

Knowledge and Perception of Pelvic Floor Disorders in Asian Women

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Applied Learning Experience

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Abstract

Recent studies have shown that the prevalence of pelvic floor disorders may vary with by race/ethnicity and, furthermore, social and cultural factors may play a role in women's knowledge of these disorders, attitudes towards them, and how to seek help for them. Under the guidance of the Tufts Medical Center Division of Urogynecology and Pelvic Reconstructive Surgery this project was undertaken to 1) examine the literature about awareness of and attitudes towards pelvic floor disorders in minority groups and 2) study the topic in the local Asian population. A literature review was conducted and revealed that some studies have looked at knowledge of pelvic floor disorder in the white, African American, and Hispanic populations in the US, but very little research concerning knowledge and perception of pelvic floor disorders in Asian American women has been conducted. Additionally, preliminary data from a survey administered to Asian women visiting Tufts gynecology clinics revealed that knowledge about both urinary incontinence and pelvic organ prolapse is low in this population. Furthermore, the data showed that few women are asked about symptoms of these conditions by a physician. Final analysis of this survey will help local physicians to assess their patients' understanding of pelvic floor disorder symptoms and urogynecologic treatment options. This information should be used to develop interventions that focus on improving urogynecologic care for the Asian American population.

Introduction

Background

While pelvic floor disorders (PFDs) are a common health problem for women, especially with increasing age and parity, stigma surrounding discussion of these types of problems often prevents women from seeking medical help. Nearly 1 in 4 women experience symptoms from at least one PFD, including urinary incontinence (UI), fecal incontinence (FI), and pelvic organ prolapse (POP)¹. The prevalence of PFDs has been found to vary by race/ethnicity, with Hispanic women reporting a higher prevalence (36%), followed by white women (30%), black women (25%), and Asian women (19%)^{2,3}. Additionally, knowledge of PFDs and attitudes towards seeking treatment may vary by race/ethnicity, with cultural perceptions of symptoms and stigma playing a large role. Studies estimate that around 50% of women do not receive treatment for urinary incontinence, with minorities being less likely to receive care than the general population^{4,5}.

Despite the lower prevalence of PFDs reported in Asian women, there is evidence that this population disproportionately does not receive adequate care for their symptoms. Barriers to seeking care include embarrassment and shame about symptoms, the misconception that PFDs are a part of normal aging, and lack of knowledge about treatment options and how to access them. Studies looking at Chinese women's experiences with urinary incontinence suggest that social isolation and internalized shame are associated with negative attitudes towards seeking treatment in this population. Additionally, a common viewpoint in this population is that urinary incontinence is not a true illness warranting professional care^{6,7}.

Previous studies have looked at knowledge and perception of PFDs in white, African American, Latina, and Native American women living in the US^{2,8,9}. However, little research

regarding knowledge and perception of PFDs has been conducted in the Asian American population.

Organizational Context

This project was conducted under supervision of Dr. Danielle Patterson and the Division of Urogynecology and Pelvic Reconstructive Surgery at Tufts Medical Center. The division specializes in care of a variety of conditions related to female pelvic health including stress urinary incontinence, urge incontinence, fecal incontinence, recurrent urinary tract infections, pelvic organ prolapse, fistulas, and maternal birth trauma. They focus on providing safe and effective treatment options in a patient-centered and caring environment. Dr. Danielle Patterson is an MD board-certified in Obstetrics & Gynecology and Female Pelvic Medicine & Reconstructive Surgery. She also has a MSc in Epidemiology and her research interests include quality of life and surgical outcomes.

Currently, the division has only anecdotal information about the knowledge and perception of pelvic floor disorders in Asian women residing in Boston's Chinatown, which is a large portion of their patient population. They are conducting a study that aims to gain a better understanding of how Asian women view PFDs in order to improve urogynecologic care to this population. This study is a survey administered to self-identified Asian patients in the general gynecology clinics at Tufts Medical Center. Other members of the research team include Dr. Tanaz Ferzandi (principle investigator) and Dr. Angela Leung.

Scope of Work

For this project, a literature review was conducted to accomplish the following objectives:

- **Objective 1** – Examine knowledge of PFDs in minority groups including African American, Hispanic, Native American, and Asian women.
- **Objective 2** – Examine care-seeking behavior for PFDs in minority groups including African American, Hispanic, Native American, and Asian women.
- **Objective 3** – Explore cultural considerations around knowledge of and attitudes towards PFDs.

Additionally, as part of the larger research team and study mentioned above, survey data was collected and preliminary analysis was begun to accomplish the following objectives:

- **Objective 1** – Examine participants' perceptions of PFD symptoms.
- **Objective 2** – Evaluate participants' knowledge of treatment options for PFDs.
- **Objective 3** – Assess participants' ability to communicate concerns about PFD symptoms to a physician.

Methods

Literature Review

The review was conducted using PubMed, a database containing biomedical literature from MEDLINE and life science journals that is curated by the National Center for Biotechnology Information (NCBI). Inclusion criteria included peer-reviewed journal articles from the year 2000 or later and available through Tufts University Library resources that

included at least one search term from three different categories. Search terms were entered into the advanced database search as follows:

(pelvic floor disorders OR urinary incontinence OR pelvic organ prolapse)
AND
(race OR ethnicity OR Asian)
AND
(knowledge OR perception OR attitude)

Articles that fulfilled all of the inclusion criteria were sorted into one of three thematic categories: 1) “Prevalence and Care-Seeking”, 2) “Knowledge and Perceptions in Minority Groups”, and 3) “Asian Population”. Each individual article was then reviewed, and key conclusions and relevant data were summarized in a standardized format.

Survey Collection and Preliminary Analysis

This survey was approved and granted Exempt Status by the Tufts Health Sciences Campus Institutional Review Board (Appendix A). Only de-identified data was used in data analysis and there were no direct risks or benefits to participants. An anonymous survey was administered to women who are at least 18 years old and self-identify as Asian in general gynecology clinics associated with Tufts Medical Center (Appendix B). Surveys were available in English, Mandarin, Cantonese, and Vietnamese and were administered by a medical assistant in the clinic (Appendix C). A sample size calculation prior to administration of surveys revealed that 385 surveys were needed to adequately power the study. At this point in time 174 surveys have been collected. The rest of the research team will continue to collect surveys until they have enough to power the final analysis.

Completed surveys were entered into REDCap and aggregate data were formulated for analysis. Data analysis was conducted in STATA. Descriptive statistics were calculated. A score

for knowledge of PFDs was calculated based on the answers to survey questions with correct or incorrect answers (questions 9, 10, 14, and 15 on the survey form). Surveys with more than half of the questions left unanswered on the “Urinary Incontinence” and “Pelvic Organ Prolapse” sections were classified as non-responders. Non-responders were not included in the knowledge score calculations. ANOVA tests were used to compare PFD knowledge scores between demographic groups. Fisher’s Exact tests were used to compare differences in being asked about PFDs by a doctor between demographic groups.

Results

Literature Review

Twenty-nine articles were found that fit the inclusion criteria as described above. All articles were published between 2000 and 2016. Eight articles were grouped into the thematic category of “Prevalence and Care-Seeking”, twelve article were grouped into the thematic category of “Knowledge and Perceptions in Minority Groups”, and nine articles were grouped into the thematic category of “Asian Population” (Appendix D).

The literature review revealed that previous studies have looked at knowledge and perception of PFDs in white, black, Latina, and Native American women living in the US^{2,8,9,10,11}. There are also some studies on the topic in Chinese^{6,7,12}, Taiwanese¹³, and Japanese women¹⁴. However, little research regarding knowledge and perception of PFDs has been conducted in the Asian American population. A single study of Korean American women demonstrates a lack of knowledge about the etiology of UI, the relationship between aging and UI, and the best treatment options for UI. These Korean American women were less

knowledgeable than both white women and other minority groups who had previously been assessed with the same survey¹⁵.

Studies investigating Chinese women’s experiences with urinary incontinence suggest that social isolation and internalized shame are associated with negative attitudes towards seeking treatment in this population. Additionally, a common viewpoint in this population is that urinary incontinence is not a true illness warranting professional care. Barriers to seeking care in the Chinese population include embarrassment and shame about symptoms, the misconception that PFDs are a part of normal aging, and a lack of knowledge about treatment options and how to access them^{6,7,12}. It is, as of yet, unclear how these beliefs and attitudes towards PFDs might relate to those of Asian women living in the US.

Tufts Survey Data

The sample consisted of 174 survey respondents. This is a preliminary data analysis, as 385 surveys are needed to adequately power this study. Of the surveys collected 14.4% were completed in English, 84.5% were completed in Chinese (either

Table 1. Demographics of Respondents

	Frequency	Percent (%)
Survey Language		
English	25	14.4
Chinese	147	84.5
Vietnamese	2	1.2
Total	174	100.0
Age Group		
18-24 years old	5	2.9
25-34 years old	51	29.7
35-44 years old	45	26.2
45-54 years old	43	25.0
55-64 years old	14	8.1
65-74 years old	12	7.0
75+ years old	2	1.2
Total	172	100.0
Education Level		
Less than elementary school	4	2.4
Elementary school	7	4.1
High School	102	60.4
Some college	14	8.3
College	25	14.8
More than college	17	10.0
Total	169	100.0
Annual Income		
Less than \$10,000	23	15.5
\$10,000 to \$25,000	50	33.8
\$25,000 to \$50,000	51	34.5
\$50,000 to \$100,000	13	8.8
Greater than \$100,000	11	7.4
Total	148	100.0
Ethnicity		
Chinese	162	96.4
Vietnamese	4	2.4
Korean	2	1.2
Total	168	100.0
English Fluency		
I only speak and read my native language	34	22.1
I speak and read some English	99	64.3
I am fluent in English	21	13.6
Total	154	100.0
Employment		
Not employed outside the home	41	28.7
Working part-time	36	25.2
Working full-time	66	46.2
Total	143	100.0

Mandarin or Cantonese), and 1.2% were completed in Vietnamese. The median age of respondents was 41.5, with a range of respondents from ages 20-81 completing the survey. Other demographic data is displayed in Table 1.

About a quarter of the respondents considered both UI and POP part of normal aging. About half of the respondents believed there are treatments for both UI and POP, with a smaller proportion believing

that there are non-surgical treatments options for both conditions. Nearly 30% of respondents had been asked about UI by a doctor and 16% had been asked about POP by a doctor. Less than 10% of respondents would be too

Table 2. Survey Responses

Question	Number of Respondents	Agree (Freq)	Agree (%)	95% CI
Urinary Incontinence				
UI is a normal part of aging	146	35	24.0	17.7-31.6
There are treatments for UI	141	75	53.2	44.8-61.4
There are non-surgical treatments for UI	140	45	32.1	24.9-40.4
A doctor has asked me about UI	129	37	28.7	21.5-37.2
I was too embarrassed to tell a doctor about UI	123	6	4.9	2.2-10.5
Pelvic Organ Prolapse				
POP is a normal part of aging	128	32	25.0	18.2-33.3
There are treatments for POP	128	62	48.4	39.8-57.2
There are non-surgical treatments for POP	127	33	26.0	19.0-34.4
A doctor has asked me about POP	118	19	16.1	10.4-24.0
I was too embarrassed to tell a doctor about POP	116	8	6.9	3.5-13.3
Learning More				
I would like to learn more about UI and POP	120	81	67.5	58.5-75.4

embarrassed to tell a doctor about either UI or POP. Further data on survey responses by individual question is displayed in Table 2. Of note, the number of responses to individual questions in the “Urinary Incontinence” and “Pelvic Organ Prolapse” sections of the survey were significantly smaller than the number of surveys collected. 67% of respondents indicated that they would like to learn more about UI and POP.

The mean knowledge score was 1.59 (95% CI 1.33-1.84) out total possible score of 4.

Non-responders (as described in the methods) made up 26% of the total survey participants (45

Table 3. Knowledge Scores

Characteristic	Mean Total Score (SE)	P-Value
Survey Language		
English	1.55 (0.33)	0.878
Chinese	1.60 (0.14)	
Age Group		
18-24 years old	0.60 (0.40)	0.222
25-34 years old	1.79 (0.23)	
35-44 years old	1.18 (0.24)	
45-54 years old	2.00 (0.29)	
55-64 years old	1.78 (0.46)	
65-74 years old	1.63 (0.42)	
75+ years old	1.00	
Education Level		
Less than elementary school	0.50 (0.50)	0.061
Elementary school	2.20 (0.66)	
High school	1.35 (0.17)	
Some college	1.23 (0.34)	
College	1.92 (0.31)	
More than college	2.40 (0.38)	
Annual Income		
Less than \$10,000	1.71 (0.29)	0.225
\$10,000 to \$25,000	1.76 (0.25)	
\$25,000 to \$50,000	1.26 (0.22)	
\$50,000 to \$100,000	2.33 (0.58)	
Greater than \$100,000	2.00 (0.43)	
Ethnicity		
Chinese	1.60 (0.13)	0.514
Vietnamese	--	
Korean	2.00	
English Fluency		
I only speak and read my native language	1.18 (0.25)	0.205
I speak and read some English	1.76 (0.17)	
I am fluent in English	1.60 (0.36)	
Employment		
Not employed outside the home	1.29 (0.24)	0.374
Working part-time	1.70 (0.30)	
Working full-time	1.72 (0.20)	

out of 174) and were not

included in the analysis

of knowledge scores.

This classification was

used only for this

specific portion of the

data analysis. There was

no significant difference

in knowledge score by

survey language, age

group, annual income,

ethnicity, English

fluency, and

employment. The

difference in knowledge

scores by education level

approached significance

(p=0.061) with the highest score being in respondents with more than a college education. The

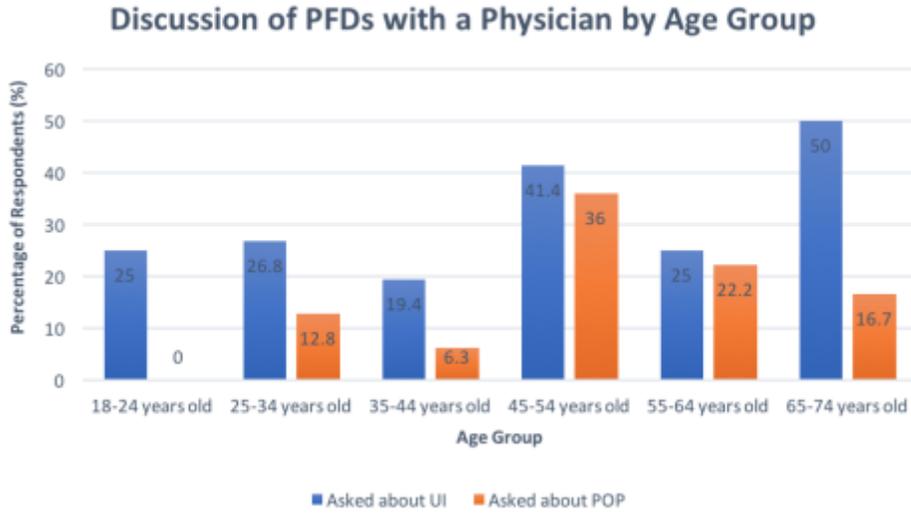
next highest score was in respondents with an elementary school education, though this group

contained less than 10 total responses. Specific knowledge score means based on demographics

are displayed in Table 3.

In all age groups a larger proportion of respondents had been asked about UI than about

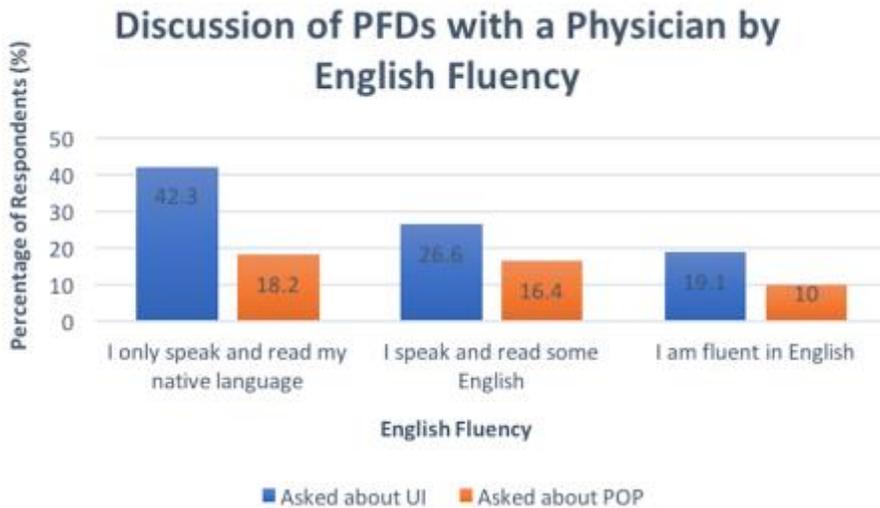
Figure 1.



POP (Figure 1).

However, there was no significant difference in the being asked about both UI and POP between age groups.

Figure 2.



Additionally, in all levels of English fluency a larger proportion of respondents had been asked about UI than about POP (Figure 2). Again, there was no

significant difference in being asked about both UI and POP between fluency groups.

Discussion

A literature review reveals that knowledge and perception of PFDs in minority groups has been studied in the past, though this research mainly focuses on black and Hispanic

populations. Asian Americans are a minority group that are largely unstudied. This suggests that the research currently being conducted by the Tufts Medical Center Division of Urogynecology and Pelvic Reconstructive Surgery could be beneficial not only to local physicians, but also to the field of study. Learning about women's familiarity with PFDs and how they communicate with doctors about symptoms can help to design interventions in the future. Specifically gathering such information from Boston Chinatown women can help the Tufts urogynecologists get a baseline assessment of their patient population in order to develop priorities and goals for improving care.

Unsurprisingly with an underpowered sample, the preliminary analysis did not reveal many differences between groups in knowledge about UI and POP. Overall, the knowledge scores were quite low, indicating that the survey population could benefit from formal interventions, or even efforts made by individual providers, to increase education about PFDs at gynecology visits. Furthermore, a large majority of patients indicated that they were interested in learning more about UI and POP, suggesting that the population may be receptive to education about urogynecologic health. Since the participants in this study were general gynecology and not urogynecology patients, their knowledge is a good measure of the general Asian population's knowledge.

The preliminary analysis showed that patients were more likely to be asked by their physicians about UI as compared to POP. The reason for this finding is not apparent from the survey questions, but this could be an area of further investigation. Additionally, the analysis revealed that the percentage of patients who have been asked about PFDs by a physician is quite low. Furthermore, this percentage does not increase with age as one might expect given that PFD symptoms become more prevalent with age. This indicates that one possible area of intervention

with the potential for a large improvement in health would be addressing PFD symptoms in the elderly population. Parity, the other main risk factors for PFDs, is also included on the survey, but was not analyzed as a demographic in this preliminary analysis. This should be an important area to focus on in the final analysis.

English fluency did not seem to decrease patients' knowledge or likelihood of discussing UI and POP with a physician, which is an encouraging finding. This may be due to the fact that many non-English speakers visiting the Tufts gynecology department are seen by physicians who speak their native language. If this is not possible, then they are always seen with an in-person or phone interpreter.

While this study is one of the first to investigate understanding of PFDs in Asian American women, one of its limitations is that there is no comparison group with which to compare results. It would be beneficial to compare the findings and knowledge scores to either other minority groups or to the general population in order to better understand the differences between races/ethnicities. However, the study was designed as a descriptive study to gain information about urogynecologic health care and knowledge in the local population. Additionally, it would be beneficial to have some qualitative data to gain a more nuanced view of perceptions and attitudes towards PFDs. Another limitation is that the survey population is biased towards women who present for regular gynecologic care. Knowledge and perceptions may be different in women who do not often see a physician or utilize the healthcare system. However, it would be considerably more difficult to capture this population in a study.

A final limitation, and/or area of investigation when proceeding with the study, is the relatively large number of non-responders (i.e. participants who did not respond to more than half the "Urinary Incontinence" and "Pelvic Organ Prolapse" sections of the survey). About a

quarter of the survey participants were non-responders, with many of these participants stopping after filling out the demographic information or only 1-2 questions of the following sections. This might indicate that either not enough time is being given to participants to fill out the forms, or that some women are uncomfortable answering the questions related to UI and POP. The protocol for administering the forms in clinic should be reviewed to ensure that participants are receiving adequate time for study participation. Additionally, the final analysis should investigate whether there is some difference in demographics between the responders and non-responders.

Conclusions

Currently there is a gap in knowledge about the understanding and perceptions of PFDs in Asian American women. The current study being undertaken by the Tufts Medical Center Division of Urogynecology and Pelvic Reconstructive Surgery aims to begin to fill this gap, starting with the Asian population in Boston's Chinatown. To date their research indicates that general knowledge about both UI and POP are low in this population, and that women are not regularly asked about symptoms of UI or POP by a physician. They have also found that POP is less frequently addressed in the healthcare setting as compared to UI. Additionally, a large majority of women are interested in learning more about PFDs, suggesting the population would be open to an intervention in this area. With the completion of the study the department should have a good baseline assessment of the knowledge and perceptions of PFDs in their Asian patient population and, subsequently, be able to develop strategies to improve delivery of care and urogynecologic health.

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Appendices

A. IRB Documentation of Exempt Status

Tufts | Health Sciences

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Boston, MA 02111

tel 617.636.7512
fax 617.635.8394
<http://hscirb.tufts.edu>

Health Sciences Campus Institutional Review Board

DOCUMENTATION OF EXEMPT STATUS

Tanaz Ferzandi, MD
Urogynecology
Tufts MC, Box 232
Boston, MA 02111

IRB #: 11447
Protocol Title: Knowledge and perception of pelvic floor disorders among Asian women

Date of IRB Determination: 9/24/2014

In accordance with 45 CFR 46.101(b)(2) the Tufts Medical Center/Tufts University Health Sciences IRB determined that the above-referenced project is exempt.

The IRB made the following findings:

- Health Insurance Portability and Accountability Act documentation is not required; per the Principal Investigator, the data will be de-identified.

Receipt of the following study documents was acknowledged:

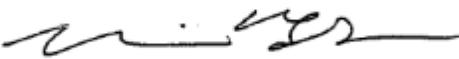
- Recruitment letter [Version dated: 15 September 2014]
- Survey [Version received: 22 September 2014]

The exempt status of this research will not expire. Please notify the IRB office in writing when this project is terminated.

Any change to this project that may affect the exempt status of this project must be submitted to the IRB for review prior to implementation.

THIS NOTICE MUST BE RETAINED WITH YOUR FILES.

9/25/14
Date


Signature of Chair/Vice Chair/Designee

B. Participant Letter

Dear Prospective Research Participant,

We are doing a survey to investigate pelvic floor disorders among Asian women. The research is important in understanding women's attitudes regarding female incontinence and pelvic organ prolapse.

We ask for your help in completing the questionnaire, which will take approximately five minutes. Your decision to participate in this study is completely voluntary. You are not required to participate and declining to participate in no way jeopardizes your medical care. Your informed consent is implied upon completion and return of the questionnaire.

To ensure anonymity, please do not write your name or any identifying information on any portion of the survey. All responses will be completely anonymous. It will not be possible to match you with your data in any way.

In this project, there are no known economic, legal, physical, physiological, or social risks to participants in either immediate or long term outcomes. Although there is no direct benefit to you, your participation is important in developing improvements to our patient population. I hope you will choose to participate in this study.

The distribution of the questionnaires has been approved by the Tufts Medical Center/Tufts University Health Science Institutional Review Board. If you have any questions or concerns about the nature of this study, please contact Drs. Angela Leung and Danielle Patterson, Department of Obstetrics and Gynecology, Tufts Medical Center, Boston, MA 02111 (617-636-0265).

Thank you for your help in this research.

Sincerely,

Tanaz Ferzandi, MD
Danielle Patterson, MD
Angela Leung, MD

C. Survey Form



Research Study: Knowledge and Perception of Pelvic Floor Disorders Among Asian Women

Principal Investigator: Tanaz Ferzandi

- This is a VOLUNTARY and ANONYMOUS survey.
- Your responses are confidential and you are asked not to provide your name.

Demographics

1. How old are you? _____
2. How many children do you have? _____
 - a. Number of Vaginal delivery _____
 - b. Number of C-sections _____
3. What is your education level?
 - a. Less than elementary school
 - b. Elementary school
 - c. High school
 - d. College
 - e. Some college
 - f. More than college
4. What is your annual household income?
 - a. <\$10,000 per year
 - b. \$10,000 to \$25,000 per year
 - c. \$25,000 to \$50,000 per year
 - d. \$50,000 to \$100,000 per year
 - e. >\$100,000 per year
5. What is your ethnicity?
 - a. Chinese
 - b. Vietnamese
 - c. Japanese
 - d. Korean
 - e. Cambodian
 - f. Other _____
6. What are your language skills?
 - a. I only speak and read my native language
 - b. I speak and read some English
 - c. I am fluent in English
7. What best describes your employment status?
 - a. Not employed outside the home
 - b. Working part-time
 - c. Working full-timeMy job is _____

Urinary Incontinence

8. It is normal to have leakage of urine as women get older.
 - a. True
 - b. False
 - c. Don't know
9. There are treatment options for women who leak urine.
 - a. True
 - b. False
 - c. Don't know
10. There are treatment options for women who leak urine that do not involve surgery.

- a. True
- b. False
- c. Don't know

11. My doctor has asked me if I leak urine.

- a. True
- b. False
- c. Don't know

12. My doctor asked me if I leak urine, but I was too embarrassed to answer him/her that I do.

- a. True
- b. False
- c. Don't know

Pelvic Organ Prolapse

13. It is normal to feel like the uterus, bladder, vagina, or rectum is falling out as women get older.

- a. True
- b. False
- c. Don't know

14. There are treatment options for women who feel like their uterus, bladder, vagina, or rectum is falling out.

- a. True
- b. False
- c. Don't know

15. There are treatment options for women who feel like their uterus, bladder, vagina, or rectum is falling out that do not involve surgery.

- a. True
- b. False
- c. Don't know

16. My doctor has me if I feel like my uterus, bladder, vagina, or rectum is falling out.

- a. True
- b. False
- c. Don't know

17. My doctor asked me if I feel like my uterus, bladder, vagina, or rectum is falling out, but I was too embarrassed to answer him/her that I do.

- a. True
- b. False
- c. Don't know

18. I would like to learn more about urinary incontinence and pelvic organ prolapse.

- a. Yes
- b. No
- c. Don't know

D. Literature Review Table

Year	Author(s)	Title	Citation	Theme	Type of Study	Sample Size	Conclusions/Relevant Data
2000	Ueda T, Tamaki M, Kageyama S, Yoshimura N, Yoshida O	Urinary Incontinence Among Community-Dwelling People Aged 40 Years or Older in Japan: Prevalence, Risk Factors, Knowledge and Self-Perception. <i>Int J Urol.</i> 2000;7(3):95-103. doi:10.1046/j.1442-2042.2000.00147.x.	Ueda T, Tamaki M, Kageyama S, Yoshimura N, Yoshida O. Urinary Incontinence Among Community-Dwelling People Aged 40 Years or Older in Japan: Prevalence, Risk Factors, Knowledge and Self-Perception. <i>Int J Urol.</i> 2000;7(3):95-103. doi:10.1046/j.1442-2042.2000.00147.x.	Asian Population	Cross-sectional survey	n=1786 (964 women)	<ul style="list-style-type: none"> Prevalence of UI was 53.7% in female participants Of participants with UI, 3% had sought care, 25% viewed it as a disease, 63% viewed it as a consequence of aging, 63% found it embarrassing, 38% thought it was curable by acceptable treatments, 54% were hesitant to seek treatment, and 50% did not know where to seek treatment
2002	Sampelle CM, Harlow SD, Skurnick J, Brubaker L, Bondarenko I	Urinary Incontinence Predictors and Life Impact in Ethnically Diverse Perimenopausal Women	Sampelle CM, Harlow SD, Skurnick J, Brubaker L, Bondarenko I. Urinary Incontinence Predictors and Life Impact in Ethnically Diverse Perimenopausal Women. <i>Obstet Gynecol.</i> 2002;100(6):1230-1238. doi:10.1097/00006250-200212000-00013.	Prevalence and Care-Seeking	Cross-sectional, interviews and surveys, data from the baseline visit of the SWAN study (Study of Women's Health Across the Nation)	n=3302	<ul style="list-style-type: none"> Prevalence of UI: total population 56.9%, white 66.0%, black 49.5%, Chinese 50.2%, Hispanic 41.5%, Japanese 52.9% Prevalence of severe UI: total population 9.9%, white 12.1%, black 8.8%, Chinese 4.4%, Hispanic 9.2%, Japanese 6.4% Non-white women significantly less likely to report incontinence Adjusted OR for UI (white women as reference group): black w/ no hx of leiomyomata 0.31, black w/ hx of leiomyomata 1.81, Chinese w/ below college educ 0.35, Chinese with college or above educ 2.53, Hispanic 0.44, Japanese 0.58 (all significant) Significant effects for ethnicity disappeared when BMI entered into the model No significant difference between ethnicities in likelihood of discussing leakage with a provider
2003	Nowiell KD, Simpson Z, Hua G, Diamond JJ, Sultana C, Paynter N	Urinary Incontinence in Primary Care: A Comparison of Older African-American and Caucasian Women	Nowiell KD, Simpson Z, Hua G, Diamond JJ, Sultana C, Paynter N. Urinary Incontinence in Primary Care: A Comparison of Older African-American and Caucasian Women. <i>Int Urol Nephrol.</i> 2003;35(3):423-428. doi:10.1023/b:urol.0000022868.73066.9a.	Prevalence and Care-Seeking	Cross-sectional, telephone survey	n=194	<ul style="list-style-type: none"> No significant difference in prevalence (AA 62%, C 67%) Significant difference in symptoms of stress urinary incontinence (AA 57%, C 76%) No significant difference in speaking to a professional about symptoms (AA 39%, C 52%)
2004	Kubik K, Blackwell L, Heit M	Does Socioeconomic Status Explain Racial Differences in Urinary Incontinence Knowledge? <i>Am J Obstet Gynecol.</i> 2004;191(1):188-193. doi:10.1016/j.ajog.2004.03.084.	Kubik K, Blackwell L, Heit M. Does Socioeconomic Status Explain Racial Differences in Urinary Incontinence Knowledge? <i>Am J Obstet Gynecol.</i> 2004;191(1):188-193. doi:10.1016/j.ajog.2004.03.084.	Knowledge and Perceptions in Minority Groups	Cross-sectional, telephone survey (Incontinence Quiz)	n=212	<ul style="list-style-type: none"> White women scored better than minority women on the Incontinence Quiz (6.16 vs. 5.46 out of 14), but this difference was no longer statistically significant when adjusting for SES Higher SES was significantly associated with a higher score on the quiz
2005	Hsieh CH, Su TH, Chang ST	Prevalence of and Attitude Toward Urinary Incontinence in Taiwanese Women	Hsieh CH, Su TH, Chang ST. Prevalence of and Attitude Toward Urinary Incontinence in Taiwanese Women. <i>Int J Gynaecol Obstet.</i> 2005;88(2):152-153. doi:10.1016/j.ijgo.2004.09.022.	Asian Population	Cross-sectional, in-person survey for Taiwanese women	n=353?	<ul style="list-style-type: none"> 18.7% of respondents with UI, of those with UI 22% had medical help (4.2% of total population) 75% understood the meaning of UI, 70% understood that it was treatable, 92% reported they would see a doctor for symptoms Interviewee's perception of effective treatment for UI: conventional medicine 67%, herbs 34%, physiotherapy 27%, surgery 17%, folk therapy %

2006	Huang AJ, Thom DH, Kanaya AM, et al.	Urinary Incontinence and Pelvic Floor Dysfunction in Asian-American Women	Huang AJ, Thom DH, Kanaya AM, et al. <i>Urinary Incontinence and Pelvic Floor Dysfunction in Asian-American Women. Am J Obstet Gynecol.</i> 2006;195(5):1331-1337. doi:10.1016/j.ajog.2006.03.052.	Asian Population	Cross-sectional analysis of RRISK cohort study (Reproductive Risks of Incontinence Study at Kaiser)	n=2109 in RRISK study, 345 Asian women included in analysis	<ul style="list-style-type: none"> 18.4% of Asian women reported weekly UI as compared to 30.8% of white women (statistically significant), of Asian women with UI 34% sought treatment Significantly less stress UI in Asian women as compared to white women, no significant difference in urge UI No significant difference in pelvic organ prolapse, fecal incontinence, or flatal incontinence
2006	Komorowski L, Chen B	Female Urinary Incontinence in China: Experiences and Perspectives	Komorowski L, Chen B. <i>Female Urinary Incontinence in China: Experiences and Perspectives. Health Care Women Int.</i> 2006;27(2):169-181. doi:10.1080/073993305000457887.	Asian Population	Semi-structured interviews	n=15	<ul style="list-style-type: none"> Five core themes that emerged were uncertainty about UI (uncertainty about cause or incorrect interpretation of cause), self-blame, avoidance, emotional isolation, and desire for treatment Other negative impacts of UI included limiting exercise, embarrassment (having to change clothes often), poor sleep, and quality of sex life More than half the participants who sought treatment were dissatisfied, some used traditional Chinese medicine or a combination of traditional Chinese medicine and Ob/Gyn care Reasons for not seeking treatment included not knowing treatment existed, that the problem was not severe enough, and ashamed to seek treatment
2006	Thom DH, van den Eeden SK, Ragins AJ, et al.	Differences in Prevalence of Urinary Incontinence by Race/Ethnicity	Thom DH, van den Eeden SK, Ragins AJ, et al. <i>Differences in Prevalence of Urinary Incontinence by Race/Ethnicity. J Urol.</i> 2006;175(1):259-264. doi:10.1016/j.s0022-5347(05)00039-x.	Prevalence and Care-Seeking	RRISK cohort study (Reproductive Risks of Incontinence Study at Kaiser)	n=2109	<ul style="list-style-type: none"> Age-adjusted prevalence of weekly incontinence: Hispanic 36%, white 30%, black 25%, and Asian-American 19% (statistically significant) Stress incontinence prevalence remained significantly lower in black and Asian-American women as compared to white when controlling for age, parity, hysterectomy, estrogen use, BMI, menopausal status, and diabetes, though urge incontinence did not
2007	LI FLW, Low LPL, Lee DTF	Chinese Women's Experiences in Coping with Urinary Incontinence	LI FLW, Low LPL, Lee DTF. <i>Chinese Women's Experiences in Coping with Urinary Incontinence. J Clin Nurs.</i> 2007;16(3):610-612. doi:10.1111/j.1365-2702.2006.01755.x.	Asian Population	Semi-structured interviews	n=9	<ul style="list-style-type: none"> Two common themes were fears about coping with UI and strategies used for controlling UI symptoms Embarrassment, shame, and humiliation were discussed regarding symptoms and odor from UI Although all women in the study were seen after clinic visits to discuss UI there was still often the perception that UI is not an illness and that it does not warrant seeking professional medical help, many mentioned not wanting to waste resources or others' time by seeing a doctor
2007	Morrill M, Lukacz ES, Lawrence JM, Nager CW, Contreras R, Luber KM	Seeking Healthcare for Pelvic Floor Disorders: A Population-Based Study	Morrill M, Lukacz ES, Lawrence JM, Nager CW, Contreras R, Luber KM. <i>Seeking Healthcare for Pelvic Floor Disorders: A Population-Based Study. Am J Obstet Gynecol.</i> 2007;197(1):86.e1-86.e6. doi:10.1016/j.ajog.2007.02.051.	Prevalence and Care-Seeking	Cross-sectional, written survey	n=4188	<ul style="list-style-type: none"> Statistical differences in care-seeking behavior for pelvic organ prolapse and urinary incontinence by race/ethnicity, no statistical difference in care-seeking behavior for anal incontinence by race/ethnicity 82% of white women with POP sought care, while 44% of Asian/Pacific women sought care 67% of white women with UI sought care, while 53% of Asian/Pacific women with UI sought care

2008	Fenner DE, Trowbridge ER, Patel DL, et al.	Establishing the Prevalence of Incontinence Study: Racial Differences in Women's Patterns of Urinary Incontinence	Fenner DE, Trowbridge ER, Patel DL, et al. Establishing the Prevalence of Incontinence Study: Racial Differences in Women's Patterns of Urinary Incontinence. <i>J Urol.</i> 2008;179(4):1455-1460. doi:10.1016/j.juro.2007.11.051.	Prevalence and Care-Seeking	Cross-sectional, telephone survey	n=2814	<ul style="list-style-type: none"> • UI prevalence was 33.1% for white women and 14.6% for black women (statistically significant), there was no difference in frequency of UI by race • For participants with UI, white women reported a higher prevalence of pure stress UI symptoms (39.2% vs. 14.0%), but a lower prevalence of pure urge UI symptoms (11.0% vs. 23.8%) • Risk factors for UI were similar in white and black women
2008	Kang Y, Crogan NL	Social and Cultural Construction of Urinary Incontinence among Korean American Elderly Women	Kang Y, Crogan NL. Social and Cultural Construction of Urinary Incontinence among Korean American Elderly Women. <i>Geriatric Nursing.</i> 2008;29(2):105-111. doi:10.1016/j.gerinurse.2008.01.002.	Asian Population	Academic article		<ul style="list-style-type: none"> • From the social perspective UI can affect integration into Western society, UI is regarded as a social problem more than a health problem in both the US and Korea, the difference is that in the US the social perspective on UI is rooted in individualism, while in Korea it is rooted in collectivism (i.e. UI is a family matter and should be taken care of by family members privately) • From the cultural perspective UI is considered a private matter that should be kept hidden from others, Confucianism in Korea emphasizes respect for the elderly by family members who often assist with UI, but also shame for not living up to Confucian standards • UI is also viewed from a fatalistic perspective in Korea, many women believe they are fated to get UI after childbirth and there is nothing that can be done about it, this often prevents them from seeking professional help
2008	Nygaard I, Barber MD, Burgio KL, et al.	Prevalence of Symptomatic Pelvic Floor Disorders in US Women	Nygaard I, Barber MD, Burgio KL, et al. Prevalence of Symptomatic Pelvic Floor Disorders in US Women. <i>JAMA.</i> 2008;300(11):1311-1316. doi:10.1001/jama.300.11.1311.	Prevalence and Care-Seeking	Cross-sectional, national health survey	n=1961	<ul style="list-style-type: none"> • 23.7% of US women experience 1 or more PFDs (15.7% UI, 9.0% FI, 2.9% POP) • No statistically significant difference between Hispanic, non-Hispanic white, non-Hispanic black, and other for UI or POP, statistically significant difference for FI (non-Hispanic white with 9.8 vs. Hispanic 4.8%)
2008	Shah AD, Shortt S, Kohli N, Wu JM, Catlin S, Hoyte L	Do Racial Differences in Knowledge About Urogynecologic Issues Exist?	Shah AD, Shortt S, Kohli N, Wu JM, Catlin S, Hoyte L. Do Racial Differences in Knowledge About Urogynecologic Issues Exist? <i>Int Urogynecol J Pelvic Floor Dysfunct.</i> 2008;19(10):1371-1378. doi:10.1007/s00192-008-0639-2.	Knowledge and Perceptions in Minority Groups	Cross-sectional, in-person survey (PIKQ or Prolapse and Incontinence Knowledge Questionnaire administered at Brigham and Women's Hospital)	n=126	<ul style="list-style-type: none"> • Mean UI scale score was significantly higher for white (64.9) vs. nonwhite (53.4) women, no difference in the POP scale score (33.2 for white women vs. 28.3 for nonwhite women) • For the UI scale race remained statistically significant after controlling for education and income • Both white and nonwhite women have better knowledge about UI than POP • For nonwhite women fewer than 1 in 4 achieved scores suggestive of adequate knowledge of UI (greater than 80% correct) and POP (greater than 50% correct)

2008	Tennstedt SL, Link CL, Steers WD, McKinlay JB.	Prevalence of and Risk Factors for Urine Leakage in a Racially and Ethnically Diverse Population of Adults: The Boston Area Community Health (BACH) Survey	Tennstedt SL, Link CL, Steers WD, McKinlay JB. Prevalence of and Risk Factors for Urine Leakage in a Racially and Ethnically Diverse Population of Adults: The Boston Area Community Health (BACH) Survey. <i>Am J Epidemiol</i> . 2008;167(4):390-399. doi:10.1093/aje/kwm356.	Prevalence and Care-Seeking	Cross-sectional, in-person interview	n=5506 (3205 women)	<ul style="list-style-type: none"> Weekly prevalence of urinary leakage was 10.8% in women, white women (11.7%) were more likely than black (9.4%) and Hispanic (7.3%) to report any leakage, they were also more likely to report stress-type (35.4% vs. 9.4% vs. 14.5%) and urge-type leakage (13.4% vs. 3.3% vs. 10.8%) specifically
2009	Kang Y	Knowledge and Attitudes About Urinary Incontinence Among Community-Dwelling Korean American Women	Kang Y. Knowledge and Attitudes About Urinary Incontinence Among Community-Dwelling Korean American Women. <i>J Wound Ostomy Continence Nurs</i> . 2009;36(2):194-199. doi:10.1097/01.won.0000347662.33088.c9.	Asian Population	Cross-sectional, survey (Incontinence Quiz)	n=182	<ul style="list-style-type: none"> Mean score on the Incontinence Quiz was 4.85 out of 14, no participant answered all the questions correctly Used the same survey as Kubik et al. 2004, lower score in this population of Korean American women as compared to white (mean score of 6.16) and minority (mean score of 5.46) women in Kubik's study, lower mean score than 2 other studies that also used the survey in Massachusetts men and women and women living in a rural, Midwestern community Specific questions demonstrated a lack of knowledge about the relationship between aging and UI, and the etiology of UI Women in the study tended to believe that surgery is the best treatment for UI (as compared to pelvic floor exercises) Compared to other studies the Korean American women in this study were more knowledgeable that women have a higher prevalence of UI than men and that pelvic floor exercises can be a treatment for UI
2010	El-Azab AS, Shaaban OM	Measuring the Barriers Against Seeking Consultation for Urinary Incontinence Among Middle Eastern Women	El-Azab AS, Shaaban OM. Measuring the Barriers Against Seeking Consultation for Urinary Incontinence Among Middle Eastern Women. <i>BMC Women's Health</i> . 2010;10(3). doi:10.1186/1472-6874-10-3.	Knowledge and Perceptions in Minority Groups	Cross-sectional, in-person survey followed by smaller pilot study	n=1231 (348 with UI who completed the first version of the survey, 36 who came back to complete the final version of the survey in a smaller pilot study to validate the survey)	<ul style="list-style-type: none"> About 80% of women with UI had never sought medical advice Common barriers to seeking help were embarrassment, the view that UI is a normal part of aging, and misconceptions about treatment for UI Factors that were significantly associated with care-seeking behavior were husband encouragement, severe UI, coital UI, and prayer The final survey was shown to have good internal reliability and test-retest reliability
2010	Yuan H, Williams BA	Knowledge of Urinary Incontinence Among Chinese Community Nurses and Community-Dwelling Older People	Yuan H, Williams BA. Knowledge of Urinary Incontinence Among Chinese Community Nurses and Community-Dwelling Older People. <i>Health Soc Care Community</i> . 2010;82-90. doi:10.1111/j.1365-2524.2009.00876.x.	Asian Population	Cross-sectional, survey (UIKS or Urinary Incontinence Knowledge Scale)	n=200 (100 community nurses and 100 older people in the community)	<ul style="list-style-type: none"> The means UIKS score of nurses was significantly higher than that of older people (20.7 vs. 13.4 out of 30) A score of less than 60% indicated poor knowledge and a score of 60-80% indicated moderate knowledge Nurses had moderate knowledge about the impact of UI, but poor knowledge about the risk factors, prevention, treatment, symptoms, and management, older people had poor knowledge about all of the above Both nurses and older people viewed UI as a normal part of the aging process

2011	Berger MB, Patel DA, Miller JM, Delancey JO, Fenner DE	Racial Differences in Self-Reported Healthcare Seeking and Treatment for Urinary Incontinence in Community-Dwelling Women from the EPI Study	Berger MB, Patel DA, Miller JM, Delancey JO, Fenner DE. Racial Differences in Self-Reported Healthcare Seeking and Treatment for Urinary Incontinence in Community-Dwelling Women from the EPI Study. <i>Neurological Urology and Dynamics</i> . 2011;30(8):1442-1447. doi:10.1002/nuu.21145.	Prevalence and Care-Seeking	Secondary analysis of 2008 study (Fenner, et al.)	n=571 (participants with UI out of 2814 participants in 2008 original study)	<ul style="list-style-type: none"> No significant difference in care-seeking behavior for UI between white and black women (50.6% vs. 53.0%) No significant difference between race and hypothesized barriers to care, largest barrier was lack of knowledge about treatments (about 95% of participants) <ul style="list-style-type: none"> Medication use was similar in black and white women, black women were significantly more likely to restrict fluid intake AA and LA women had misconceptions about PFDs, including causes, symptoms as a normal part of aging, and available treatments <ul style="list-style-type: none"> A major barrier to care was placing family needs before their own healthcare needs Sociocultural barriers to care were also discussed, i.e. embarrassment and discomfort discussing pelvic health Women were open to receiving more information about PFDs, in particular receiving information about prevention of PFDs for younger family members
2011	Hatchett L, Hebert-Beirne J, Tenfelde S, Lavender MD, Brubaker L	Knowledge and Perceptions of Pelvic Floor Disorders Among African American and Latina Women	Hatchett L, Hebert-Beirne J, Tenfelde S, Lavender MD, Brubaker L. Knowledge and Perceptions of Pelvic Floor Disorders Among African American and Latina Women. <i>Female Pelvic Med Reconstr Surg</i> . 2011;17(4):190-194. doi:10.1097/spv.0b013e3182296d5c.	Knowledge and Perceptions in Minority Groups	Focus groups stratified by age and race/ethnicity	n=32	<ul style="list-style-type: none"> Embarrassment about PFD symptoms, the attitude that PFDs are a normal part of aging, and complexities of health insurance were identified as barriers to seeking care, in a multivariable, adjusted model, the latter two factors remained significant Self-rated health status was not identified as a barrier to seeking care 30% of participants reported PFD symptoms, and of those 26% had sought care Care-seeking was associated with prolapse symptoms in the last 3 months and age greater than 65
2013	Washington BB, Raker CA, Mishra K, Sung VW	Variables Impacting Care-Seeking for Pelvic Floor Disorders Among African American Women	Washington BB, Raker CA, Mishra K, Sung VW. Variables Impacting Care-Seeking for Pelvic Floor Disorders Among African American Women. <i>Female Pelvic Med Reconstr Surg</i> . 2013;19(2):98-102. doi:10.1097/spv.0b013e31827bfe88.	Knowledge and Perceptions in Minority Groups	Cross-sectional, survey	n=362	<ul style="list-style-type: none"> Overall 71.2% of women lacked proficient knowledge of UI (greater than 80% correct) and 48.1% lacked proficient knowledge of POP (greater than 50% correct) In the multivariate, adjusted analysis significant results included African-American women being 2.39 times more likely to lack proficiency about UI than white women and 1.99 times more likely to lack proficiency about POP 100% of Asian women in the study lacked proficiency about UI (statistics could not be calculated) Small numbers of Asian, Hispanic, and Other women in the study, when these groups were combined together for analysis they were 3.37 times less likely to have proficiency about UI and 2.74 times less likely to have proficiency about POP as compared to white women
2014	Mandimika CL, Murk W, Mcpencow AM, et al.	Knowledge of Pelvic Floor Disorders in a Population of Community-Dwelling Women	Mandimika CL, Murk W, Mcpencow AM, et al. Knowledge of Pelvic Floor Disorders in a Population of Community-Dwelling Women. <i>Am J Obstet Gynecol</i> . 2014;210(2):165.e1-165.e9. doi:10.1016/j.ajog.2013.10.011.	Knowledge and Perceptions in Minority Groups	Cross-sectional, survey (PIKQ or Prolapse and Incontinence Knowledge Questionnaire)	n=431	<ul style="list-style-type: none"> Overall 71.2% of women lacked proficient knowledge of UI (greater than 80% correct) and 48.1% lacked proficient knowledge of POP (greater than 50% correct) In the multivariate, adjusted analysis significant results included African-American women being 2.39 times more likely to lack proficiency about UI than white women and 1.99 times more likely to lack proficiency about POP 100% of Asian women in the study lacked proficiency about UI (statistics could not be calculated) Small numbers of Asian, Hispanic, and Other women in the study, when these groups were combined together for analysis they were 3.37 times less likely to have proficiency about UI and 2.74 times less likely to have proficiency about POP as compared to white women

2014	Siddiqui NY, Levin PJ, Phadtare A, Pietrobon R, Ammarell N	Perceptions About Female Urinary Incontinence: A Systematic Review	Siddiqui NY, Levin PJ, Phadtare A, Pietrobon R, Ammarell N. Perceptions About Female Urinary Incontinence: A Systematic Review. <i>Int Urogynecol J</i> . 2014;25(7):863-871. doi:10.1007/s00192-013-2276-7.	Knowledge and Perceptions in Minority Groups	Review article	n=23 studies that met the inclusion criteria	<ul style="list-style-type: none"> Included studies from 1980-2011 that described knowledge, perception, or personal view about UI, excluded studies that did not mention race/ethnicity of the subjects and that reported non-urinary symptoms Used the RATS (relevance, appropriateness, transparency, and soundness) scale for qualitative research, there were 11 high quality, 2 moderate quality, and 10 low quality studies Two main themes were UI management (subthemes of management strategies, seeking treatment, and communicating with healthcare providers) and UI experience (subthemes of fear, stigma, and shame) Non-white women expressed self-blame and understood UI as a negative effect of childbirth or sexual experiences Latina women reported more secrecy around the experience of UI, Muslim women reported negative experiences around UI due to disruptions to religious observances
2014	Wang C, Li J, Wan X, Wang X, Kane RL, Wang K	Effects of Stigma on Chinese Women's Attitudes Towards Seeking Treatment for Urinary Incontinence	Wang C, Li J, Wan X, Wang X, Kane RL, Wang K. Effects of Stigma on Chinese Women's Attitudes Towards Seeking Treatment for Urinary Incontinence. <i>J Clin Nurs</i> . 2014;24(7-8):1112-1121. doi:10.1111/jocn.12729.	Asian Population	Cross-sectional, survey	n=305	<ul style="list-style-type: none"> Attitudes towards seeking treatment for UI were generally negative Effects of stigma were investigated using path analysis, this model supports the conclusion that stigma enhances negative attitudes towards care-seeking, social rejection also indirectly enhances these negative attitudes through social isolation and internalized shame The effect of internalized shame was higher in participants with more severe UI symptoms
2014	Willis-Gray MG, Sandoval JS, Maynor J, Bosworth HB, Siddiqui NY	Barriers to Urinary Incontinence Care Seeking in White, Black, and Latina Women	Willis-Gray MG, Sandoval JS, Maynor J, Bosworth HB, Siddiqui NY. Barriers to Urinary Incontinence Care Seeking in White, Black, and Latina Women. <i>Female Pelvic Med Reconstr Surg</i> . 2014;21(2):83-86. doi:10.1097/spv.0000000000000100.	Knowledge and Perceptions in Minority Groups	Cross-sectional, survey (including BICS-Q or Barriers to Incontinence Care Seeking Questionnaire and other validated scales)	n=93	<ul style="list-style-type: none"> Scores relating to symptom severity, quality of life, and diagnosis of UI were not significantly different between groups (white, black, Latina) Scores relating to barriers to care-seeking were lowest in white women, then black women, then Latina women (2.4 vs. 7.3 vs. 10.9 out of 14, statistically significant) When adjusting for confounders including age, income, and education barriers to care-seeking remained significantly higher in Latina women as compared to black and white women
2015	Duniwan GC, Komesu YM, Cichowski SB, Lowery C, Anger JT, Rogers RG	Elder American Indian Women's Knowledge of Pelvic Floor Disorders and Barriers to Seeking Care	Duniwan GC, Komesu YM, Cichowski SB, Lowery C, Anger JT, Rogers RG. Elder American Indian Women's Knowledge of Pelvic Floor Disorders and Barriers to Seeking Care. <i>Female Pelvic Med Reconstr Surg</i> . 2015;21(1):34-38. doi:10.1097/spv.0000000000000103.	Knowledge and Perceptions in Minority Groups	Cross-sectional, survey (PIKQ or Prolapse and Incontinence Knowledge Questionnaire and BICS-Q or Barriers to Incontinence Care Seeking Questionnaire)	n=144	<ul style="list-style-type: none"> Mean scores on the PIKQ were similar to historic gynecological controls Mean scores on the BICS-Q were significantly higher than historic gynecological controls Barriers to care noted to be highest to participants were cost and inconvenience, while fear, relationship with the healthcare provider, and transportation were also cited

2015	Mandimika CL, Murk W, Mcpencow AM, et al.	Racial Disparities in Knowledge of Pelvic Floor Disorders Among Community-Dwelling Women	Mandimika CL, Murk W, Mcpencow AM, et al. Racial Disparities in Knowledge of Pelvic Floor Disorders Among Community-Dwelling Women. <i>Female Pelvic Med Reconstr Surg.</i> 2015;21(5):287-292. doi:10.1097/spv.00000000000000182.	Knowledge and Perceptions in Minority Groups	Secondary analysis of 2014 study (Mandimika, et al.)	n=416 (participants who had identified a race/ethnicity out of 431 participants in the original 2014 study)	<ul style="list-style-type: none"> - Purpose was to evaluate knowledge about preventative measures and treatment options for PFDs - White women were compared to African-American women and Other Women of Color (OWOC), which included Hispanic, Asian, and Other (all had small numbers of participants) - AA women were significantly less likely than white women to know that childbirth is a risk factor for UI and POP, to know that pelvic floor exercises can be effective treatment for UI, and to know that pessaries can be effective treatment for POP - OWOC were significantly less likely than white women to know about preventative strategies, modifiable risk factors, and treatment options for UI and POP
2016	Dessie SG, Adams SR, Modest AM, Hacker MR, Elkadry EA	Bladder Symptoms and Attitudes in an Ethnically Diverse Population	Dessie SG, Adams SR, Modest AM, Hacker MR, Elkadry EA. Bladder Symptoms and Attitudes in an Ethnically Diverse Population. <i>Female Pelvic Med Reconstr Surg.</i> 2016;22(1):37-42. doi:10.1097/spv.00000000000000213.	Knowledge and Perceptions in Minority Groups	Cross-sectional survey	n=312	<ul style="list-style-type: none"> - African American respondents were significantly more likely to report nocturia as compared to white respondents, but otherwise symptoms were not significantly different between whites, African Americans, and Hispanics - Respondents view of normal urinary function and treatment options did not differ by race/ethnicity, with the exception of Hispanics being less likely to think urinary leakage after childbirth is normal as compared to whites - African Americans were significantly more likely to report their symptoms to physicians as compared to whites
2016	Siddiqui NY, Ammarell N, Wu JM, Sandoval JS, Bosworth HB	Urinary Incontinence and Health-Seeking Behavior Among White, Black, and Latina Women	Siddiqui NY, Ammarell N, Wu JM, Sandoval JS, Bosworth HB. Urinary Incontinence and Health-Seeking Behavior Among White, Black, and Latina Women. <i>Female Pelvic Med Reconstr Surg.</i> 2016;22(5):340-345. doi:10.1097/spv.00000000000000286.	Knowledge and Perceptions in Minority Groups	Focus groups stratified by race/ethnicity and UI frequency	n=113	<ul style="list-style-type: none"> - No difference in themes between groups stratified by UI frequency - Dominant themes of shame, fear, isolation, and negative attitudes from friends and family were present in all racial/ethnic groups, difficulty in communicating with healthcare providers was also discussed as a barrier to care in all groups - In groups of white and black women impairment in sexual activity was a common theme, also in these groups women described discussions with close friends or family that delayed care-seeking because of normalization of symptoms - Latina women maintained more privacy about symptoms, they also reported the longest periods of delay in seeking care and found financial concerns a larger barrier to treatment than white and black women - White women were more likely to seek out knowledge about UI symptoms and treatment

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