

Pelvic floor dysfunction in nulliparous women

Akademisk avhandling

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademien,
Göteborgs universitet kommer att offentligen försvaras i Hörsal Arvid Carlsson,
Academicum, Medicinaregatan 3, Göteborg, den 11 februari, klockan 13.00

av
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Avhandlingen baseras på följande delarbeten

- I. Urinary incontinence in nulliparous women aged 25-64 years: a national survey. Al-Mukhtar Othman J, Åkervall S, Milsom I, Gyhagen M. Am J Obstet Gynecol 2017 Feb;216(2):149. e1-149.e11. doi: 10.1016/j.ajog.2016.09.104.
- II. The symptom of vaginal bulging in nulliparous women aged 25-64 years: a national cohort study. Gyhagen M, Al-Mukhtar Othman J, Åkervall S, Nilsson I, Milsom I. Int Urogynecol J 2019 Apr;30(4):639-647. doi: 10.1007/s00192-018-3684-5.
- III. Childhood nocturnal enuresis-a marker for pelvic floor disorders and urinary tract symptoms in women? Al-Mukhtar Othman J, Åkervall S, Molin M, Gyhagen M. Int Urogynecol J 2021 Feb;32(2):359-365. doi: 10.1007/s00192-020-04345-x.
- IV. Fecal incontinence in non-pregnant nulliparous women aged 25-64 years- a randomly selected national cohort prevalence study. Al-Mukhtar Othman J, Åkervall S, Nilsson IAK, Molin M, Milsom I, Gyhagen M. Am J Obstet Gynecol 2021 Nov. doi: 10.1016/j.ajog.2021.11.032

**SAHLGRENSKA AKADEMIN
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Pelvic floor dysfunction in nulliparous women
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Abstract

Background: Pelvic floor dysfunction (PFD) is a public health problem affecting millions of women worldwide. In addition to personal suffering, it also creates an economic burden for health care systems and society. Parity and mode of delivery are well known risk factors for PFDs. Therefore, examining the prevalence of PFDs in women not exposed to childbirth provides insight into the natural history of the condition without the confounding effect of obstetric injury.

Aim: To obtain a detailed description of the age-related prevalence and predictors of PFDs in a large, national, randomly selected cohort of nulliparous women aged 25 to 64 years. This knowledge is necessary for comparisons with parous women to demonstrate the effect of pregnancy and the effect of vaginal delivery on future PFD.

Material and methods: This was a national cohort study where the study population was drawn from the Total Population Register by Statistics Sweden. The final study population consisted of 9,197 women registered in Sweden, with no births aged 25 and 64 years. Self-reported information regarding possible PFD was obtained via the web and by mail in 2014 using a 40-item questionnaire.

Results:

Paper I: Urinary function in nulliparous women deteriorated during the four most active decades of adult life. However, 75% remained continent by age 65. In women with a normal BMI this applied to >80%. Almost all aspects of urinary dysfunction increased with age. The most significant increase was observed for nocturia ≥ 2 , mixed urinary incontinence (MUI), leakage $\geq 1/\text{week}$, leakage of more than a few drops of urine, and bothersome UI.

Paper II: Symptoms indicating pelvic organ prolapse (sPOP) were experienced in all ages but surgical procedures for POP were rare. Bothersome sPOP was more prevalent in older women. The symptom of "bulging" was strongly associated with other irritative conditions from the genital area. These co-occurring symptoms increased with increasing frequency of "bulging".

Paper III: In nulliparous women with a history of childhood nocturnal enuresis (CNE), all the studied parameters of lower urinary tract symptoms and PFD were approximately doubled and acted as a strong marker for later PFDs.

Paper IV: The predominant component of leakage in nullipara with faecal incontinence (FI) was liquid stool, which occurred in >90%. Solid stool leakage was rare. The pattern of distribution of different types of leakage was similar in all age groups. BMI and age were interacting risk factors for FI.

Conclusion: Over a 40-year period from age 25, the prevalence of all UI parameters increased in nulliparous women. Bothersome prolapse symptoms were rare in women who have not undergone childbirth. The strongest risk factor for fecal incontinence was abnormal stool consistency. Age, BMI and CNE were important risk factors for almost all PFDs.

Keywords: Childhood nocturnal enuresis, fecal incontinence, nulliparous women, pelvic floor disorder, pelvic floor dysfunction, pelvic organ prolapse, Urinary incontinence.

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