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It's About Time: The Temporal Burden of Lower Urinary Tract Symptoms Among Women

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The Prevention of Lower Urinary Tract Symptoms (PLUS) Research Consortium

Abstract

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This secondary analysis studied 50 transcripts of women who shared day-to-day experiences of lower urinary tract symptoms (LUTS) and characterized temporal (time-associated) features of living with LUTS. Findings revealed two overarching time-associated themes: *The Complexity of LUTS* and *The Quest for Empowerment over LUTS*. Findings suggest that the temporal burden of LUTS is the accumulated impact of symptoms and symptom management on women's daily lives within multiple contexts across the life course. Increasing nurses' knowledge of the temporal context of LUTS may heighten awareness and improve symptom detection and management.

Research Summary

Introduction—Research on women's lived experience of LUTS has illuminated the severity of the symptom burden and its impact on quality of life. However, there remains a need for increased understanding of how women temporalize the burden that LUTS imposes in daily life across the life course.

Purpose—The aim of this analysis was to characterize the temporal (time-associated) features of LUTS, using a chronic illness perspective to explore women's accounts of living with LUTS.

Methods—Investigators from the Prevention of Lower Urinary Symptoms (PLUS) Consortium conducted a secondary qualitative analysis of de-identified interview transcripts from 50 women participants in the Symptoms of Lower Urinary Tract Dysfunction Research Network (LURN) Study. Participants were recruited from urology and urogynecology clinics and surrounding communities of four sites participating in LURN. Interview items included symptom onset, duration and trajectory, symptom bother, adaptive behaviors, health care seeking, and perceptions of normal bladder functioning.

Results—Analysis revealed two overarching time-associated themes: *The Complexity of LUTS* and *The Quest for Empowerment over LUTS*. Complexity of LUTS was characterized in terms of its temporal onset and progression and its impact and management in daily life. Participants used time-based associations (temporal markers) to situate LUTS in the life course and described how LUTS had become the driving organization principle of daily life. The quest for empowerment over LUTS was characterized in terms of the adoption of vigilant behaviors to monitor and control LUTS throughout the day and the presence of a growing resolve to self-advocate for bladder health.

Conclusion—The temporal burden of LUTS involves the accumulated impact of symptoms and symptom management on women's daily lives within multiple contexts across the life course. The trajectory of women's lived experience of LUTS and its cumulative impact on wellbeing suggest that targeted interventions should consider a woman's history of LUTS rather than simply targeting the presenting symptoms. Women's temporalized accounts of LUTS can provide nurses with insights about providing better care for patients with LUTS by addressing the burden of its persistent and recurring impact. Specifically, nurses can mitigate women's sense of isolation and powerlessness by helping them realize that LUTS is a pervasive but treatable problem, and they do not have to depend solely on self-management.

Level of Evidence: VI

Keywords

Women's health; lower urinary tract symptoms; qualitative research; chronic illness; bladder; prevention

Introduction

Efforts have been made to improve the quality of life of women with lower urinary tract symptoms ([LUTS] Beyar & Groutz, 2015; de Freitas & Faria, 2020; Ptak, Brodowska, Cie wie , & Rotter, 2017; Teunissen et al., 2015; Vasudevan & Moldwin, 2017). In adult women, LUTS predominantly include stress urinary incontinence (UI) during the reproductive years, urgency UI and mixed UI with increasing age, and recurrent UTIs after menopause (Minassian et al., 2017; Raz et al., 2000). In 2018, the number of women aged 20 years and over with LUTS (e.g. urgency, frequency) was estimated to be 1.7 billion globally (Milson et al., 2017).

However, there remains a need for a contextual understanding of bladder symptoms and how LUTS affects daily life across the life course. Previous research has increased awareness of how women with LUTS map their movements by being aware about bathroom locations (Kuhn, Vits, Kuhn, & Monga, 2006; Palmer, Wu, Marquez, Rupp, Conover, & Newman, 2019), limiting or accommodating their activities, and developing strategies to maintain social functioning, such as regulating fluid intake, selecting safe outings, and wearing protective pads and clothing that conceal signs of accidental urine loss (St John, Wallis, Griffiths, & McKenzie, 2010; Sutcliffe et al., 2019). However, such studies typically focus on the scope or extensiveness of a patient's experience and do not emphasize the chronic (lingering and recurring) nature of LUTS as an explanatory framework for illuminating women's lived experiences of LUTS across time (Uren et al., 2017).

A temporal (time associated) perspective is needed because LUTS can appear as an isolated disorder requiring one-time treatment plans tailored to the individual patient rather than as a chronic condition with a cluster of symptoms that impact many women and require on-going holistic care over time. Women's distress over the onset or progression of LUTS can stem, in part, from perceptions that the condition is part of aging and should not appear earlier in the life course (Burgio et al., 2020). A temporal perspective, an approach which views experiences within time-associated contexts, can illuminate the fact that LUTS is not just limited to older women.

Findings have described how the psychosocial burdens of LUTS unfold over time in ways similar to the trajectories of chronic illness (Nicolson, Kopp, Chapple, & Kelleher, 2008; Roe, 2000). There is a well-developed body of qualitative inquiry on the lived experience of chronic illness, providing insights on how recurring medical issues, such as chronic kidney disease (McQuoid, Jowsey, & Talaulikar, 2017; McQuoid, Welsh, Strazdins, Griffin, & Banwell, 2015), multiple sclerosis, (Flensner & Rudolfsson, 2015), Type 2 diabetes (Gomersall & Madill, 2015), depression (Coventry, Dickens, & Todd, 2014) cystic fibrosis (Jessup & Parkinson, 2010), Parkinson's disease (Haahr, Kirkevold, Hall, & Østergaard, 2010), Fibromyalgia (Råheim & Håland, 2006), and chronic fatigue syndrome (Ware, 1999)

shape the temporal order of a person's daily life and life experiences. For example, early qualitative longitudinal research about dealing with the fluctuating symptoms of chronic illness revealed a pattern of good days and bad days that shaped the person's lived experience (Charmaz, 1991).

In more recent work, Jowsey (2016) conducted a narrative review of the literature to determine how the relationship between time and chronic illness are portrayed in the literature and to identify the temporal structures that most impact the lived experiences of individuals with chronic conditions. Findings revealed broad categories of temporal experience, such as process time (calendar and clock), biographical time (life course events), memory time (past, present, and future), and rhythmic time (routines). Earlier work about chronic illness and biographical disruption described how individuals construct narrative accounts of chronic illness to make sense of their situation (Bury, 1982; Whittemore & Dixon, 2008; Östman, Ung, & Falk, 2015). Placing symptoms in a temporal order and linking them to other life events gives coherence to the illness narrative (Hydén, 1997).

Furthermore, using a qualitative narrative inquiry approach, Graffigna and colleagues (2017) described the notions of "temporal frame" (time orientation) and "contextual settings" (locations and situations) to characterize variation in people's lived experience of enduring chronic illness and learning to manage its fluctuations. Living with chronic illness in daily life often necessitates the formulation of daily routines to manage and promote wellbeing (McQuoid et al., 2017) and a reassessment of the use of time and space in daily life (Flensner & Rudolfsson, 2016). Using narrative analysis, Bradway (2005) explored women's long-term lived experience with UI and found that women integrate the experience into a larger life story, suggesting that narrative inquiry has a role in research and clinical care for LUTS.

Significance

Symptoms of Lower Urinary Tract Dysfunction Research Network ([LURN] Cella et al., 2019; Yang et al., 2016) and The Prevention of Lower Urinary Tract Symptoms (PLUS) Research Consortium (Harlow et al., 2018) are cooperative, complementary research networks sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). LURN was established to increase professional understanding of LUTS among women and men by improving the measurement of patient experiences of LUTS; identifying and explaining the important subtypes of LUTS; and disseminating data, research tools, and biosamples to the research and clinical communities. PLUS was designed to identify factors that promote bladder health across the life course, prevent the onset of LUTS in girls and women and, subsequently, to inform strategies for engaging girls and women in future prevention efforts (Harlow et al., 2018).

To further the mission of PLUS, investigators performed this secondary analysis of transcript data from the LURN women participants. A new set of predetermined codes were developed to extend LURN's analysis of LUTS subtypes. These codes facilitated exploration of women's burden of LUTS from a temporal perspective to inform prevention research

The purpose of this study was to expand prior LURN work on LUTS (Griffith et al., 2018) by employing the perspective of chronic illness using qualitative research methodology to explore women's lived experiences with LUTS to characterize temporal features. Insights gleaned from this work can inform the concept development of the temporal burden of LUTS, sensitize clinicians to its impact on patients, and, in so doing, inform the development of setting and time specific interventions, such as home, work, and public places to promote bladder health and prevent LUTS.

Methodology

Sample.

Investigators from PLUS conducted a secondary qualitative analysis of de-identified interview data from LURN. The LURN interview (Burgio et al, 2020) was comprised of a series of open-ended items exploring symptom onset, duration and trajectory, symptom bother, adaptive behaviors, health care seeking, and perceptions of normal bladder functioning. Fifty interview transcripts were reviewed to inform prevention research by enhancing understanding of the lived experiences of women with LUTS, including psychological, social, and institutional processes. Participants were originally recruited from urology and urogynecology clinics and surrounding communities of four sites participating in LURN: Northwestern University, NorthShore University Health System, Duke University, and University of Iowa. Trained interviewers (8 women and 2 men) used a structured in-person interview format to collect data about participants' LUTS urinary tract symptoms and reasons for seeking care. Interviews were audio-recorded, transcribed, and redacted to de-identify data. The LUTS Tool, a standardized assessment of LUTS storage, emptying, and post-micturition symptoms and their associated bother in the past week, also was administered (Coyne, Barsdorf, Thompson, et al., 2012). All participants reported one or more LUTS, including urgency, urine leakage, straining, weak stream, incomplete emptying, and post void dribbling. The findings were previously reported (Griffith et al., 2018).

The original LURN protocol was approved by the Institutional Review Boards at the participating recruitment sites and the Data Coordinating Center at Arbor Research Collaborative for Health. Approval for this secondary analysis of LURN data by PLUS investigators was obtained from the LURN Ancillary Studies Committee and the IRBs of the PLUS Consortium participating research sites. All participants provided written informed consent at the time of data collection.

Data analysis and interpretation.

Directed content analysis (Hsieh & Shannon, 2005) of the qualitative data collected from the 50 women participants was carried out by a transdisciplinary team of PLUS Consortium investigators comprised of specialists in urology, gynecology, nursing, medical sociology, behavioral science, and public health. A transdisciplinary approach to research employs a shared conceptual framework to facilitate the integration of perspectives from multiple fields of study at each stage of the research process from defining the problem, designing the research strategy, structuring data analysis and interpretation, situating findings across a variety of specialties, to translating research into clinical applications (Ciesielski, Aldrich,

Marsit, Hiatt, & Williams, 2017). By using a transdisciplinary team of investigators to explore women's lived experiences with LUTS as a chronic condition impacting daily life, this analysis builds upon LURN's initial focus on physical symptoms and the reasons women with LUTS sought care. Five dyads of transdisciplinary investigators independently coded assigned text, checked agreement, resolved disagreements, and achieved consensus through debriefing and dialogue. The lead investigator reviewed the body of coded data to provide an independent validation of the codes and uniformity across coding dyads.

Directed content analysis involves the use of predetermined codes that target researchers' specific areas of interest in the data. In this study, we used a temporal perspective to explore women's descriptions of their lived experiences with LUTS. Predetermined codes were identified to explore women's lived experience of LUTS, characterize temporal features of LUTS, and identify related contexts for targeted intervention. The predetermined coding structure was organized into four major categories: *onset of LUTs* (point in time), *progression of LUTS* (change over time), *impact of LUTS in daily life and life course* (intrusion into time) and *management of LUTS* (demands on time).

However, because pre-determined codes limit the scope of an analysis by biasing findings in the direction of a priori assumptions, investigators were open to identifying new themes and discussing additional codes as they emerged during the data analysis process. These emergent codes generated insights about the complex and multidimensional relationship between LUTS and time illuminating women's growing insistence for empowerment over the course of their health. The emergence of two new codes: the complexity of LUTS (multidimensional and all-encompassing) and quest for empowerment over LUTS provided an overarching framework for organizing data from the predetermined codes. Findings are presented within the context of the coding structure using excerpts from the transcripts. Due to the de-identified nature of the data, it is not possible to link demographic information to the quotes; although aggregate demographic data was available.

Findings

Participants included in this analysis ranged in age from 19 to 77 years (mean=51.0) (Table 1). The majority were non-Hispanic (90%), 72% were white, and 16% were Black or African American. Of the 50 women participants, 84% completed the LUTS assessment tool. Participants experienced a range of LUTS, the most common being urgency, nocturia, and incontinence; 76% had sought treatment for LUTS.

Table 1. Characteristics of Participants

The Complexity of LUTS: Onset and Progression

Using a temporal perspective on chronic illness, the current analysis revealed some unique characteristics for each woman, illustrating the impact of LUTS, such as, the individual's circumstances associated with onset and progression. The commonalities among these women's lived experiences delineate the temporal features of LUTS and the contexts for targeted interventions. Accounts of living with LUTS had a prominent place in the women's interview transcripts. One of the temporal features shaping their accounts of lived experience

of LUTS was a time orientation that spans the past and the present. The transcripts assume the form of narratives fashioned around the chronic illness trajectory; recounting the initiation, fluctuation, and progression of LUTS. The following excerpt illustrates a progressive trajectory of LUTS, characterized by intermittent fluctuations in types and frequency of symptoms:

I've been having recurring kidney infections probably **from the time that I was about ten** [initiation]. I was getting two a year up until I was eighteen ... And then when I turned maybe seventeen or eighteen, I started to get hematuria and dysuria and they would be the presenting symptom. And the nausea and vomiting and diarrhea kind of subsided [ebb] and those urinary symptoms were more what I've experienced over the last eight years [flow]. I have been getting maybe three kidney infections a year up until last year, when I actually moved, and they would be first presenting- my first symptom was always hematuria And in between infections [fluctuation] I would have a lot of frequency and a lot of urgency [overactive bladder], and sometimes I would have the urgency but not actually go.... And the most irritating thing is probably getting up at night to pee [progression].

Data analysis revealed that women's recall of the onset and progression of LUTS often is linked to specific times, situations and events and in their lives. These time-based associations or temporal markers not only situated LUTS in certain points in their lives (life course contexts), but women also recounted the impact of symptoms on valued attributes and activities, such as work. Data about occupations, such as teaching and nursing, illustrated how women's voiding autonomy was constrained by the temporal demands of not leaving one's work station.

I would say that it [urgency] definitely began **in the early 2000s** because up 'til then I was teaching, and when I was teaching, I couldn't go to the bathroom, couldn't leave the classroom. So, I obviously was able to hold it then, but then I retired in 2002 [which later progressed to incontinence]... I was so proud of myself cause I could hold it almost all day cause you can't leave the classroom.

Exercise also emerged as a temporal marker with many women describing the onset and progression of LUTS in the context of high impact recreation, such as running and jumping.

The first time I realized that I was having a problem was about ten years ago, I was jumping on the trampoline and I could not control my muscles I guess, that's what I assumed it was. I could not control the leakage. It's kinda like age has, as with all things, has weakened everything and also, I had a, let's see, ten years ago **I had a hysterectomy**, and so all of my organs shifted around, and I kind of chalked it up to that, too. You know, something that had been there was no longer there, so what was on top- it had dropped down on it.

Our findings illustrate how the untimely intrusiveness of LUTS compromised adult functioning over time was emotionally salient in the lives of women. Transcripts revealed feelings of embarrassment and irritation over symptoms impacted the performance of adult roles associated with employment, intimate relationships, or caring for an infant.

I do have urinary problems [urgency, frequency]. Like I drink water and then like even if it's like over like a cup like I can't hold it in no more than like half an hour, like I have to use the bathroom. And it gets worse in the nighttime... it's quite embarrassing, actually, cause it's like **my previous job I got fired** because I took too many frequent breaks because I'd go into the bathroom like every half or hour.

Mostly just the irritation of constantly having [urinary] accidents like three years old or something. I'm married so just **sleeping in the bed with my husband**, although he's just an angel about it. He doesn't look at me funny or anything like that... But having that issue at night- it's [nocturia] more of an irritation and concerns me, because I am young. I'm not super young, but it seems like only my grandma may have issues like this.

Like at night, cause I'm so tired. Lying there with **putting my baby to sleep** or something. I'm so tired that I won't get up. That's pretty much the only time I won't get up. And then, eventually, I have to get up at some point. And I do urinate in the middle of the night at least once, one to three times [nocturia].

The Complexity of LUTS: Impact and Management of LUTS

Transcripts revealed a pervasive, all-encompassing burden and demonstrated how managing LUTS can become the driving organizational principle of daily life, leading to a loss of spontaneity and reduction of valued activities. Women described how LUTS had taken over their lives, giving rise to *a global lifestyle* of managing symptoms throughout the day and being *married to the bathroom*.

I have difficulty knowing when I really need to urinate cause I frequently get pressure and feel like I do need to, then sometimes I go and there's no flow, it doesn't happen. [overactive bladder]. Other times I will, but then just shortly after, within minutes sometimes, I'll be walking around and have to go back to the bathroom again. At work I see students at individual appointment and it's like I'm always trying **to schedule getting to the bathroom between sessions**. It's very common for me to go every hour between students.

Cause, honestly **in my mind, I'm on a schedule**, so I mean it [UI] has also controlled my life, though, where I don't wanna be gone for too long. To go get grab lunch and walk somewhere in the park, like I know that just emptied and have to be back like a certain time. It's just that or I need to be near a bathroom. Like if the bathroom's there, I'm gonna use it. Yeah, this is totally liked changed my lifestyle. Sad.

I just think a lot more about where I'm going. I think a lot more where I'm- what I'm going to do in terms of time, um, I don't keep a car downtown anymore, I don't have one now so- because I don't need it but I take like the metro to go visit my daughter or something. I always think I'm gonna have to use the metro bathroom (*laughs*) I have to go before I get on the train; you know.... **It's** [urgency, frequency] **just sort of always in my head**.

Women with LUTS describe voiding more often in the evening and throughout the night. Our findings specified nighttime voiding as particularly bothersome; not only due to the annoyance of multiple sleep interruptions, but also to the distress associated with its nightly occurrence.

I noticed having to go frequently, but then the not being able to hold it at all [UI]. Where I'm sitting in my bedroom the bathroom is right across. Out my bedroom into the bathroom, couldn't make it. Left a trail from my bedroom to the bathroom. I couldn't make it.... mostly it seems to happen like over in the evening. **And from the evening all the way up until the A.M.** I'm getting up going to the bathroom at night, it's just ridiculous.... I have days that I urinate more than in other ones, yes, I do. And I do have, in the night, what it [frequency] really bothers me is that I have to urinate many times, like three times at night I get up and go to the bathroom [nocturia].

While the data illustrated a view of daily life at home, the extensive routine of voiding practices for managing LUTS away from home, such as when at work or socializing with friends, was evident.

Stress and urgency. I wouldn't really describe it as incontinence because I manage it so that it's not... When I'm at work I know when I, you know, it's every two hours. And I never leave work without stopping in the bathroom because I usually am going somewhere else before I go home, like the grocery store or wherever, errands-type things. So, I preplan. It's just part of my routine.

Transcripts captured apprehensiveness about the unpredictability of LUTS and described the risk and consequences of its untimely intrusion in public places, where women are less in control of the situation.

Sunday's when I had my really first public accident [urgency, incontinence], this Sunday, and I delayed going to the bathroom because **I was at a restaurant** and I know to go to the bathroom before I leave the restaurant, but I was at a restaurant where they were watching the soccer game, and it just, at that moment, it was second score against the United States and I just could not make my way through the crowds. So, I said, "I'll try to make it home." But I didn't make it home.

I was at a church function not too long ago and the children were dancing and they said, "Come on," and I got up and starting dancing and I promptly wet myself [incontinence] and it was- I ran through the woods the back way to get to the car because I was not going in front of anybody else. And my husband was there, and he was like protecting me from the back. But basically, that's the gist of it.

Quest for Empowerment over LUTS

Women's descriptions of living with LUTS revealed that LUTS can become a way of life dominated by worry about loss of symptom control and fear of exposure, if and when, management strategies fail. Descriptive accounts of living with LUTS revealed a routine practice of seeking empowerment via vigilant behaviors: keeping track of voids, anticipating

problems, and taking active steps to avoid or recover from unintentional and untimely loss of urine.

My philosophy- I've always been- if I'm not having a spasms [bladder spasms] or having any symptoms [stress incontinence], if I'm aware of how long it's been since I used the restroom, I just go ahead and go when I have the opportunity. And that applies if I'm going anywhere, Costco, or the grocery store, if I realize it's been awhile, if I feel any kind of little tingling or just **mindful it's been awhile**, I'll go ahead and use it.

I have urinary incontinence, and it is **stress incontinence** and **urge incontinence** this has been going on for at least ten years... I still **go to the bathroom on principle** about once an hour ... I'm very particular about the fact that I do not want to have any odor. I try to stay very, very clean, I carry extra underwear with me, and sometimes even an extra set of bottoms. I wear skirts because when you're standing up it doesn't show.

Oh, that's a given [wearing a pad]. It doesn't come off except when you shower and then maybe I'll stay, without getting dressed- or have to pad where I'm gonna sit, put another pad on top of it, **just in case**. I don't wanna mess up any furniture because I don't wanna be cleaning it. I have to carry extra clothes in the car, pair of pants, panties and pads to change, and I think I do that many a time. I'm thinking I could make it to the bathroom and the distance that I've had to walk from the parking place to the bathroom has not been conducive [incontinence].

Transcripts captured dissatisfaction with living with the uncertainty of LUTS and described a growing resolve for self-advocating to get symptom relief.

*I guess, you know, my only concern- well, is that as I age and get older, I wanna **proactively be involved**, you know, well not involved but, you know, I think you have to **become your own doctor** sometimes--not that I'm anti-doctor. I'm just saying that I just think that you have to sometimes **be really aware of your own body** and know that if something's not right or if something's really changing even though a doctor might say, "Eh, it's normal, its normal, it's normal." You have to really- so for me I want to make sure that **I keep proactively** saying, "Oh yeah, it's about the same," or, "It's different," or, "**Is there something that I can start doing now to help it?**" [frequency, stress incontinence, UTIs]*

I have to wear a pad all the time now. It used to be, years ago if you sneezed or coughed or something like that, you would have an instant leakage and nothing else [stress continence]... So, when I went back to the urology doctor to have a checkup again, she said well maybe it was something with my bladder as far as nerves or muscles or something. And it was just kind of like nobody thought that was important. I thought, **I'm taking it in my own hands. I'm gonna take care of me**, this is ridiculous.

Discussion

In this study, we applied a temporal perspective of a chronic illness lens to explore and articulate the temporal burden of LUTS in the lives of women with LUTS. Findings suggest that the temporal burden of LUTS can be defined as the accumulated impact of symptoms and symptom management on women's daily lives within multiple contexts across the life course. Our findings illuminate links between the temporal context of LUTS and chronological activities. While LUTS is not a normal part of aging, for some participants, experiences of LUTS interfered with their roles and identities, such as employment, marriage, and parenting. This perspective is consistent with scholarly work on age consciousness, which situates developmental tasks within the age-graded structure of the life course and explores the impact of experiences that occur off-time in the life course, such as premature or delayed entry into adult roles, such as marriage, parenting, and workforce participation (Chudacoff, 1989; Wrosch & Heckhausen, 2005). This perspective coincides with recent research on the untimely emergence of age-discordant chronic symptoms, such as childhood arthritis and adult onset asthma, and their impact on people's health-seeking behaviors and providers' diagnostic work. When a medical condition that is more prevalent for certain age groups occurs earlier or later than expected, affected individuals and their providers may fail to recognize it as a chronic condition and delay care (Kirkpatrick et al., 2018). While LUTS is not part of normal aging, older age is a risk factor for LUTS (Maserejian, et al, 2013). Therefore, women and their health care providers may fail to address earlier onset of LUTS as a treatable medical condition. This is illustrated by findings that suggested when LUTS occurs in early- or mid-life adulthood, women often normalize it or explain it away as a situational abnormality (Williams et al., 2020). If they seek treatment, their providers may attribute the condition to aging and characterize the symptoms as untreatable (Gibson & Wagg, 2017).

Managing LUTS can become the driving organizational principle of daily life, leading to a loss of spontaneity and reduction of valued activities. These findings are consistent with recent research on the disruptive impact that maintaining urinary continence has on women's daily routines and activities, which can be disturbed and interrupted by symptoms and the time-consuming self-management strategies they employ to cope with continence (Esparza et al, 2018; Mendes et al, 2017; Pintos-Díaz et. Al, 2019). In an integrative review of the literature, St. John and colleagues (2010) articulated how efforts for managing UI can lead to the development of routinizing strategies for imposing order, discipline, and control over daily patterns of activities and the contexts where they occur. Our findings expand this literature by illustrating that these challenges of managing have relevance to women with other types of LUTS, not just UI.

Similar to other findings (Trigg, Andersson, Aldhouse, Bliwise & Kitchen, 2017), nocturia and nighttime urgency held particular importance for women in this study; not only due to sleep deprivation, but also because of its anticipatory influence on evening routines, bed partner, and effects on daytime functioning. Participants also related accounts of untimely and unpredictable manifestations of LUTS during daytime interpersonal encounters and in public settings. Descriptive accounts of living with LUTS revealed a routine practice of anticipating problems and taking active steps to avoid or recover from unintentional and

untimely loss of urine. This is consistent with prior research by Hägglund and Ahlström (2015, p. 514) who elaborated on the temporal notion of “living in readiness” and always being prepared as a defining psychosocial attribute for dealing with the vulnerability and powerlessness of long-term UI.

Yet in this study, women with LUTS articulated a weariness from living with and managing, LUTS – expressing determination to get symptom relief. Their accounts point to the importance of empowering women to attend to their bladder health and to advocate for early detection and prevention of LUTS. This underscores a pressing need for health systems to focus on prevention strategies and early detection. In a systematic review, Bartoli and colleagues (2010) asserted the urgent need for clinicians, health care managers, and researchers to engage in proactive assessments to lessen the impact of UI and overactive bladder on quality of life. Since then, other researchers and educators have emphasized the deleterious impact of LUTS on the daily lives of women, calling for prioritized efforts for prevention and early detection of LUTS by increasing utilization of patient-centered models of care (Hamid, Pakgohar, Ibrahim, & Dastjerdi, 2015; MacDonald & Butler, 2007; Taylor & Cahill, 2018). Furthermore, educational programs led by professional urology providers for the promotion of bladder health and the reduction of the impact of LUTS in daily life are needed (Pintos-Diaz et al., 2019), as well as the use of multidimensional individualized treatment plans that target the complexity of LUTS through a combination of strategies, including medication, physical therapy, social and emotional support, and behavioral interventions involving lifestyle modifications, such as diet, exercise, stretching, and stress management (Balachandran & Duckett, 2015; Fjerbaek, Søndergaard, Andreasen, & Glavind, 2020).

Our results highlight the deleterious effect of LUTS on women’s lifestyle and quality of life, signifying the importance of targeted interventions that provide education and resources to help alleviate the burden of managing LUTS. Women’s management strategies for LUTS are embedded in the temporal flow of daily life. Similar to the work of Lopes and Colleagues (2019) and Cardoso and colleagues (2018), our findings revealed how occupational and high impact recreational practices may be risk factors for LUTS. Therefore, interventions targeting these practices and settings, such as workplaces (Fultz et al., 2005) and fitness facilities (Cera, Twiss, & Struwe, 2019), are needed.

Limitations

This analysis does not allow us to make specific inferences about symptom duration because women were recalling events instead of being repeatedly interviewed over time. In addition, the present analysis was limited by de-identified data, which did not link socio-demographic characteristics of individual participants. However, a strength of the analysis is the sample size, which is large for a qualitative interview study and can increase the richness of the data (Vasileiou, Barnett, Thorpe, & Young, 2018). In addition, the analysis was conducted by a transdisciplinary team composed of both women and men which the researchers believe increases confidence in the themes that emerged.

Nursing Implications

The temporal perspective offers unique implications for nursing knowledge and practice, providing nurses with insight into women's need for empowerment over their health. Women's accounts of the chronic nature of LUTS can provide nurses with insights about providing better care for patients with LUTS by addressing the chronicity of LUTS and its persistent and recurring impact of LUTS on quality of life. Specifically, nurses can mitigate women's sense of isolation and powerlessness by helping them realize that LUTS is a pervasive, but treatable problem and they do not have to depend solely on self-management.

Nurses should practice to the full extent of their roles as part of interdisciplinary teams to ensure women get timely and comprehensive care for LUTS. Educating nurses about the temporal burden of LUTS can heighten their awareness of the accumulated subjective impact of symptoms and symptom management on women's daily lives within multiple contexts across the life course. This, in turn, will enable nurses to better address patients' interrelated needs for information, treatment, and advocacy.

Nurses, particularly urology and urogynecology nurses, play a key role in educating women about bladder health, by identifying daily voiding habits and routines, conducting symptom assessment, determining symptom burden on daily life, and treating symptoms (Palmer & Willis-Gray, 2017). Increasing nurses' knowledge of the impact of LUTS can heighten their awareness and improve how they assess and manage symptoms. Nurses are well equipped to ask delicate questions, explore social and emotional manifestations of health conditions, and ultimately provide guidance to decrease symptom burden through adaptive and self-help behaviors, such as group-administered behavioral treatments (Diokno, et al., 2018).

Nurses specializing in continence care have been at the forefront of research in this area for many years and have promoted various approaches to education-based interventions to increase public awareness and promote bladder health on a population level (Newman et al, 2017). Yet, more remains to be done to reduce LUTS, particularly in developing community-based nurse led continence care interventions for patients in primary care settings (Choi, et al., 2015; Sampselle et al., 2017). A recent call to action for a unified vision and strategic approach to LUTS stresses the urgent need for all nurses to be on the forefront of collaborative efforts to develop a broad-based strategic plan to increase awareness of LUTS among nurses and expand the nursing workforce in this area (Dowling-Castronovo, Bradway, Kitson, Ostaszkiewicz, & Palmer, 2020).

Ultimately, clinicians grow through the experiences of hearing patients' voices. Appreciation of the range of women's experiences and the expressions of decreased quality of life supports the prioritization of bladder health education for women across the life course. By giving voice to women's accounts of their lived experiences of LUTS, these findings contribute to nurses' knowledge of and sensitivity to the temporal burden of LUTS, support their efforts to explore how this burden affects individual patients, and alert them to temporal contexts where bladder health interventions are most applicable.

Conclusion

Defining the temporal burden of LUTS in terms of its effects on how women structure daily life and incorporate symptoms into their life story demonstrates how constraints imposed by the interaction of time with LUTS can dictate the organization of daily life and assume a prominent place in women's biographical narratives. Increased understanding of the temporal markers, time-based associations that allow the individual to recall when something occurred (Williams, Bailey, Goode, & Burgio, 2018), of LUTS can enhance clinical assessments and inform interventions for minimizing the impact of LUTS on daily life and life course trajectories. Stories of the temporal burdens incurred by women living with LUTS can better inform providers about how to effectively interact with and benefit their patients. Women are empowered by hearing the stories of others which can serve as cautionary tales for informing public health messaging about bladder health and providing direction for research on the prevention of LUTS.

The trajectory of women's lived experience of LUTS and its cumulative impact on wellbeing suggest that targeted interventions should consider a woman's history of LUTS rather than simply targeting the presenting symptoms. This illuminate the need for interventions that address not only physical symptoms, but also target the cumulative emotional toll of LUTS and the stress associated with constant vigilance of voiding. Finally, women's quest for control over the course of their health demonstrates the value of targeted public health and nursing interventions for empowering women to be active and proactive agents in taking care of their bladder health.

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Table 1.**Characteristics of Participants**

	Total (N=50)
Age	
Range, yrs. (min, max)	19, 77
Mean, yrs. (SD)	51.0 (15.0)
Race n (%)	
Asian/Asian American	1 (2)
Black/African American	8 (16)
Native Hawaiian/Pacific Islander	1 (2)
White	36 (72)
Other/Multi-racial	4 (8)
Ethnicity n (%)	
Hispanic/Latino	4 (8)
Non-Hispanic/Non-Latino	45 (90)
Unknown/Missing	1 (2)
*Lower urinary tract symptoms n (%)	**Total (N=42)
Frequency	10 (24)
Nocturia	
1 time per night	13 (31)
2 times per night	22 (52)
Urgency	34 (81)
Pain/discomfort in bladder area	10 (24)
Burning with urination	5 (12)
Incontinence	
Rarely	3 (7)
Sometimes or more often	27 (66)
Sought treatment for LUTS n (%)	38 (76)

* Based on responses to individual items of the LUTS Tool questionnaire

** Eight (8) participants did not respond to the questionnaire