STAI scores (median, −15.00; IQR, −26.67 to −5.00) compared with those not reporting complete satisfaction (median, −3.33; IQR, −6.67−6/67; P=.01). Furthermore, changes in the STAI score were not associated with the PFDI subscale scores or total score: POPDI-6 (Pearson r, 0.16; P=.28), UDI-6 (Pearson r, 0.09; P=.52), CRADI-8 (Pearson r, 0.09; P=.55), and PFDI total score (Pearson r, 0.14; P=.35). Changes in the STAI score were also not associated with GAD scores (P=.89).

The most reported causes for consultation-related anxiety were lack of knowledge of diagnosis and ramifications, personal or social issues relating to the visit or condition, personal fear of the physical examination (related to the pelvic examination and urethral catheterization), anxiety related to symptoms, and anxiety related to treatment options (Table 2). Participants reported the following reasons that their anxiety improved: patient education and/or reassurance, medical staff appreciation (including good bedside manner), and clear diagnosis with an acceptable treatment plan (Table 3).

Comment

Our study demonstrates that patient state anxiety levels improve after the

FIGURE 2
Pre- and postvisit State-Trait Anxiety Inventory scores



Participants' State-Trait Anxiety Inventory scores prior and after their first urogynecology visit.
CI, confidence interval; *STAI*, State-Trait Anxiety Inventory.
Pham et al. Characterizing anxiety at the first urogynecology visit. Am J Obstet Gynecol 2019.

initial urogynecologic encounter. Furthermore, patients perceive that our specialists address their anxieties during the visit, and we demonstrated that improvement in a patient's state anxiety is correlated with overall patient satisfaction. Previous studies have shown an association between anxiety and pelvic floor disorders.[2,13] With the GAD-7 to screen for GAD, 18% of our study participants met criteria for GAD. This is consistent with other studies in which GAD was found in almost 20% of postmenopausal women with prolapse.[14,24] As suggested by previous qualitative studies that described the emotional burden in women who seek care,[6,25] we found that women at their initial visit for their pelvic floor disorders had high state anxiety. Surprisingly, their state anxiety measurements were similar to those reported by women on the day of their reconstructive pelvic floor surgery.[26] Those who met the criteria for GAD reported a higher level of state anxiety than those who did not.

There was no association between their previsit state anxiety and their degree of symptom bother as measured by their PFDI scores and their pelvic floor diagnoses. It is unclear why patients with a diagnosis of UUI and recurrent UTI had higher previsit anxiety than those without UUI and UTI. In a secondary analysis, the causes for anxiety in those with UUI were distributed similarly compared with the entire cohort. Those with recurrent UTI (6 patients) reported anxiety that was related only to the diagnosis and ramifications and the anticipated physical examination. We are unable to make a conclusion regarding anxiety in patients with recurrent UTIs, given our small sample size; further research is warranted.

After the visit, women reported improvement in their state anxiety by an average of 12.6 points in their STAI-Y6 scores. This was not associated with their symptom bother or their GAD scores. This improvement in state anxiety is without any additional intervention by the treating physicians because they were blinded to any of the previsit questionnaires, which suggests that patient interaction with a specialist can be therapeutic in alleviating anxiety by providing patients with reassurance, knowledge, and an acceptable plan of care. An alternative hypothesis is that giving women the opportunity to reflect on their anxiety before their visit may be an intervention to decrease anxiety. Psychosocial research suggests that this is due to a mere measurement effect or question-behavior effect. That is, the impact of asking about a behavior, as opposed to not asking such questions, can influence subsequent performance of that behavior.[27] The question-behavior effect has been described in a variety of research domains; most often for health, consumer, and social behaviors. Within the health domain, studies have demonstrated that the question-behavior effect can be harnessed as an effective intervention, increasing uptake of health checks[28] and health screenings.[29] If measuring intentions can have an influence on subsequent behavior, asking women to reflect on and consider their anxieties may have a positive influence on their perceptions of how those anxieties are after their visit. As a result, completion of self-report questionnaires may lead to desirable changes in behavior and perceptions, then merely asking patients about their anxieties via questionnaires potentially could be a viable and cost-effective public health intervention. On the other hand, if this notion is true, it may also challenge clinical research, especially in intervention trials. Baseline assessment with the use of self-reported questionnaires may affect behavior in a similar way as interventions affect behaviors; therefore, it may be difficult to disentangle measurement and interventions effects.[30]

Our study found that improvement in the state anxiety after the visit was associated with improvements in participants' perception of their anxiety level and whether those anxieties were addressed during the visit. Those who reported the highest satisfaction after their visit had the largest improvement in their state anxiety, which suggests that patient satisfaction is linked closely to

TABLE 2
Causes for patient anxiety

Major categories	Responses, n (%)	Examples
Related to diagnosis and ramifications	48 (39)	"Afraid the issue is serious or life threatening"
		"Concerned the problem can't be fixed"
		"Will this get worse?"
Related to personal or social issues	29 (23)	"Long wait for appointment"
		"I don't know the doctor"
		"How long will it take to treat this problem?"
Related to physical examination	27 (22)	"Will the exam hurt?"
		"What will the procedure be like?"
		"Afraid of urinary catheters"
Related to symptoms	11 (9)	"I'm embarrassed I can't hold my urine"
		"Is my bladder bulging?"
Related to treatment	9 (7)	"Do I need surgery?"
		"Can physical therapy help?"

Pham et al. Characterizing anxiety at the first urogynecology visit. Am J Obstet Gynecol 2019.

patient perception of anxiety improvement. Perhaps addressment and alleviation of patient self-reported anxieties act similarly to achievement of patient self-described goals[31,32] that previously have been shown to impact patient satisfaction. Future studies should aim to explore the relationship between patients' self-reported anxieties and self-reported goals.

Although we found that those women with the greatest improvement in their anxiety reported that highest level of satisfaction, it is also possible that patient satisfaction after the initial visit is high regardless because of positive interaction between physician and patient. The lack of a control group to explore this relationship is 1 of the limitations of our study.

TABLE 3
Reasons for anxiety mitigation

Major categories	Responses, n (%)	Examples
Reassurance/explanation	27 (60)	"All my questions were answered"
		"Detailed explanation of my condition"
		"The information gave me relief"
Medical staff satisfaction	11 (24)	"Doctors and nurses made me feel cared for"
		"Doctor was calm and comforting"
		"Friendly and polite staff"
Acceptable treatment plan	4 (9)	"Having a plan to fix the problem"
Gentle physical examination	3 (7)	"The exam was not as bad as I thought it would be"

Pham et al. Characterizing anxiety at the first urogynecology visit. Am J Obstet Gynecol 2019.

Strengths of our study included the generalizability of our study to urogynecologic practices, the use of validated questionnaires for anxiety, and the involvement of research coordinators to facilitate participants' completion of the study questionnaires and data management. Our study is generalizable to other academic practices because it was conducted in a tertiary care setting of multiple physicians with different levels of learners involved. Both GAD-7 and STAI-Y6 are validated questionnaires that commonly are used to measure anxiety in research and clinical practice. Involvement of research coordinators allowed for the reduction of missing data because questionnaires are collected on-site shortly after completion. Physicians were also blinded to the participants' responses of nonroutine questions, which also helped reduce bias. The physicians were aware that new patients were being approached for study participation, but they did not necessarily know whether the patients agreed to participate. This may be a limitation because this knowledge may allow physicians unintentionally to change how they would interact with the patient. Another limitation was our use of a nonvalidated satisfaction questionnaire. We chose to use this because our previous studies that evaluated patient goals,[32] preparedness,[19] and complications[20] used this same instrument.

Although we found improvement in state anxiety after the initial visit, it is unknown whether this improvement in anxiety will be maintained on subsequent visits. A longer term follow-up study is needed to examine longitudinal changes in state anxiety on subsequent visits, especially when participants are faced with anxiety-provoking events such as office procedures or reconstructive pelvic surgery. Furthermore, patient self-reported anxieties can also change after the consultation visit or on subsequent visit similar to what we have found previously with patient self-reported goals.[33] It may be helpful to reassess patient anxieties, which may lead to further addressment, to optimize subsequent patient satisfaction and outcome.

In conclusion, women who attend their initial visit for their pelvic floor symptoms report high state anxiety that significantly improved after their visit. Women with the highest satisfaction after their visit also demonstrate the largest decrease in anxiety after the visit. Changes in anxiety scores correlated to patient perception of symptom improvement and whether their anxiety was addressed completely. Changes in anxiety scores were not correlated with PFDI or with measures of GAD. Providers should understand that their patients may experience anxiety that is related to the diagnosis and ramifications, their symptoms, the possible treatments, the anticipated physical examination, and personal/social factors. This anxiety is best addressed with individualized care during the consultation. ■

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