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Urinary incontinence and work capacity

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ABSTRACT

INTRODUCTION. The purpose of this study was to explore if and how urinary incontinence affects work capacity and work-related quality of life.

METHODS. This was a cross-sectional questionnaire study using a Danish validated questionnaire. The questionnaire was distributed to Danish municipal employees.

RESULTS. The questionnaire was completed by 3,182 municipal workers 840 of whom experience urinary incontinence, which is equivalent to 26.4% of all participating municipal employees. Among these, 18.5% worried about their urinary incontinence at work, 14.1% reported that the condition disturbed their working life in a moderate to severe degree and 22% experienced interrupted night sleep caused by urinary incontinence. Physically demanding tasks were avoided by 4.5% of the municipal employees, whereas 1.5% reported sick leave. Finally, 0.5% planned early retirement due to their urinary incontinence.

CONCLUSIONS. This study revealed a 26.4% prevalence of urinary incontinence among Danish municipal employees. We conclude that urinary incontinence affected the work-related quality of life with daily worries about accidents, odours, toilet access, fluid intake and interrupted night sleep. Furthermore, in the group reporting urinary incontinence, 1.5% had sick leave and 0.5% changed their retirement plans due to incontinence.

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TRIAL REGISTRATION. The project is approved by the Danish Data Agency (656336)..

Urinary incontinence (UI), defined as involuntary leakage of urine, is very common worldwide, imposing significant health and economic burdens on society and the persons affected [1]. UI is subdivided into three types: stress urinary incontinence (SUI) in which the person leaks when sneezing, coughing or being physically active; urgency urinary incontinence (UUI) in which the person has a frequent and urgent desire to void and often does not reach the toilet before leaking; and mixed urinary incontinence (MUI) which is a combination of SUI and UUI. Urgency incontinent persons often need to void several times at night, which leads to impaired sleep, which can affect their daily and working life [2]. Overall, UI affects quality of life including social activities, daily life activities, emotional health and sexual function. Additionally, UI is associated with shame and anxiety [3].

In Denmark, up to 500,000 women, men and children suffer from UI [4]. Despite being a common problem, UI remains a taboo. Therefore, persons may tend to underreport their UI condition, wherefore studies may underestimate the UI prevalence [5]. Furthermore, taboo leads to silence about UI, where not even partners or family doctors are involved [6]. On average, seven years pass from debut of incontinence symptoms to contact with the healthcare system, leading to delayed treatment [7].

Since UI affects all ages, a large fraction of persons suffering from urinary incontinence is active in the labour market. In a previous study, persons with UUI were registered as having 63% more sick leave than continent persons [8]. No previous Danish studies have investigated if UI affects the capacity to work.

The aim of this study was to evaluate if UI affects the work capacity and work-related quality of life.

METHODS

This is a cross-sectional questionnaire study using a Danish validated version of the International Consultation on Incontinence Questionnaire – Urinary Incontinence Short Form (ICIQ-UI SF) in conjunction with self-developed questions about work capacity [9].

The questionnaire

Background data questions are shown in **Table 1.**

TABLE 1 Baseline demographics.

	All (N = 3,181)	Incontinence, yes (n = 840 (26.4%))[a]
Age[b], mean (± SD), yrs	48.00 (± 11.3)	49.5 (± 9.7)
Females[c], n (%)	2,695 (85.1)	805 (95.8)
BMI[d], mean (± SD), kg/cm²	26.84 (± 6.5)	28.1 (± 6.2)
Highest completed education, n (%)		
Primary school	56 (1.8)	9 (1.1)
Secondary education	48 (1.5)	6 (0.7)
Skilled	410 (12.9)	108 (12.9)
Short higher education	570 (17.9)	151 (17.9)
Medium higher education	1,621 (51.2)	451 (53.7)
Long higher education	417 (13.2)	98 (11.7)
Other	46 (1.4)	15 (1.8)
Missing	13 (0.4)	2 (0.2)
Civil status, n (%)		
Single	490 (15.4)	125 (14.9)
Married or cohabitating	2,521 (79.3)	683 (81.3)
Other	134 (4.2)	29 (4.5)
Missing	17 (0.5)	3 (0.3)
Smoking, n (%)		
Yes	465 (14.6)	101 (12.0)
Missing	30 (0.9)	12 (1.4)
Chronic diseases[e], n (%)		
Yes	796 (25.0)	240 (28.6)
Missing	12 (0.4)	1 (0.1)

SD = standard deviation.
a) 11 missing.
b) 8 missing.
c) 13 missing.
d) 88 missing.
e) E.g., diabetes, rheumatoid arthritis, COPD and heart diseases.

The questions about UI are based on questions from a Danish translated version of the ICIQ-UI SF. Two Danish translations of the ICIQ-UI SF exist. One is approved by the ICIQ and the other is developed by the Danish Urogynaecology Society (DUGS). We used the version developed by DUGS, which will be termed "VersionDUGS" below. VersionDUGS was validated in a population of municipal employees before completion of this study [9]. Previously, the VersionsDUGS was validated in a different Danish population by Clausen et al. [10]. For the present study, no international validated questionnaires existed. Therefore, questions concerning work capacity were developed and evaluated.

The content validity of the self-developed questions on work capacity was evaluated through semi-structured

interviews with 14 public workers. They were asked about the relevance of each item; the comprehensiveness of the questions; the comprehensibility of the instructions, items and response options; and, lastly, they were asked if they missed any items or response options.

Furthermore, six medical professionals were asked about the relevance of each item and the comprehensiveness of the questionnaire.

The self-developed questionnaire contains 16 questions concerning UI and work life [9]. Questions were either "yes/no" questions with an opportunity to elaborate by providing comments, and questions with a visual analogue scale (VAS) ranging from 0 (not at all) to 10 (significantly), divided into three parts categorised as mild (1, 2 or 3), moderate (4, 5, 6 or 7) and severe (8, 9 or 10).

REDCap - Research Electronic Data Capture, a secure web-based platform for construction and management of surveys and online databases, was used for construction and distribution of the questionnaire [11]. Participants answered the questionnaire directly by following a REDCap link.

Recruitment

Information about the evaluation was mailed to the directors of the participating municipalities who were asked if they would allow their employees to participate. Once acceptance had been obtained, the same information about purpose, questionnaire, time consumption, GDPR rules, responder anonymisation, data protection and storage, and ethics of the study was distributed to the employees who could freely choose if they wanted to participate.

Statistical analyses

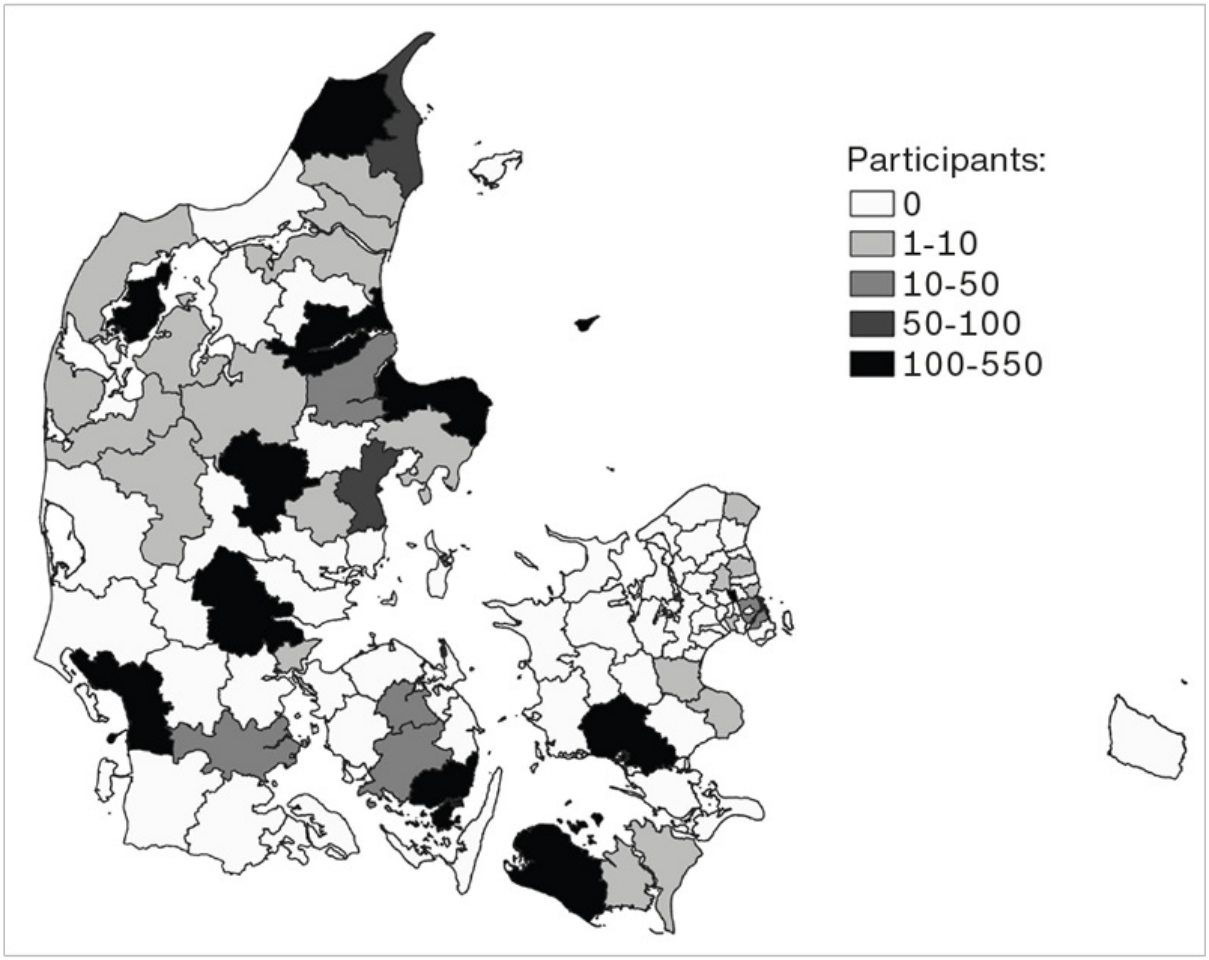
A descriptive overview of UI and how it affects work capacity and work-related quality of life among municipal employees was prepared. Data processing was done using STATA 17 and graphs were produced in GraphPad Prism 2.9.0 and QGIS [12-14].

Trial registration: The project is approved by the Danish Data Agency (656336).

RESULTS

The questionnaire link was opened 3,412 times, but in 215 of the openings, the questionnaire was not completed. Thus, a total of 3,181 responses were processed and analysed. An overview of the participating municipalities is shown in **Figure 1**, where all the black municipals are represented with more than 100 participants each.

FIGURE 1 Municipality map presenting the geographic distribution of participants.



Prevalence and severity of urinary incontinence among municipal employees

A total of 840 (26.4%) answered "yes" to experiencing UI. When asked "How often do you leak urine?" 6.3% answered "never", 51.9% "about once a week or less", 19.3% "2-3 times per week", 11.8% "about once a day", 9.7% "several times a day" and 0.8% answered "all the time".

Among the persons with UI, 20.5% reported UUI. SUI was reported by 48.8% and MUI by 23.7%. Leaking when sleeping was reported by 1.8%, 8.6% reported leakage after voiding (78.9% of these were women) and 5.5% leaked without a reason. Leaking all the time was reported by 1%, indicating continuous incontinence.

The responders were asked "How much does your urine leakage bother your daily life?" and was given the VAS from 0 to 10, where 13.3% answered 0 (not at all), 49% answered mild (1, 2 or 3), 26.7% answered moderate (4, 5, 6 or 7) and 10.9% answered to a severe degree (8, 9 or 10). Totally, 37.6% answered that their UI bothers them to a moderate to severe degree.

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Night sleep

Among the responders who reported UI, 22% experienced that their night sleep was interrupted due to UI. Of these, 40.5% reported interrupted night sleep seven days a week.

The interrupted night-sleep-group did not differ from the other groups on work-related parameters.

Tasks avoided

Among the responders who experienced UI, 4.5% answered "strongly agree" or "agree" to the statement "I try as much as possible to avoid physically demanding tasks". Responders were asked to elaborate, and citations are presented in **Table 2.**

TABLE 2 Citations from the responders.

Examples of access to toilets
"I have to know where the toilets are, and access should be easy - especially in the morning time" "It is annoying always needing to keep an eye out for toilets" "It is a problem for me with a queue to the toilets" "As a home care employee, it is difficult to find a toilet you can use"
Examples of fluid intake
"I only leak when I am at work, even though I actually don't drink at all during the day because I otherwise would go to the toilet all the time" "I don't drink as much as I should" "I refrain from fluids while I am at work as well as after 7.30 p.m. Otherwise, I would have to go to the toilet all the time, which is not possible for me at work"
Examples of tasks avoided
"Physical activities with the kids" "Trips with the kids" "I avoid events with no toilets nearby" "I have previously been an outpatient nurse, but have now changed to administrative tasks, since I could not reach a toilet when needed" "It is challenging with many home visits in a row" "It is very uncomfortable if I leak and then have a meeting. Or if I attend a course and have to move around to some kind of exercise. I leak urine and that is very bothering" "If I know that I have to help with person lifting and moving, I always have to go to the toilet first" "It doesn't affect the work tasks - but it affects walks in the breaks or similar social activities"
Assertive citations
"It's okay in the daytime, but it is the reason why I never get more than 2-3 hours of sleep in a row" "I feel that it's annoying. I have a feeling that I am smelling of urine and it is embarrassing" "I have not mentioned my incontinence to my doctor" "I wish that I had had follow-up on pelvic floor exercises after pregnancy" "I did not know that something could be done" "I do not suffer from incontinence. But I sometimes pee in my pants when I cough or sneeze"

Sick leave and retirement plans

To the question "Have you ever reported sick because of your incontinence?" 1.5% answered yes. To the question about retirement, 0.5% answered that their UI affects their retirement plans.

Influence on working life

Using a VAS, 53.9% did not feel that their reported UI affected their working life at all, 33.4% answered that they felt affection to a mild degree. Moderate influence was reported by 10.5%, and 3.9% answered that UI severely influenced their working life. Overall, 14.1% of persons with UI reported that the condition disturbed their working life in a moderate to severe degree.

To the question about how much UI caused worries in relation to work, 47.9% answered not at all, 33.5% answered to a mild degree, 12.9% answered to a moderate degree and 5.6% to a severe degree. In relation to work, 18.5% worried about their UI in a moderate to severe degree.

Responders were asked to elaborate and mentioned the fear of an accident at work, being afraid of odours, general embarrassment and worries about difficulties with toilet access.

DISCUSSION

Among a group of municipal employees geographically distributed all over Denmark, this study showed that UI influences work capacity and work-related quality of life.

Unfortunately, UI is a so common disorder that many incontinent persons believe that UI is just a natural and unavoidable part of getting older [15]. However, UI is well-known to pose a significant threat to health-related quality of life [16]. With this study, we have shown that UI also affected the work capacity, which places an additional burden on the incontinent person and on the social economy.

Prevalence and bother

Among Danish municipal employees, 26.4% suffer from UI symptoms. Interrupted night sleep may be one of several reasons that 1.5% of the persons with UI reported sick due to their UI. As many as 22% reported interrupted night sleep due to UI, which has both a direct and an indirect impact on work capacity and sick leave and is associated with impaired cognitive performance and reduced energy [17, 18]. Furthermore, we know that the interrupted night-sleep group did not otherwise differ from the other respondents. The part of responders with UI who did not need to report sick but still had worries about their UI in relation to work in a moderate to severe degree (18.5%) reported avoiding physical tasks such as active playing with kids, heavy person lifting, active course days or activities far away from toilets, but also experienced daily worries about odours, toilet access and accidents.

Limiting fluid intake was mentioned as a UI management strategy by several of the participants, which might carry a risk of dehydration. The present study demonstrated various causes for not seeking help when suffering from UI such as a poor level of information about UI in the Danish population. Additionally, some of the responses showed that urine leakage is not perceived as being urinary incontinent, and still others did not know that they can get help when suffering from UI. These findings suggest that informational efforts about UI are highly relevant.

Prevention

Furthermore, responders suggested focussing on pelvic floor muscle training (PFMT). In this study, a large proportion of the incontinent participants reported light degrees of UI. "The light symptoms" group is a highly

relevant group for conservative management such as PFMT to avoid an increase in UI with age or to reduce their current symptoms [19, 20].

In the present study, possible challenges in relation to work life for urinary incontinent persons were identified. Hopefully, this mapping can lead to focus, information and prevention to improve health- and work-related quality of life. We suggest focussing on UI at an early age (e.g. in relation to pregnancy and postpartum) to enable prevention as soon as possible, including information on PFMT, optimal drinking and voiding habits. We encourage publishing information to minimise the taboo and raise awareness of the different levels of help-seeking possibilities (e.g. the general practitioner, a physiotherapist specialising in urological issues or a gynaecological/urological specialist). We advise easy access to toilets at workplaces and in public spaces as this is important for all citizens but especially for the quality of life of urinary incontinent citizens.

Strength and limitations

This questionnaire survey is based on self-reported data from the participants, which carries a risk of selection and information bias. The generalisability of this study should be considered since only municipal employees were included. Unfortunately, due to the recruitment method with open link invitations, it was not possible to estimate response rates. Furthermore, it should be noted that we only reported descriptive data.

On the other hand, the use of a validated, recommended questionnaire in conjunction with a large sample size of 3,181 participants is a core strength of the study.

For future research and covering all aspects of UI, a new wording should be considered as suggested by Clausen et al [10]. In this survey, 6.3% answered yes to experiencing UI but also ticked off “never leaking urine”. This might be due to a perception that the words “leakage/leaking” mean a large amount of urine in a short time, whereas many describe their UI with words like “dripping”. Previously, we have discussed the reliability of the ICIQ-UI SF [9]. A combination of the two Danish validated questionnaires may potentially strengthen future UI questionnaires.

CONCLUSIONS

This study revealed a prevalence of UI of 26.4% among Danish municipal employees, and 18.5% of these employees worried in a moderate to a severe degree about their incontinence in relation to work, whereas 14.1% reported that the condition disturbed their working life in a moderate to severe degree. Daily worries included accidents, odours, toilet access, fluid intake and interrupted night sleep. Sick leave because of UI was reported by 1.5%, and 0.5% answered that UI affected their retirement plans.

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