Prevalence, management and impact of urinary incontinence in the workplace

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Background The few prior studies of urinary symptoms in the workplace have been small investigations of women in specific occupations (e.g. nursing) or industries (e.g. pottery manufacture). In this study, the aims were to describe the prevalence, management and impact of urinary incontinence for a large cross-section of employed women in the USA.

Methods Five-page questionnaires were mailed to 5130 American households selected from the National Family Opinion survey panel during the spring of 2004. Usable questionnaires were returned by 3364 women in the target age range of 18–60 years.

Results About 37% of the 2326 employed respondents reported urine loss during the last 30 days. The most common strategies for managing incontinence at work included frequent bathroom breaks and wearing pads. The use of urine control methods increased with the severity of urine loss. The effect of incontinence on workplace activities also increased with the severity of urine loss: 88% of employed women with the most severe symptoms reported at least some negative impact on concentration, performance of physical activities, self-confidence or the ability to complete tasks without interruption.

Conclusion Urinary incontinence is prevalent among employed women. Those who experience severe symptoms report that it has a negative effect on aspects of work. Programs on the prevalence and impact of urinary incontinence would help educate both employers and employees, and may lead to the development of better management techniques in the workplace.

Key words Epidemiology; survey research; urinary incontinence; women’s health.

Introduction

The International Labour Organization cites the increasing proportion of women in the global labor force as one of the most striking phenomena of recent times [1]. As an example, the percentage of women in the US labor force increased from ~43% in 1970 to 60% in 2002 [2]. Urinary incontinence has been defined as, ‘the complaint of any involuntary leakage of urine’ [3], although there is no standard application of this definition in the literature. Reviews of prevalence estimates for urinary incontinence [4,5] suggest that between 25 and 40% of working-age women are likely to experience unwanted leakage or loss of urine. In addition to female gender, potential risk factors include obesity, pregnancy/childbirth, other urinary symptoms and middle or older age [4]. Leakage or loss of urine is a bothersome symptom that can diminish quality of life and disrupt daily routines [6,7]. Mounting evidence suggests that employees cannot do their best work when distracted by relatively benign health concerns like allergies, migraines or back pain [8]; however, few studies have investigated the occurrence and implications of urinary incontinence at work.

It is reasonable to suppose that the time, attention and effort devoted to managing urine loss means less time, attention and effort available to accomplish employment-related tasks. Women experiencing urinary incontinence might restrict travel, visit the bathroom frequently or avoid physical exertion in an attempt to control urine...
loss [9,10]. Social or professional involvements may be curtailed because of embarrassment about wetness or smell [11,12]. Common strategies for coping with urine loss, such as changing pads or clothing, can be time consuming and may require considerable planning to be effective when away from home [12]. Even when working at home, the psychological correlates [13] of incontinence could impair productivity.

The aims of the present cross-sectional study were to measure the prevalence, types and severity of urinary incontinence among working women in the USA; to identify the methods that women with incontinence use to manage urine loss at work; and to investigate the self-reported impact of incontinence on employed women’s ability to concentrate at work, performance of physical activities at work, self-confidence at work and ability to complete tasks without interruption at work. We achieved these descriptive goals by conducting a mail survey of women aged between 18 and 60 years of age.

Methods

Five-page questionnaires were mailed to eligible households during the spring of 2004. The households were selected from the National Family Opinion (NFO) survey panel (now referred to as the TNF NFO Access Panel). Approximately 500 000 US households have volunteered to participate in NFO surveys on a wide range of topics; of these, ~200 000 actively receive surveys and are divided into mini-panels of 5000 households. Each mini-panel is balanced to reflect US Census distributions for region, population density, age of homemakers, annual household income and household size.

Twenty mini-panels were used to prepare a listing of women aged 18–60, and 5130 women were selected for the questionnaire mailing. The target of ~5000 women was based on the assumptions that ~33% of the population would be incontinent and that ~66% would respond to the survey. Only one woman per household was eligible for inclusion, and only one questionnaire per household was mailed. The questionnaire mailing included $1.00 as a token of gratitude. The study was approved by Western IRB, Olympia, WA, which found that the research met the requirements for a waiver of documentation of consent under 45 CFR 46.117(c).

For this study, we defined urinary incontinence as the experience of involuntary leakage or loss of urine in the last 30 days. The 1-month timeframe has been used in prior published work [6]. The type of urinary incontinence (stress, urge or mixed), severity of urine loss symptoms, methods used to manage incontinence at work, its impact on aspects of work and demographic characteristics of the respondents, including employment status, were also assessed through the questionnaire. Stress incontinence was indicated by reports of leakage or loss of urine during activities such as lifting, exercising, sneezing or laughing, whereas urge incontinence was indicated by reports of urine loss associated with a sudden strong need to urinate. Mixed incontinence was indicated by reports of both stress and urge symptoms. Severity of incontinence was measured using the validated Sandvik index, which is created by combining respondents’ reports of urine loss frequency and volume [14]. Questions about the experience of involuntary leakage or loss of urine in the workplace were similar to those used in an exploratory study of women employed in an academic center [15].

Our analytic strategy supported the three aims of the study: The prevalence of urinary incontinence was estimated as the number of employed women reporting urine loss in the previous month divided by the total number of employed women. The use of incontinence management techniques at work was measured through a questionnaire checklist of likely methods; the number of checks per method divided by the number of incontinent employed women indicated the relative utilization of the methods. We also stratified this analysis by severity of urinary incontinence, and used Cochran–Mantel–Haenszel tests to investigate whether the use of a method was associated with the extent of urine loss. Lastly, a similar analysis was performed for the measures of impact of urine loss at work. For each aspect of work, we determined the percentage of employed women with incontinence that reported any degree of negative impact (2 or more on a scale from 1 to 5 where 1 = ‘has no negative impact’ and 5 = ‘has an extremely severe negative impact’). Percentages were reported overall and by severity of incontinence. Among women who reported some impact, we developed proportional odds models for the association of urinary incontinence severity and the probability of being in successively more severe cumulative negative impact classes (i.e. a response of 3 or above, a response of 4 or above or a response of 5). All analyses were performed using SAS version 8.2 (Cary, NC).

Results

In all, 3562 questionnaires (69%) were returned. One hundred and twenty-six of these were excluded from the analyses because the respondent was inadvertently outside our planned target age range of 18–60 years. We excluded another 72 respondents because they were pregnant and, therefore, might be experiencing transient incontinence. This left 3364 (66%) usable questionnaires from women aged 18–60.

The average age of respondents was 44, 87% were white, and 42% were college graduates (see Table 1). About half had an annual household income >$54 999. Seventy-one percent of the women reported working either full time (56%) or part time (14%), or responded that they were engaged in full- or part-time volunteer...
work (1%) and were included with those working for pay. Based on self-reports from the women who indicated employment, 74% had no restrictions on bathroom use at work, 22% imposed their own limits because of job demands, 4% could use the bathroom only during assigned breaks and 0.7% needed to ask a supervisor for permission.

Eight hundred and sixty-seven (37%) employed women reported unwanted urine loss or leakage in the previous month. Among these, 44% lost urine at least monthly while at work, 21% at least weekly, and 8% daily; whereas the remaining respondents experienced leakage or involuntary loss of urine less than once a month while at work (but did leak in the previous month). Based on symptoms of urine loss or leakage in the last 30 days, the distribution of types of incontinence was 52% stress, 10% urge, 37% mixed (both stress and urge symptoms were reported) and 2% other (neither stress nor urge symptoms were reported). Where it could be determined, severity was characterized as slight in 52% of cases, moderate in 40%, severe in 7% and very severe in 1%.

Table 1 shows the strategies used by the 867 employed women with urinary incontinence to manage urine loss at work. The most common methods were wearing pads or other absorbent material and taking frequent bathroom breaks. Use of a prescription medication to treat urine loss was relatively uncommon in this sample, although the percentage does not include those for whom medication may have completely eliminated urine loss. For each method of urine control, the percentage of women using that method increased as the severity of incontinence increased. Almost 90% of women with the most severe symptoms used pads or other absorbent material.

Table 2 shows the self-reported negative impact of urinary incontinence on ‘my ability to concentrate at work’, ‘performing physical activities at work’, ‘my self-confidence at work’ and ‘my ability to complete tasks without interruptions at work’. This effect also increases with severity of urine loss. Forty-five percent of employed women with severe to very severe symptoms reported a negative impact on concentration, 64% on physical activities, 77% on self-confidence and 74% on completion of tasks. Eighty-eight percent of the employed women with severe to very severe symptoms reported negative impact in at least one of the four areas surveyed. Moreover, 4% of all employed women with incontinence indicated that urinary incontinence had affected personal decisions about employment: 2% changed the type of work they do, 0.9% decreased the number of hours worked and 0.8% indicated that they no longer work outside the home (not shown in table).

The self-reported negative impact of incontinence on aspects of work increased with the increasing severity of symptoms. The odds ratios for moving to successively more severe negative impact classes (i.e. a response of 3 or above versus a response of 2; a response of 4 or
above versus 3 or below; and a response of 5 or above versus 4 or below) associated with increases in level of incontinence severity were 1.75 (95% CI 1.16–2.62), 2.43 (95% CI 1.72–3.43), 1.92 (95% CI 1.40–2.64) and 2.81 (95% CI 2.07–3.81) for the four work aspects, respectively: ‘my ability to concentrate at work’, ‘performing physical activities at work’, ‘my self-confidence at work’ and ‘my ability to complete tasks without interruptions at work’ (not shown in table).

**Discussion**

This study extends prior reports of urinary symptoms in the workplace [16–20] by describing the experience of

**Table 2.** Percentage of employed women with urinary incontinence using methods to manage involuntary urine loss at work, by severity of urine loss

<table>
<thead>
<tr>
<th>Method</th>
<th>Severity of urine loss</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Slight loss (n = 445)</td>
</tr>
<tr>
<td>Avoiding caffeinated beverages</td>
<td>10</td>
</tr>
<tr>
<td>Avoiding lifting, bending or reaching</td>
<td>4</td>
</tr>
<tr>
<td>Doing pelvic floor muscle exercises at work</td>
<td>23</td>
</tr>
<tr>
<td>Keeping extra clothes or underwear at work</td>
<td>8</td>
</tr>
<tr>
<td>Limiting fluid intake to keep bladder empty</td>
<td>12</td>
</tr>
<tr>
<td>Taking a prescription medication to treat urine loss</td>
<td>2</td>
</tr>
<tr>
<td>Taking frequent bathroom breaks</td>
<td>38</td>
</tr>
<tr>
<td>Using deodorant spray/dusting powder</td>
<td>7</td>
</tr>
<tr>
<td>Using pads or other adsorbent material</td>
<td>29</td>
</tr>
<tr>
<td>Using perfume</td>
<td>4</td>
</tr>
<tr>
<td>Wearing special or dark clothes</td>
<td>5</td>
</tr>
</tbody>
</table>

Findings are based on the 867 employed women who reported urine loss in the previous month. Column sample sizes do not total due to nonresponse to the question regarding severity of urinary incontinence. Also, column percentages do not total to 100% because a woman may have reported the use of more than one method.

<sup>a</sup>The comparison across incontinence severity levels for the use of this method is significant at P < 0.001.

<sup>b</sup>The comparison across incontinence severity levels for the use of this method is significant at P < 0.05.

**Table 3.** Percentage of employed women with urinary incontinence reporting a negative impact of urine loss on aspects of work and average impact, by severity of urine loss

<table>
<thead>
<tr>
<th>Aspect of work</th>
<th>Severity of urine loss</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Slight loss (n = 445)</td>
</tr>
<tr>
<td>Ability to concentrate</td>
<td>Percentage</td>
</tr>
<tr>
<td></td>
<td>Average impact</td>
</tr>
<tr>
<td>Performance of physical activities</td>
<td>Percentage</td>
</tr>
<tr>
<td></td>
<td>Average impact</td>
</tr>
<tr>
<td>Self-confidence</td>
<td>Percentage</td>
</tr>
<tr>
<td></td>
<td>Average impact</td>
</tr>
<tr>
<td>Ability to complete tasks</td>
<td>Percentage</td>
</tr>
<tr>
<td>without interruption</td>
<td>Average impact</td>
</tr>
<tr>
<td>Number missing (range)</td>
<td></td>
</tr>
</tbody>
</table>

Findings are based on the 867 employed women who reported urine loss in the previous month. Percentages are calculated over total sample size of column, any missing responses being pooled with responses of ‘has no negative impact’. Column sample sizes do not total due to nonresponse to the question regarding severity of urinary incontinence. Averages are calculated over only those with responses of at least 2 where 1 = ‘has no negative impact’ and 5 = ‘has an extremely severe negative impact’.

<sup>a</sup>The comparison across incontinence severity levels is significant at P < 0.001.

<sup>b</sup>The comparison across incontinence severity levels is significant at P < 0.05.
urinary incontinence for a larger cross-section of the female workforce. We find that urinary incontinence is prevalent among employed women, that pads and frequent toileting are among the most common methods to manage it and that a sizable percentage of employed women with moderate to very severe symptoms report a negative impact on aspects of work. The latter result is consistent with a recent finding that 41% of young and middle-aged Israeli women who sought medical care for stress incontinence reported impairment in work and other activities [21].

Along with the study’s strengths, there are potential limitations. As with most survey data, there is the possibility that findings are biased by sampling or response effects. NFO research panels are matched to US Census distributions on a number of characteristics, but the sampling frame may not have been fully representative of American women aged 18–60. Nonresponse to the questionnaire mailing could have introduced additional error. A comparison of respondents and nonrespondents (from NFO survey records) revealed that nonrespondents were more likely to have graduated from college, less likely to have attended graduate school and less likely to be in the 45–60 age group. Characteristics of respondents and nonrespondents on geographic division, income and race were very similar.

Although our measures of the impact of urinary incontinence at work were subjective, comparisons of employees’ assessments of job performance with more objective indicators of productivity support the validity of self-reported data in this area [8]. Similarly, there is additional evidence to suggest that women with urinary incontinence work fewer hours, even after controlling potentially confounding variables [7]. Because the study focused only on employed women, we are unable to draw conclusions about the impact of urinary incontinence on decisions about entering or exiting the workforce. Opportunity costs incurred through early retirement may be an important aspect of the indirect costs of urinary incontinence [22].

Co-workers may not be aware of the prevalence and impact of involuntary urine loss because it is not freely discussed [23] and can often be concealed. Behaviors such as frequent trips to the toilet or lapses in concentration might be misattributed to poor work habits or insufficient commitment to the organization. From the employee’s perspective, this could limit opportunities for advancement and diminish job satisfaction. From the employer’s perspective, ‘presenteeism’—that is, the problem of employees being at the workplace but performing suboptimally due to health issues—may be a greater drain on productivity than is absenteeism [8].

Thus, education about urinary incontinence should be directed to all organizational levels to reduce embarrassment, promote communication and provide women with information about prevention and treatment. This is particularly important in light of findings that women with incontinence are often reluctant to seek medical care for their symptoms [24].

Treatments for urinary incontinence include surgery, medication and behavioral techniques [25]. Primary prevention might be achievable through instruction about pelvic floor function and a regimen of pelvic floor muscle exercises [26]. In developing relevant educational programs or other interventions for urinary incontinence, a major consideration is the maximization of employee well-being and the recovery of indirect costs in lost productivity while minimizing the additional direct costs of administering the program [8]. It is likely that such programs will need to be tailored to individual work situations [27]. Employers, moreover, must be prompted to provide appropriate access to restrooms and comply with all relevant regulations and standards (e.g. as set forth by the Occupational Safety and Health Administration in the USA [28]).

Beyond ensuring that employees are given the knowledge, time and facilities for managing urinary (in)continence, occupational health professionals are in a unique position to provide insight relating urinary incontinence to the nature of work. Future research should be directed toward specifying the connections between specific occupations, work functions or conditions and involuntary urine loss. Do particular tasks such as standing long hours, lifting heavy weights or bending and twisting predispose women to urinary incontinence? As Hunksaa and colleagues noted, ‘There is currently a dearth of knowledge to aid medical providers in advising their patients about occupational factors that promote either the onset or the recurrence of urinary incontinence’ [4]. Given the potential benefits of addressing the prevalence, management and impact of urinary incontinence in the workplace, ignorance in these areas should not be tolerated.

Acknowledgements

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Conflicts of interest

N.F. received an honorarium from Eli Lilly and Company for her participation in this study. T.G. is an employee of Boehringer Ingelheim. K.K. and G.P. are employees and shareholders of Eli Lilly and Company. In some European countries, Eli Lilly and Boehringer Ingelheim market a pharmaceutical intervention for stress urinary incontinence.

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