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Association of Occupation Type with Lower Urinary Tract Symptoms and Impact Over 25 Years Later among Women in the CARDIA Cohort Study

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Background

- A small literature suggests that in comparison to other types of occupations, those with high manual labor demands and those classified as sales or service increase the likelihood of experiencing urinary incontinence (UI) [1].
- Potential mechanisms include physical demands at work (e.g., heavy lifting) and limited access to toilets in the workplace due to time or environmental constraints [2].
- Some scholars have posited that specific occupations – most notably nursing and teaching – place individuals at risk for lower urinary tract symptoms (LUTS) due to limited time to void [3,4].

Study Aim & Hypothesis

- Study Aim:** Examine whether women’s occupation, measured twice between the ages of 20-42 years, is associated with LUTS and their impact, a composite variable measured at ages 45-57 years.
- Hypothesis:** Employment in occupations characterized by manual labor, sales, service, nursing, and teaching will be associated with greater odds of experiencing more severe LUTS with greater impact in comparison to employment in managerial and professional occupations.

Methods

- Source of Data:** CARDIA is a prospective cohort study of the development of cardiovascular disease (CVD) that recruited 5,115 Black and White women and men aged 18-30 years at baseline (1985-86) from the populations of four U.S. cities (Birmingham, Alabama; Minneapolis, Minnesota; Chicago, Illinois; Oakland, California).
- Analytic Sample:** Women with complete data for predictor and outcome variables (n=1,006).
- Assessment of Occupation:** In 1987-88 and 1995-96, women were asked several questions about their current or most recent job activity.
 - Responses were used to code jobs to the following U.S. census categories: managerial/professional, technical/sales/support, service, farming/forestry/fishing, precision/craft/repair, and operators/fabricators/laborers. The latter three categories were considered to be manual jobs.
 - Technical, sales, and support jobs were examined separately.
 - Two new occupation categories were created to correspond to professions that have been linked to LUTS in the literature: nurses/health assistants/health aides and K-12 teachers/assistants/child care workers. Codes corresponding to these occupations were removed from managerial/professional, technical/sales/support, and service categories and instead grouped with new occupation categories.
- Assessment of LUTS and Their Impact:** In 2012-13 (Post-Year 25), self-reported data on LUTS and their impact were collected.
 - A LUTS/impact composite variable was previously developed through a cluster analysis of four constructs: UI severity, UI impact, other LUTS severity, and other LUTS impact [5].
 - Women were classified into bladder health (44%) versus mild (31%), moderate (20%), or severe (5%) symptoms/impact clusters.
- Analysis:** Logistic regression analyses were conducted with the LUTS/impact outcome variable dichotomized to compare a combined bladder health and mild LUTS/impact category to a combined moderate and severe LUTS/impact category.
 - For all analyses, covariates included age, race, and parity by Year 2010-11. In sensitivity analyses, education and financial hardship were included as additional covariates.

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Results

Table. Associations between occupation type and 2012-13 LUTS/impact cluster category membership among CARDIA women.

	Moderate/Severe LUTS versus BH/Mild LUTS	
	OR	95% CI
<i>Occupation in 1987-88 ^a</i>		
Technical/Sales/Support		
Technical	1.12	(0.51, 2.46)
Sales	1.97	(1.16, 3.36)
Support	1.85	(1.20, 2.86)
Nurses, Health Assistants, and Health Aides	1.53	(0.80, 2.94)
K-12 Teachers, Assistants, and Child Care Workers	1.66	(0.73, 3.77)
Service	2.97	(1.66, 5.30)
Precision/Craft/Repair	1.13	(0.33, 3.88)
Operators/Fabricators/Laborers	2.34 ^b	(1.09, 5.05)
<i>Occupation in 1995-96 ^a</i>		
Technical/Sales/Support		
Technical	0.88	(0.38, 2.06)
Sales	2.11	(1.21, 3.68)
Support	1.34	(0.86, 2.09)
Nurses, Health Assistants, and Health Aides	1.83 ^b	(1.03, 3.24)
K-12 Teachers, Assistants, and Child Care Workers	1.45	(0.74, 2.84)
Service	4.80	(2.68, 8.60)
Precision/Craft/Repair	1.77	(0.62, 5.05)
Operators/Fabricators/Laborers	2.24 ^b	(1.11, 4.53)

^a For all analyses, covariates include age, race (Black versus White), and parity by 2010-11 (1+ versus 0). The reference group for occupation is managerial and professional. Due to small numbers, participants in the categories, “Farming/Forestry/Fishing” and “Unemployed/Other” were not included. Sample size is 975 and 943 for analyses of 1987-88 and 1995-96 occupation, respectively.

^b This effect was non-significant when additionally adjusting for highest education and financial hardship that year.

Interpretation of Results

- Managerial and professional positions in early adulthood were associated with bladder health up to 25 years later.
- In contrast, specific positions – employment in sales or service positions at either occupation assessment, employment in support positions at the earlier assessment, and employment in nursing positions at the later assessment – were associated with greater LUTS/impact.
- While some observed associations were attenuated by adjustment for education and financial hardship, the majority of the associations remained significant.

Study Limitations

- LUTS and impact were not assessed during the first 25 years of the CARDIA cohort study, which was designed to study the etiology of cardiovascular disease.
 - This prevented examination of incident LUTS or change in LUTS/impact over time.
 - It is conceivable that some women in the CARDIA cohort experienced LUTS earlier in their lives, changed occupations, and then maintained or experienced a worsening of LUTS.

Conclusions

- Future research should examine characteristics of workplaces and occupations that may promote or constrain bladder health.
 - Studied characteristics should include time, autonomy, and infrastructure to void when desired.
- This research is needed to inform prevention interventions to promote the current and future bladder health of employees.

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