

The Use of Antibiotics for Uncomplicated Urinary Tract Infections in Adult Women: Qualitative Findings From the SCOUT Trial

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Background: This paper focuses on women's subjective experiences with UTIs and antibiotic use. Uncomplicated urinary tract infections (UTI) are among the most common infections treated in primary care, however, there is limited evidence regarding the experiences and their antibiotic treatment preferences.

Objective: The aim of this study is to gather experiences, beliefs, and attitudes regarding the use of antibiotics and the participation in the clinical trial.

Methods: This qualitative sub-study is part of the SCOUT project, which, through a clinical trial, aims to assess the effectiveness of four short antibiotic regimens (a single 3g dose of fosfomicin; 3g of fosfomicin for two days; 400mg of pivmecillinam for three days; and 100mg of nitrofurantoin for five days). A total of 68 semi-structured interviews were conducted in four regions of Spain (Catalonia N=19, Aragón N=19, Madrid N=15, and the Balearic Islands N=15). A purposive and theoretical sampling approach was employed. Participants were recruited after taking part in the clinical trial. Data collection took place between March and July 2024 and analysed using Thematic Analysis.

Results: UTI did not cause excessive concern, except in cases where the antibiotic was ineffective or when participants had experienced multiple infections in the past. Fosfomicin was the most widely recognized antibiotic, and the two-dose regimen was generally well-regarded for being easy to take while also being more effective than the single-dose treatment. Longer regimens could cause some side effects, but in certain cases, they were perceived as more effective. Participation in the clinical trial was viewed positively, as it contributed to increasing overall knowledge about UTI and the antibiotics used to treat them, as well as ensuring closer monitoring of each specific case.

Conclusion: This study gathers experiences related to UTI, antibiotic treatment regimens, and participation in the SCOUT clinical trial. It highlights the need to document the realities of UTI in order to improve future clinical trials.

Keywords: urinary tract infection, women, patient satisfaction, antibiotic, qualitative research, clinical trial

Introduction

Uncomplicated urinary tract infections (UTI) are among the most prevalent infections in primary care and represent a leading cause of antibiotic prescriptions.¹ It is estimated that 60% of women experience at least one UTI episode during their lifetime.² However, limited evidence exists regarding the lived experience of UTIs and the perspectives of affected women on antibiotic use.³⁻⁵ UTIs typically present as mild, uncomplicated conditions, and therapeutic decision-making is

often empirical.^{6,7} In many instances, women seeking medical attention at healthcare centers (HC) anticipate receiving antibiotic treatment.⁸ Antibiotics remain essential in the majority of UTI cases.⁹ Healthcare professionals (HCP) exhibit diverse perspectives and preferences regarding antibiotic regimens for UTI, resulting in variations in treatment protocols across countries. Antibiotic resistance is not a novel phenomenon and has been a longstanding global concern.^{3,7,10–12} Prior research has highlighted that when antibiotics fail to provide relief, affected women often report frustration and concern about recurrent UTI and their impact on quality of life.^{11,13} It is, therefore, essential to consider women's experiences with antibiotic treatment and to explore their perspectives on UTI. Additionally, understanding how the patient-provider relationship is constructed in these cases, identifying emerging concerns, and addressing the informational needs of affected women is of particular importance.¹⁴ Given the crucial role of HCP in the therapeutic process and the perception of medical institutions as trusted sources of health-related information, care, and prevention,¹⁵ these aspects warrant further exploration especially in our context. Lastly, evaluating participants' experiences in the trial will facilitate the identification of potential challenges and enablers in the study participation process.

^{9,16} In Spain, where antibiotic use is notably higher than in other European countries,^{17,18} current clinical practice guidelines recommend fosfomycin (3g, single dose) as the first-line treatment, with nitrofurantoin as a secondary option.^{6,19} Nevertheless, HCP frequently prescribe alternative regimens, such as two doses of fosfomycin or extended courses of other antibiotics.²⁰ Consequently, the clinical trial associated with this qualitative study seeks to update knowledge on the efficacy of four short-course antibiotic regimens for UTI treatment in primary care: a single 3g dose of fosfomycin; 3g of fosfomycin for two days; 400mg of pivmecillinam for three days; and 100mg of nitrofurantoin for five days. This qualitative study aims to explore the participants' experience of the clinical trial, collecting rich discourse to complement the trial results and improve future trials.^{10,11,13,15,21–24} Accordingly, the main objective of this study was to explore the experiences, beliefs, and attitudes related to antibiotic use among adult women affected by UTI.²⁴

Methods

Study Design

This qualitative study is part of the SCOUT project, which aims to explore the treatment of UTI in women in Spain, particularly through a randomized clinical trial involving four treatment arms (3g of single-dose fosfomycin; 3g of fosfomycin over two days; 400mg of pivmecillinam for three days; and 100mg of nitrofurantoin for five days). This subproject constitutes a qualitative study that, from a phenomenological perspective,²⁵ investigates the experiences of women affected by UTIs through semi-structured interviews conducted in four regions of Spain (Aragón, the Balearic Islands, Catalonia and Madrid).

The rigor and quality of this research have been ensured by applying Lucy Yardley's criteria.^{26,27} The sampling strategy sought to incorporate people with a wide range of experiential characteristics that offered an in-depth perspective of the phenomenon being studied. A detailed description of the setting and the characteristics of the participants was drawn up. All authors read the various research report drafts independently, discussing them before the final report was drawn up. The confirmability of the study was helped by the use of notes and discussions with the research team on the various agreements and disagreements regarding the themes being analysed until consensus was reached.

Additionally, the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was used to guide the study (see [Additional File 1](#)).

Sampling and Recruitment

A purposive and theoretical sampling approach was employed. Participants were recruited by the interviewers themselves, with the assistance of HCP from HC in the various regions, after they had participated in the clinical trial. When signing the informed consent form for participation in the clinical trial, participants were given the option to be contacted for a subsequent qualitative study. The sampling was conducted among those who consented to be contacted. Despite the fact that some people could not be contacted, none refused to participate.

The selected women were over 18 years old and had experienced symptoms of an uncomplicated UTI. The interviewees were drawn from four different regions: in Catalonia, participants were recruited from three HC; in

Aragón, from one HC; in the Balearic Islands, from seven HC; and in Madrid, from four HC. Women who had experienced a UTI were preselected based on factors such as age, employment status, place of residence, history of previous UTI, and the antibiotic regimen received.

Participants

The study included 68 women affected by UTI who had previously participated in the SCOUT clinical trial. Participants ranged in age from 20 to 90 years, with most having experienced prior UTI (N=62) and the majority being born in Spain (N=59) and pregnancy was an exclusion criteria.

Regarding antibiotic regimens, a balanced distribution was achieved across the four treatment arms of the trial: Pivmecillinam (N=14), Nitrofurantoin (N=16), Fosfomycin (2-day regimen) (N=18) and Fosfomycin (single-dose regimen) (N=19). Participants were recruited from primary care centers across different regions: Catalonia (N=19), Aragón (N=19), Madrid (N=15), and the Balearic Islands (N=15). [Table 1](#) presents the participants' sociodemographic characteristics.

Data Collection

A total of 68 semi-structured interviews were conducted between March and July 2024. A thematic topic guide (see [Additional File 2](#)) was developed based on the study objectives by the SCOUT research team. The guide covered the following key topics: 1) Experience with UTI, 2) Antibiotic use, 3) Participation in the clinical trial and 4) Interaction with healthcare professionals.

Before the interviews, the research team provided participants with detailed information about the study, along with an information sheet. Participants provided written or oral informed consent, depending on the interview modality, and completed a sociodemographic questionnaire (see [Table 1](#)).

Interviews were conducted in person at HC (N=36) or via telephone only in presence of the interviewer and interviewed. All interviews were audio-recorded, with an average duration of 20–30 minutes. Interviews were conducted by MLLH (N=19), PAG (N=15), RSR (N=15), and BMB (N=19). There was no prior relationship between interviewers and participants before the study. Data saturation was reached in the 62nd interview. An additional four interviews were conducted in Aragón to expand the content and ensure equitable representation of the different regions.”

Data Analysis

The data were analysed using thematic analysis,²⁸ following a structured approach: a) Familiarization with the data, b) Coding, c) Generation of initial themes, d) Refinement of themes, e) Definition and finalization of themes and f) Writing the analysis.

First, all interviews were transcribed, and identifiable information was removed by MLLH, PAG, RSR and BMB. The four researchers have experience in qualitative methods and have previously participated in conducting semi-structured interviews. As the transcripts were deemed to be faithful to the source material, there was no need to corroborate this with the interviewees or to re-interview the participants, although in some cases, standard punctuation norms were applied to improve legibility. During the familiarization phase, the researchers listened to the recordings, read the transcripts separately, and made necessary corrections while noting initial impressions. Next, BMB and RSR coded the interviews, and three meetings were held between them to triangulate three interviews and establish the initial themes. Through thematic focus we analyse for recurring themes that reflect the essence of the participants' experiences, rather than for frequency or generalizability. These preliminary categories were then shared with the broader research team, leading to further refinements, which were incorporated into the final analysis. Finally, the final written analysis was reviewed, and results were discussed with the entire research team to ensure coherence. Data analysis was conducted using Atlas.ti software (v8.6.2–2024-09-05).

Results

Three key themes were identified: a) Experiencing UTI: Between familiarity with symptoms and uncertainty in finding a solution; b) Antibiotic use: Balancing the wait-and-see approach with the urgent need for antibiotics and c) Participation in the trial: Interactions with HCP and the healthcare system.

Table 1 Sociodemographic Characteristics of Women Affected with UTI

	Overall	Madrid	Catalonia	Aragon	Balearic Islands
n	68	15	19	19	15
Age (mean (SD))	54.03 (20.27)	49.07 (20.95)	57.42 (16.56)	59.89 (22.22)	47.67 (20.40)
Age_range (%)					
[18,36]	17 (25.4)	6 (40.0)	2 (10.5)	4 (22.2)	5 (33.3)
(36,54]	15 (22.4)	2 (13.3)	7 (36.8)	2 (11.1)	4 (26.7)
(54,72]	17 (25.4)	4 (26.7)	4 (21.1)	6 (33.3)	3 (20.0)
(72,90]	18 (26.9)	3 (20.0)	6 (31.6)	6 (33.3)	3 (20.0)
Birthplace (%)					
Spain	59 (86.8)	13 (86.7)	16 (84.2)	15 (78.9)	15 (100.0)
Rest of the world	9 (13.2)	2 (13.3)	3 (15.8)	4 (21.1)	0 (0.0)
Completed education (%)					
No studies	8 (11.8)	1 (6.7)	3 (15.8)	3 (15.8)	1 (6.7)
Postgraduate studies	5 (7.4)	2 (13.3)	1 (5.3)	0 (0.0)	2 (13.3)
Primary education	22 (32.4)	3 (20.0)	7 (36.8)	8 (42.1)	4 (26.7)
Secondary education	28 (41.2)	7 (46.7)	7 (36.8)	6 (31.6)	8 (53.3)
University education	5 (7.4)	2 (13.3)	1 (5.3)	2 (10.5)	0 (0.0)
Employment status (%)					
Full time job	31 (45.6)	8 (53.3)	8 (42.1)	8 (42.1)	7 (46.7)
Housework	3 (4.4)	1 (6.7)	1 (5.3)	0 (0.0)	1 (6.7)
Medical leave	1 (1.5)	0 (0.0)	1 (5.3)	0 (0.0)	0 (0.0)
Not working	1 (1.5)	0 (0.0)	0 (0.0)	0 (0.0)	1 (6.7)
Pension	3 (4.4)	2 (13.3)	0 (0.0)	0 (0.0)	1 (6.7)
Retirement	20 (29.4)	3 (20.0)	6 (31.6)	8 (42.1)	3 (20.0)
Self employed	3 (4.4)	0 (0.0)	1 (5.3)	1 (5.3)	1 (6.7)
Student	4 (5.9)	1 (6.7)	1 (5.3)	2 (10.5)	0 (0.0)
Unemployment	2 (2.9)	0 (0.0)	1 (5.3)	0 (0.0)	1 (6.7)
Coexistence (median [IQR])	2.00 [2.00, 3.00]	3.00 [2.00, 3.50]	2.00 [2.00, 3.00]	2.00 [1.00, 2.00]	3.00 [2.00, 4.00]
Dependants_dic = Yes (%)	26 (38.2)	4 (26.7)	11 (57.9)	6 (31.6)	5 (33.3)
Antibiotic received (%)					
Fosfomycin single-dose	19 (27.9)	4 (26.7)	8 (42.1)	3 (15.8)	4 (26.7)
Fosfomycin double-dose	18 (26.5)	4 (26.7)	4 (21.1)	6 (31.6)	4 (26.7)
Nitrofurantoin	16 (23.5)	4 (26.7)	4 (21.1)	5 (26.3)	3 (20.0)
Pivmecillinam	15 (22.1)	3 (20.0)	3 (15.8)	5 (26.3)	4 (26.7)
Antibiotic effect (%)					
Effective	53 (77.9)	11 (73.3)	19 (100.0)	12 (63.2)	11 (73.3)
Effective but UTI returns	4 (5.9)	1 (6.7)	0 (0.0)	1 (5.3)	2 (13.3)
Has no effect	5 (7.4)	2 (13.3)	0 (0.0)	3 (15.8)	0 (0.0)
No effect and another antibiotic prescribed	4 (5.9)	1 (6.7)	0 (0.0)	1 (5.3)	2 (13.3)
Side effect	1 (1.5)	0 (0.0)	0 (0.0)	1 (5.3)	0 (0.0)
Takes effect	1 (1.5)	0 (0.0)	0 (0.0)	1 (5.3)	0 (0.0)
First UTI = Yes (%)	6 (9.2)	2 (13.3)	1 (5.3)	1 (6.2)	2 (13.3)
Interview mode = Telephone (%)	32 (47.1)	5 (33.3)	5 (26.3)	8 (42.1)	14 (93.3)

Experiencing UTI: Between Familiarity with Symptoms and Uncertainty in Finding a Solution

Most participants (N=59) had experienced UTI before and thus expressed a sense of familiarity with the symptoms and how to manage them:

Since it wasn't the first time, I already knew how long it would take me to feel better. I mean, a urinary infection... you more or less know what it is. (B4, 77 years old)

However, some participants, such as C6 and M1, who were experiencing a UTI for the first time, initially did not recognize the symptoms and were unsure of their condition, leading them to delay seeking medical attention. In contrast, other first-time UTI sufferers reported a degree of familiarity with symptoms due to experiences shared by people in their social circles.

Some participants noted that since UTI are often perceived as “mild conditions”, their symptoms might not always be taken seriously—despite sometimes causing significant discomfort and functional limitations. While most participants did not feel particularly concerned when experiencing a UTI, they acknowledged that certain symptoms, such as frequent urination affecting work performance or blood in the urine, could significantly impact their daily lives.

To be honest, since I have never had any complications or anything serious, I don't give it much importance. (M4, 58 years old)

Although the interviews were framed around the participants' current UTI, many reported having experienced UTI frequently in the past. Some participants expressed concern over the unknown cause of their recurrent UTI and frustration at not being able to find a solution, particularly those with a history of recurrent UTI. While in some cases, their experiences met clinical criteria for recurrent infections, in others, they did not, yet participants felt as if they were constantly experiencing UTI.

The truth is that I was a bit worried because it wasn't normal to have so many infections, but at the same time, I felt reassured thinking, well, with this study, it seems like they are going to examine it properly. And since then, since last year, I haven't had an infection. (C11, 44 years old)

Some participants also noted asymptomatic UTI, which had been detected through routine testing, particularly among older participants or those with comorbidities such as diabetes.

The severity of symptoms determined how participants managed their UTI episodes. Some women reported that before visiting the HC, they would first take self-care measures, such as increasing fluid intake or taking pain relievers. Only when these measures proved insufficient would they consider seeking medical attention:

No, because maybe I wouldn't come if I didn't feel too bad—I'd wait to see if it passed. But when it gets worse, then I have to come, and they prescribe me antibiotics. (M6, 76 years old)

Conversely, other participants emphasized the importance of not waiting too long before seeking treatment, as their past experiences had shown that delaying medical attention often led to worsening symptoms:

But I've learned that there's no need to wait. And it also depends on the people around you—if they can advise you well, then why not? I mean, why suffer? (C19, 76 years old)

The impact that UTI had on the daily routines and lives of the participants also influenced their decision to either visit the HC promptly or wait for an appointment with their primary care provider. In most instances, participants indicated that they sought care at the emergency department of their HC. Participant B7 expressed that “the process for treating UTI was too bureaucratic” given that antibiotics are not freely available, which led them to initially wait and observe the progression of symptoms. The majority opted for the emergency department at their HC, as hospital visits involved longer waiting times, and some participants perceived hospitals as more overwhelmed. In certain cases, participants scheduled appointments with their general practitioners or nurses for follow-up, although delays in securing an appointment often led them to seek emergency care instead.

The symptoms commonly reported by the participants were consistent across various cases. Most participants described an increased need to urinate, a burning sensation during urination, pain, particularly in the back, abdominal bloating, haematuria and cloudy urine, sometimes with an unpleasant odour.

Several factors were identified by participants as potential contributors to the development of UTI. These included inadequate water intake, prolonged retention of urine, sitting on public toilet seats, moisture caused by wet swimsuits, and failure to urinate after sexual intercourse. One participant noted that excessive intimate hygiene, particularly the use of inappropriate products, had also been a contributing factor, and that reducing such practices had led to improvement. Additionally, some participants reported that certain medications had exacerbated the frequency of UTI.

When I started taking calcium and other supplements for osteoporosis, my rheumatologist prescribed them to me. The truth is, they worked fine for me, but since they caused these (UTI), I stopped taking them. (C1, 77 years old)

Some participants also highlighted how hormonal fluctuations, such as those occurring during menstruation, pregnancy, and especially after menopause, influenced the onset of UTI. Many older participants reported that, following menopause, they either began experiencing UTI for the first time or saw an increase in frequency if they had previously suffered from them. Lastly, one participant mentioned how stressful or anxious periods in her life were associated with an increased occurrence of UTI.

In terms of prevention and management, participants reported employing various strategies to mitigate the onset of UTI and manage symptoms once they appeared. One commonly cited measure was the consumption of cranberries and other red fruits, either in their natural form or as tablets purchased from pharmacies. Experiences with this preventive approach varied, with some participants reporting success, while others found it ineffective. Another commonly mentioned strategy was the use of cotton underwear and the avoidance of moisture resulting from factors such as wet swimsuits or urinary leakage. Participants also aimed to increase their water intake and, in some cases, used herbal teas, which helped alleviate symptoms and, in some instances, negated the need for antibiotics. For more severe pain, participants reported using anti-inflammatory medications and hot water bottles for relief.

Drinking a lot of water and taking pills with cranberry extract, I believe they are antioxidants and such, that's what I do daily, essentially to try to avoid urinary infections. (B14, 25 years old)

Antibiotic Use: Balancing Symptom Progression and the Need for Urgent Treatment in UTI

In general, participants emphasized the necessity of antibiotics when experiencing a UTI. However, some participants expressed a preference for waiting to observe symptom progression before initiating treatment, depending on symptom severity.

When I have given it some time to see if it would pass, it has never disappeared, and I have ended up going to the emergency center. I also do not want to take too many antibiotics. (B5, 21 years old)

Participants found that shorter antibiotic regimens, such as single-dose or two-dose fosfomycin, were easier to follow. However, they stressed the importance of proper adherence in all cases. Some participants, like B5, found that regimens involving nitrofurantoin or pivmecillinam were too long and more likely to cause side effects. For instance, C11 found these regimens burdensome. Participants with previous UTI experiences noted that ten-day treatments were excessively long.

The treatment is easy to take—one or two days, and you're done. Unlike the other one, where you have to take it three times a day for ten days. (B4, 77 years old)

Fosfomycin was the most recognized antibiotic among participants, particularly in the 3g sachet formulation. While the single-dose regimen was effective for some, others experienced recurrence within a few days. Participants such as B1 and C2 preferred the two-dose fosfomycin regimen, considering it more effective than a single sachet without being excessively long.

The only one that works for me is the green one. The one that gives me relief. This one comes in two doses. Sometimes, there is also a... maroon and green one. But the green one is better. (C2, 55 years old)

Regarding other antibiotic regimens, many participants reported positive experiences. However, B12 highlighted a case where UTI symptoms returned a week after a pivmecillinam regimen. Longer treatment durations were associated with side effects, such as diarrhea (C13), candidiasis (C16), and weakened immunity (M3). Some participants reported changes in urine colour when taking nitrofurantoin. These concerns led many to prefer shorter treatment durations.

No, since it's a short course, it's fine. If it were longer, it would cause candidiasis. But no, I prefer shorter courses, yes. In every sense—if one dose is enough, even better. (C16, 53 years old)

Conversely, some participants found short courses insufficient, with symptoms persisting or recurring soon after treatment, leading them to prefer longer regimens.

I prefer the ten-day one (referring to past experiences) because I know that a three or five-day course might not work for me. It has happened before. So no, if I get another infection, I will ask for a generous antibiotic prescription. *(B1, 45 years old)*

Adherence was influenced by treatment duration. While all regimens in the study were relatively short, some participants still considered them too long. Those who regularly took other medications reported no difficulty in following longer regimens, whereas others preferred fosfomycin-based treatments.

No, because I already take daily medication, so it's part of my routine. I start a blister pack and finish it before starting a new one. *(C5, 45 years old)*

Adherence was also affected by age, with older participants tending to discontinue treatment once symptoms subsided. For instance, C1 (77 years old) reported previously taking only one of two prescribed fosfomycin doses, saving the other for future infections—a practice she described as “common in the past.”

Some participants expressed doubts about the effectiveness of certain antibiotics in eliminating UTI. Many acknowledged the issue of antibiotic misuse and how acquiring antibiotics was much easier in the past. However, some participants reported still being able to obtain antibiotics without a prescription due to their proximity to pharmacies or symptom severity.

No, I went to the pharmacy, and they gave me the pill, but they told me to see a doctor immediately. I explained everything to the doctor, and he just shook his head. *(C1, 77 years old)*

Most participants had taken antibiotics in the past for various reasons, including UTI and respiratory infections.

I mean, yes, I am 58 years old, and I started having UTIs at 18, so imagine. I have taken a bit of everything... many antibiotics. *(M3, 58 years old)*

Opinions on delayed antibiotic treatment were divided. Many participants emphasized the need for immediate treatment, arguing that untreated UTI caused pain and discomfort and would not resolve without antibiotics. They expressed frustration when antibiotics were not prescribed immediately at primary care centers.

I wouldn't have liked that at all because it causes me a lot of pain and pressure in the lower abdomen. I couldn't endure that... I would have gone to the hospital or another center for treatment. *(M1, 46 years old)*

However, others expressed trust in HCP and were willing to wait before taking antibiotics if advised to do so, especially in the case of older participants.

Yes, of course. If I go to the doctor and she says, ‘Let's wait a bit, don't take anything yet, and let's see if it passes,’ I will follow her advice. *(C6, 75 years old)*

Participants viewed the option of keeping an electronic prescription on their health card, allowing them to obtain antibiotics at a pharmacy if symptoms persisted after a few days, as a viable solution. This approach was perceived as a way to reduce unnecessary prescriptions while still ensuring timely access to treatment.

While participants understood that antibiotics should not be freely available due to potential risks, they were primarily concerned about antibiotic resistance rather than individual health risks. Some suggested that pharmacies could implement rapid UTI tests to facilitate diagnosis without requiring a visit to a primary care center.

“I understand that, as an antibiotic, it requires a prescription. But perhaps pharmacies could have some kind of validation system, like a urine test, to confirm the infection directly.. *(M13, 32 years old)*

Participation in the Study: The Role of Healthcare Professionals and the Healthcare System

Many participants did not remember the name of the antibiotic but did recall the duration of the treatment regimen. The general perception was one of satisfaction with the study, as they considered it necessary to deepen the understanding of UTI. Some participants felt that they were not provided with enough information about their condition because HCP frequently encounter UTI and did not take the time to explain them in detail. In this regard, the increased follow-up associated with the study was seen as a positive aspect, especially since they had not previously received a satisfactory solution.

The procedures required for the study were generally considered understandable, and participants reported having received all necessary information from HCP. However, some participants encountered difficulties due to a lack of awareness about the study at certain HC, making it challenging for them to submit the required samples and documents.

Honestly, the information was good. But it is also true that doctors are so used to seeing this that they do not take much time to explain what causes it or why it happens. *(B8, 48 years old)*

Many participants acknowledged the importance of conducting clinical studies to “advance” knowledge and identify the causes of UTI, as some had suffered significantly from these infections. Others highlighted how UTI disproportionately affect women and pointed out the lack of research in this field. Some HCP had mentioned to them that these infections are simply something that “happens to women.”

When I came, they told me that this could happen to women, but I don’t think they provided any solution. No further explanation. *(A13)*

In this regard, participants reflected on the broader benefits of conducting studies and the importance of individuals volunteering to participate.

It is important to conduct clinical trials and studies. I understand that these results will ultimately contribute to a better understanding of the condition and help more women in my situation who suffer from it. *(B8, 48 years old)*

Some younger participants emphasized the time commitment required for the study compared to the standard UTI treatment process.

It takes some effort to keep track of when to do a urine culture, when not to, and to respond to calls—things that you wouldn’t have to do if you weren’t participating. But overall, it was fine. The staff was kind, and the treatment was good and appropriate. *(B7, 27 years old)*

Overall, there was a positive perception of the public healthcare system. Many participants reported good relationships with their family doctors and nurses, while others noted a high turnover of HCP and overcrowding in emergency services.

In general, my experience has been good. I have no complaints. Some people complain about public healthcare, but my experience has not been bad at all *(M6, 76 years old)*

In some cases, participants requested additional tests that were not offered. They asked for urine cultures, ultrasounds, or other diagnostic tests to determine the underlying cause of their UTI. Younger participants, requested additional testing that was not included in standard procedures or established protocols, yet they expressed frustration that no solution was being provided for recurrent UTI.

I asked to be referred to a urologist, and they told me that they couldn’t refer me just like that... after six infections. That should tell you how much importance they give to this issue. *(M5, 24 years old)*

When discussing their history of UTI, there were notable differences based on age. Younger participants felt that their treatment was more empirical, which in some cases led to frustration as they were not finding an effective solution. Older women, on the other hand, perceived that urine cultures were conducted more readily and were more concerned about age-related conditions, such as bladder dysfunctions leading to more frequent UTI or the presence of prolapse, which required closer monitoring.

Some participants mentioned that, due to experiencing UTIs frequently, they kept reagent strips at home to test for infections themselves, allowing for a quicker process when visiting their primary care center. However, since antibiotics required a prescription, this practice had limited usefulness.

Discussion

In this study including 68 women from 4 different regions who had previously participated in the SCOUT trial, the results indicate that most participants had previously experienced a UTI, which gave them a certain familiarity with the symptoms. Many participants were not particularly concerned however, those who suffered frequent infections expressed frustration due to its impact on their daily lives. Initially, many participants did not visit their HC, opting instead to wait symptom progression. If symptoms did not resolve, they sought medical attention and required antibiotic treatment. Most participants did not have a specific antibiotic preference, although fosfomycin regimens were generally favoured due to their shorter duration and greater familiarity. Others preferred longer regimens, as the single-dose treatment had not been effective for them in the past. Regarding delayed treatment, some participants were dissatisfied with not receiving antibiotics immediately when visiting their HC. However, they found it acceptable when they were given a deferred prescription that allowed them to obtain the antibiotic if needed. Overall, there was a strong sense of trust in HCP, though some participants noted their concerns were sometimes not given sufficient attention. Participants expressed high satisfaction with the clinical trial, appreciating that it provided more thorough follow-up for their specific cases.

As evidenced by our study and previous literature, affected women generally recognize the symptoms and can detect when they have an infection.^{29,30} However, differences exist between women with prior UTI experience and those without in terms of symptom identification.³¹ In most cases of our study, UTI do not cause excessive concern or uncertainty unless they become frequent or recurrent, leading to frustration due to the lack of a clear cause and their impact on quality of life.^{4,13,32} Some participants highlighted menopause as a factor influencing UTI onset, reporting that they began experiencing infections or saw an increase in recurrence after menopause as other literature has highlighted.^{33–35} The experience of UTI symptoms may vary depending on whether a woman is pre- or postmenopausal.^{34–36} Also, some participants commented that the onset of UTI occurred during their pregnancies.³⁷ Older participants were more likely to be asymptomatic, which can contribute to misdiagnosis of UTI,^{35,38,39} whereas younger women reported more discomfort and associated complications. Menopause induces hormonal changes that can lead to genitourinary syndrome.^{35,38,39,40} Furthermore, research on menopause and its impact on women's health remains limited, as the androcentric perspective in medicine has historically led to under-research in various aspects of women's health.⁴¹ Consequently, as some participants commented, the suffering associated with UTI has often been trivialized, as the condition is perceived as minor and predominantly affects women.⁴

Once a UTI developed, in most cases, as previous studies reveal, affected women generally seek antibiotic treatment as the standard approach³¹ because symptoms can worsen without intervention,^{3,42} necessitating a visit to the HC for antibiotics.⁴³ Although, others choose to wait before visiting their HC to see if symptoms improve,¹³ willing to wait and avoid immediate antibiotic use.⁴⁴ As noted in this study and previous evidence, many individuals hesitate to take antibiotics due to concerns about potential side effects.^{3,45} Some of the common strategies to prevent and alleviate UTI symptoms shared by participants, include increasing water intake and consuming cranberries and other red fruits,^{38,46} which has been demonstrated that can help prevent UTI in women without underlying conditions.⁴⁷ Also the delayed treatment has been demonstrated to help combat antibiotic resistance in respiratory infections⁴³ and was accepted for some participants if their HCP recommended it. Applying this strategy to UTI is more complex as some participants commented and previous literature has explored, it can lead to worsening of their symptoms and in the potential risk of developing a complicated UTI,⁴⁸ but is becoming increasingly accepted in clinical practice.⁴⁹ Many participants reported having taken antibiotics frequently in the past, particularly for respiratory infections or previous UTI, also they shared some awareness of antibiotic resistance and the importance of completing the full course of treatment as other literature has explored.⁵ However, some older participants admitted to past improper antibiotic use. In Spain, the resistance of uropathogens to conventional antibiotics has increased in recent years, primarily due to high antibiotic consumption.⁵⁰ For this problematic, some European northern countries have begun implementing non-antibiotic treatments, such as nonsteroidal anti-inflammatory drugs which has been shown to resolve

UTI without the need for antibiotics,⁵¹ however, this approach has not yet been widely adopted in Spain^{12,51} and some participants accepted to wait before taking antibiotics.^{3,5,38,43,45–50}

The results show that there is no preference for a particular antibiotic, only fosfomycin was identified as the most common antibiotic by the participants, this fits with the fact that these regimens are among the most frequently used treatments in Spain.⁹ However, as reported in this study, some cases require longer courses when single-dose treatments prove ineffective. Despite these preferences, longer regimens are also associated with a higher incidence of side effects, such as *Candida* infections and gastrointestinal disturbances.⁵² When the treatment failed, as this study collects, there are some feelings of frustration and the need for other prescription, as also come literature has explored before.¹³ The study also highlights important communication strategies for HCPs. Trust in healthcare providers was high,⁴⁹ particularly when patients felt listened to and respected. However, women with recurrent UTIs frequently felt their concerns were minimized, due to the perception of UTI as a minor or routine condition.³¹ This suggests a need for empathetic, individualized consultations that acknowledge the recurrent nature of UTIs and the psychosocial burden they may impose. Ensuring that patients feel heard can strengthen therapeutic relationships and improve adherence to recommended treatment plans, including delayed or preventive strategies.⁴⁵

Participants in our study shared great confidence in HCP remains high,⁴⁹ particularly when participants interact with their primary care providers. Satisfaction with HCP was closely linked to whether participants felt heard and taken seriously as evidence has shown.³¹ Which most times, meant to be seen quickly and expected an immediate antibiotic prescription. Women with recurrent UTI often reported feeling that their symptoms were not given sufficient attention and called for more thorough follow-ups despite clinical guidelines to the contrary. In this sense, the need for active listening and interactions based on empathy and respect for service users' subjective experiences need to be central to healthcare consultations.⁴⁵ Nonetheless, public healthcare in Spain was generally well-regarded among participants, despite acknowledging resource and staffing shortages due to budget cuts in recent years.⁵³

Regarding participation in the study, most participants reported a positive experience, noting that they received more comprehensive care than in previous instances of UTI treatment. This was particularly true for those who had struggled with persistent or recurrent infections in the past and had not found effective solutions.¹³ Many participants felt that empirical treatment alone was insufficient to resolve their condition. Given these findings, it is crucial to foster shared decision-making between HCP and patients whenever possible, balancing individual needs (eg, receiving antibiotics) with collective responsibility (eg, reducing unnecessary antibiotic use and combating antimicrobial resistance).⁵⁴

Limitations and Strengths

One of the strengths of this study is the use of qualitative methodology to capture women's experiences with UTI, particularly regarding the antibiotic regimen received and their participation in the clinical trial. This study allows for a deeper understanding of the data obtained from the clinical trial and provides insight into women's needs concerning antibiotics, as well as the functioning of future clinical trials. Furthermore, as a multicenter study, it has enabled the collection of experiences from different regions of the country, enriching the findings and highlighting differences and needs in each context.

Regarding the limitations, most participants could not accurately recall which antibiotic they had taken, although they did remember the duration of the regimen in most cases. However, the interviewers were aware of the antibiotic regimen from the clinical trial. Additionally, many participants conflated different UTI experiences, including those related to the study and others that occurred before or after their participation. As a result, some realities emerged that did not fully align with the study's findings, such as reports of longer antibiotic regimens or recurrent UTI. Many participants mentioned that a significant amount of time had passed since their involvement in the study (approximately one year since their follow-up), making it difficult for them to fully articulate their experiences. Another limitation was the variability in interview duration, with some being shorter than desired and the need to carry out more interviews than initially planned. This limited the amount of information that could be extracted and, consequently, made it more challenging to include certain interviews in the analysis.

Conclusions

This study aimed to collect women's experiences of UTIs, with a particular focus on antibiotic use and participation in the SCOUT clinical trial, in order to recognise the importance of women's involvement in treatment decisions. Most women reported familiarity with UTI symptoms. Consequently, UTI did not generally cause excessive concern, except in cases where symptoms were persistent, the antibiotic was ineffective or recurrence. Differences emerged between women experiencing a UTI for the first time and those with prior infections. The typical course of action upon developing a UTI varied. Some women preferred to wait and see how symptoms evolved while practicing self-care measures before seeking medical attention at the HC. Others, however, knew from experience that once symptoms appeared, they needed to take antibiotics promptly to prevent worsening. Many participants highlighted an increase in UTI frequency following menopause.

Antibiotic preferences also varied among participants. Some preferred the shortest possible regimen, such as fosfomycin, due to its ease of administration and familiarity. Some women found that a two-dose fosfomycin regimen was more effective, as a single dose was sometimes insufficient. Conversely, others required longer regimens, as they felt shorter treatments did not completely eliminate symptoms. In general, adherence to prescribed regimens was high, with the exception of a few older participants. While many participants could not recall the exact antibiotic taken, they did remember the duration of the regimen.

Participation in the clinical trial was highly positive, with women highlighting the greater follow-up care they received, which contributed to better resolution of their UTI. In most cases, the prescribed antibiotic was effective. Additionally, participants expressed a positive view of research focusing on conditions that predominantly affect women, emphasizing that such conditions are often under-researched.

Abbreviations

UTI, Urinary tract infections; HC, Healthcare centre; HCP, Healthcare professionals.

Ethical Approval and Consent

This study was approved by the Ethics Committee of the Institut de Recerca en Atenció Primària (IDIAP) Jordi Gol on February 28, 2024, with the code 24/028-P. The study was conducted in accordance with the ethical guidelines outlined in the Universal Declaration on Bioethics and Human Rights adopted by UNESCO (19/10/2005); the Council of Europe's Convention on Human Rights and Biomedicine (1997) and its Additional Protocol on Biomedical Research (2005); the Declaration of Helsinki (2024); and relevant EU regulations, including Royal Decree 957/2020 (November 3), the Spanish Biomedical Research Law (14/2007), and the Spanish Data Protection Law (3/2018).

Participants received sufficient information from the researchers to make an informed decision regarding their participation and were given adequate time to resolve any doubts before signing the informed consent form. The informed consent included publication of the anonymized responses and direct quotes to guarantee confidentiality.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Consent for Publication

All participants signed the informed consent form to participate in the study, in which they agreed to the use and publication of their anonymized and coded data.

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Disclosure

The authors declare no conflicts of interest in this work.

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