

Rømmen K¹, Schei B², Rydning A³, Daltveit A K⁴, Sultan A⁵, Mørkved S¹

1. Clinical Service, St.Olavs Hospital, Trondheim University Hospital and Department of Public Health and General Practice, Norwegian University of Science and Technology, Trondheim, Norway, **2.** Department of Public Health and General Practice, Norwegian University of Science and Technology and Department of Gynecology, St.Olavs Hospital, Trondheim University Hospital, Trondheim, Norway, **3.** Department of Surgery, St.Olavs Hospital, Trondheim University Hospital, Trondheim, Norway, **4.** University of Bergen, Faculty of Medicine and Dentistry, Department of Public Health and Primary Health Care, **5.** Croydon University Hospital, Croydon, UK

SPHINCTER TEARS AND FECAL INCONTINENCE, RESULTS FROM A POPULATION-BASED STUDY IN NORWAY.

Hypothesis / aims of study

Fecal incontinence is a symptom associated with age, bowel symptoms and gynaecological factors. Aim of the study was to establish the prevalence of fecal incontinence among parous women, and to study the association between fecal incontinence and sphincter tears.

Study design, materials and methods

The study was a part of a cross-sectional, large community-based health survey (HUNT 3) conducted in Nord-Trøndelag, Norway October 2006-June 2008. We linked information about FI from the health survey to data from the Medical Birth Registry of Norway (MFR). A total of 12 998 women were included in the study, where 11 707 parous women aged 30-80 years at the time of participating in HUNT3, completed questions about FI and had complete obstetric records from the MFR. The remaining 1291 women were classified as nulliparous.

We excluded women aged ≥ 80 years, women currently pregnant, women with deliveries before the start of MFR in 1967, women with plural deliveries, women with more than four deliveries and women with both vaginal deliveries and CS from the study.

FI was defined as involuntary loss of feces weekly or more often during the last month.

Statistical methods included prevalence estimation and bivariate and multivariate logistic regression analysis. Level of significance in the regression analysis was set to $<.05$.

Data were analysed using SPSS v 18.

Results

Mean body-mass index (BMI) did not differ between nulliparous and parous women, whereas mean age among parous women was 49.4 yrs (95%CI 49.2-49.6) and 52.2 yrs (95%CI 51.4-53.0) among nulliparous women.

Among the 11707 parous women the prevalence of FI was 2.0% (95%CI 1.8-2.3), 2.6% (300/11707) of the women had experienced sphincter tears. The prevalence of FI among nulliparous women was 2.7% (95%CI 1.8-3.6).

Fecal incontinence increased with age, with significantly higher prevalence of FI among women aged 60-69 yrs (3.8%, 95%CI 2.9-4.8)

Table 1 shows the prevalence of FI by age, parity, body mass index, sphincter tear, forceps delivery, diarrhea and urgency. In addition, the strength of the association between FI and the potential risk factors are presented in a bivariate regression analysis.

In a multivariate regression analysis after adjusting for age, BMI and parity, the odds ratio (OR) for FI associated with sphincter tears was 5.57 (95%CI 3.51-8.83).

Interpretation of results

FI is associated with advancing age, sphincter tears, diarrhea and urgency.

Concluding message

The prevalence of FI differ significantly between parous women with and without sphincter tears. Prevalence of FI increases with age and is associated with obstetric injuries and bowel symptoms.

Table 1. Prevalence and odds ratios (OR) for variables associated with fecal incontinence among parous women.

Variables, (n)	Fecal incontinence Percentage(95%CI)	Bivariate OR (95%CI)
Age, yrs		
30-39 (2281)	1.4 (0.9-1.9)	1
40-49 (3565)	1.5 (1.1-1.9)	1.06 (0.68-1.65)
50-59 (4167)	2.1 (1.7-2.6)	1.52 (1.01-2.28)
60-69 (1623)	3.8 (2.9-4.8)	2.79 (1.81-4.30)
70-79 (71)	4.2 (0.0-9.0)	3.10 (0.93-10.38)
Parity:		
1 (1336)	2.0 (1.2-2.7)	1
2 (5639)	2.0 (1.7-2.4)	1.04 (0.68-1.61)
≥ 3 (4732)	2.1 (1.7-2.5)	1.08 (0.69-1.68)
BMI: *		
<25 (4710)	1.7 (1.4-2.1)	1
25-29.9 (4486)	1.9 (1.5-2.2)	0.98 (0.72-1.34)
30-34.9 (1795)	2.8 (2.1-3.6)	1.51 (1.06-2.15)
≥ 35 (686)	3.1 (1.8-4.4)	1.71 (1.05-2.78)

Sphincter tears	(300)	7.7 (4.6-10.7)	5.54 (3.5-8.78)
No sphincter tears	(11407)	1.9 (1.6-2.1)	1
Forceps delivery	(631)	4.2 (2.6-5.7)	2.32 (1.53-3.53)
No forceps delivery	(11076)	1.9 (1.7-2.2)	1
Urgency	(1260)	10.2 (8.5-11.8)	10.14 (7.78-13.2)
No urgency	(10447)	1.1 (0.9-1.3)	1
Diarrhea	(504)	12.1 (9.3-15.0)	8.72 (6.41-11.88)
No diarrhea	(11203)	1.6 (1.4-1.8)	1

*30 women had no data about body mass index

Bivariate analyses are adjusted for age, except the variable age.

Disclosures

Funding: The trial was supported by the Norwegian University of Science and Technology, Faculty of Medicine, Department of Public Health and General Practice. **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Regional ethics committee of Norway **Helsinki:** Yes **Informed Consent:** Yes