



Pilot Evaluation of a Digital Symptom Diary for Monitoring Patients with Recurrent Urinary Symptoms

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Pilot Study

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Abstract

Background: Recurrent urinary symptoms such as dysuria, urgency, frequency, nocturia, and bladder discomfort can fluctuate considerably between clinical visits. Conventional assessment often depends on patient recall, which may not accurately reflect symptom patterns. Digital symptom diaries may provide a convenient method for recording symptoms in real time.

Objective: This pilot study aimed to evaluate the feasibility, usability, and acceptability of a digital symptom diary for monitoring patients with recurrent urinary symptoms.

Methods: Adult patients with recurrent urinary symptoms were invited to use a digital symptom diary for a predefined monitoring period. Participants recorded symptom type, severity, urinary frequency, timing of symptoms, fluid intake, medication use, and other relevant factors. Diary completion, usability, patient satisfaction, and perceived usefulness were assessed.

Conclusion: A digital symptom diary may provide a practical and patient-centered approach to documenting recurrent urinary symptoms. Longitudinal symptom information may improve communication between patients and clinicians and support more individualized assessment. Larger studies are required to establish its clinical effectiveness.

Keywords: Digital Health; Urinary Symptoms; Symptom Diary; Urology; Patient Monitoring; Recurrent Urinary Symptoms; Telemedicine; Patient-Centered Care

Introduction

Recurrent urinary symptoms are common in urological practice and may significantly affect daily activities, sleep, work, and quality of life. Symptoms may include dysuria, urgency, increased frequency, nocturia, bladder discomfort, and urinary leakage.

Because these symptoms can vary from day to day, information obtained during a single clinic consultation may not fully represent the patient's experience. Patients may

also have difficulty remembering the exact frequency or severity of symptoms.

Traditional paper diaries can provide longitudinal information but may be inconvenient and difficult to maintain. Digital technologies offer an alternative by allowing patients to record symptoms using smartphones, tablets, or web-based platforms.

A digital symptom diary may provide structured information that can be reviewed during clinical

consultations. Before wider implementation, however, it is important to determine whether patients can use such a tool consistently and whether they consider it useful.

Therefore, this pilot study was designed to evaluate the feasibility and acceptability of digital symptom monitoring among patients with recurrent urinary symptoms.

Aim and Objectives

The primary aim was to evaluate the feasibility of a digital symptom diary for patients with recurrent urinary symptoms.

The objectives were to:

- Assess diary completion and patient adherence.
- Evaluate usability and patient satisfaction.
- Identify common technical difficulties.
- Examine changes in recorded symptom patterns.
- Assess whether the diary improves communication with healthcare professionals.
- Generate information for future larger studies.

Materials and Methods

Study Design

A prospective pilot study was designed to evaluate the use of a digital symptom diary in an outpatient urology setting.

Participants

Adults with recurrent urinary symptoms were eligible for participation. Participants were required to understand the study instructions, have access to a compatible digital device, and provide informed consent.

Patients requiring immediate treatment for an acute or emergency urological condition were excluded.

Digital Symptom Diary

The diary allowed participants to record:

- Type of urinary symptom.
- Symptom severity.
- Number of urination episodes.
- Urgency and frequency.
- Nocturia.
- Dysuria or bladder discomfort.
- Fluid intake.
- Relevant medication use.
- Changes in symptoms during the day.

A simple numerical scale could be used to record symptom

severity.

Study Procedure

Participants received instructions on how to use the digital diary. They were asked to record symptoms regularly during the study period.

Automated reminders could be provided to encourage completion.

At the end of the monitoring period, participants completed a short questionnaire assessing ease of use, convenience, satisfaction, and willingness to continue using the system.

Outcome Measures

The primary feasibility outcomes included:

- Diary completion rate.
- Participant retention.
- Frequency of digital entries.
- Technical problems.
- Time required for diary completion.

Secondary outcomes included:

- Patient satisfaction.
- Perceived usefulness.
- Ability to identify symptom patterns.
- Patient confidence in reporting symptoms.
- Perceived improvement in communication with clinicians.

Discussion

The principal purpose of this pilot study is to determine whether digital symptom monitoring is practical for patients with recurrent urinary symptoms. A major potential advantage of digital recording is that symptoms can be documented close to the time they occur. This may reduce dependence on retrospective recall and provide clinicians with a clearer understanding of symptom variation. Digital diaries may also improve patient engagement. By recording symptoms regularly, patients may become more aware of patterns related to fluid intake, daily activities, medication use, or particular times of day. Another potential benefit is improved clinical communication. A structured record may help patients describe their symptoms more accurately during consultations and allow clinicians to identify patterns that may otherwise be overlooked.

However, digital monitoring also has limitations. Some patients may have limited digital literacy or may find repeated data entry burdensome. Technical problems, poor

internet connectivity, or excessive reminders may reduce adherence.

Importantly, a symptom diary should not replace appropriate clinical evaluation. Urinary symptoms may have multiple causes, and digital symptom reporting alone cannot establish a diagnosis.

Limitations

This pilot study has several potential limitations. The sample size is expected to be relatively small, limiting the ability to draw definitive conclusions. Participants who agree to use digital technology may be more comfortable with smartphones than the general patient population. Self-reported symptoms may also be affected by reporting errors or incomplete entries. Furthermore, short-term adherence may not represent long-term use. Larger studies with longer follow-up will therefore be required to determine whether digital symptom monitoring produces meaningful improvements in clinical outcomes.

Future Directions

Future research should evaluate digital symptom diaries in larger and more diverse patient populations.

Integration with electronic health records, laboratory results, medication information, and remote monitoring systems may increase clinical usefulness.

Artificial intelligence could potentially identify symptom patterns and alert clinicians to significant changes. However, such applications would require careful validation.

Future studies should also determine whether digital diaries improve treatment decisions, reduce unnecessary consultations, increase adherence, and improve quality of life.

Conclusion

A digital symptom diary may provide a simple and patient-centered method for monitoring recurrent urinary symptoms. By collecting longitudinal information, the approach may improve symptom documentation, patient engagement, and communication between patients and healthcare professionals. The findings of a pilot evaluation can help identify practical barriers and guide refinement of the technology before larger clinical studies. Digital monitoring should ultimately complement, rather than

replace, professional urological assessment.

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