

PREVALENCE OF ANAL INCONTINENCE AMONG NORWEGIAN WOMEN, A CROSS-SECTIONAL STUDY (HUNT 3) CONDUCTED IN NORD-TRØNDELAG COUNTY, NORWAY.

Hypothesis / aims of study

Anal incontinence is a symptom associated with age and gynaecological factors (1,2). Aim of the study was to establish the prevalence of anal incontinence among women, and to study associations between anal incontinence and health related factors as age, body mass index (BMI), parity and gynaecological conditions.

Study design, material and methods

The study is a part of a cross-sectional, large community-based survey (HUNT 3) conducted in Nord-Trøndelag, Norway. Data were collected through interviews, questionnaires and clinical examinations. In total 40 955 community-dwelling women (aged 30+) were invited to participate. All eligible women attending at the research centre received a questionnaire containing a section about anal incontinence (Q2). They filled in the questionnaire at home and returned it by postal mail. Anal incontinence was defined as involuntary loss of feces or flatus weekly or more. Fecal and flatal incontinence was defined respectively as involuntary loss of feces and flatus weekly or more. Statistical methods included tests of association and logistic regression analysis. Explanatory variables which became significant in age-adjusted bivariate analysis were entered in the multivariate regression model. Data were analysed using SPSS v 17.

Results

A total of 25 037 women aged 30+ participated in HUNT 3, giving a response rate of 61.1%. Questionnaire 2 (Q2) was returned by 24 738 of the participants. In Q2, the section including anal incontinence was completed by 20 391 (82.4%) of the responders. Non-responders and responders to the anal incontinence section did not differ significantly on background data available, and non-responders were excluded from further analysis. Among the 20 391 women included in the study, anal incontinence was reported by 19.3% (95%CI 18.7-19.8). In total, 3.0% (95%CI 2.8-3.2) of the women reported fecal incontinence \geq weekly, 18.6% (95%CI 18.1-19.1) reported leakage of gas \geq weekly. Lack of ability to defer defecation for 15 minutes was experienced by 2 586 women (13.7%, 95%CI 13.2-14.2). Among women with anal incontinence, 794 (26.0%, 95%CI 24.4-27.5) stated it had an impact on daily life. Three or more childbirths were associated with anal incontinence (table 1). Increasing age, BMI \geq 35, menopause and surgery treatment for pelvic organ prolapse were significantly associated with prevalence of anal incontinence.

Interpretation of results

Anal incontinence was strongly associated with age. In bivariate analysis, experiencing three or more child births was associated with increased prevalence of anal incontinence. However, in multivariate analysis we found no association between anal incontinence and parity. Surgery treatment for pelvic organ prolapse, being menopausal and a body mass index \geq 35 were all associated with anal incontinence in multivariate analysis, adjusted for age.

Table 1. Prevalence and odds ratios (OR) for variables associated with anal incontinence

Variables, (n)	Anal incontinence Percentage(95%CI)	Bivariate OR (95%CI)	Multivariate OR (95%CI)
Age, yrs			
30-39 (3049)	15.3 (14.0-16.5)	1*	1*
40-49 (4419)	16.6 (15.5-17.7)	1.108 (0.977-1.258)	1.041 (0.913-1.187)
50-59 (4969)	19.1 (18.0-20.2)	1.312 (1.162-1.482)*	1.022 (0.862-1.212)
60-69 (4424)	20.9 (19.7-22.1)	1.465 (1.296-1.656)*	1.089 (0.911-1.300)
70-79 (2527)	24.0 (22.3-25.7)	1.751 (1.529-2.004)*	1.235(1.019-1.496)*
80+ (1003)	24.9 (22.1-27.6)	1.836 (1.540-2.188)*	1.262 (1.003-1.589)*
Parity :			
0 (1448)	17.4 (15.5-19.4)	1*	1*
1 (1760)	17.4 (15.6-19.2)	1.016 (0.845-1.222)	0.961 (0.793-1.164)
2 (7575)	18.0 (17.1-18.8)	1.054 (0.908-1.224)	1.014 (0.869-1.185)
\geq 3 (9608)	20.9 (20.1-21.7)	1.194 (1.032-1.382)*	1.118 (0.960-1.302)
Body Mass Index \geq 35 (1352)	21.5 (19.3-23.7)	1.158 (1.012-1.326)*	1.161 (1.008-1.338)*
Menopausal (12612)	21.3 (20.6-22.0)	1.250 (1.104-1.416)*	1.279 (1.123-1.463)*
Surgery treatm. for POP (1060)	31.2 (28.4-34.0)	1.756 (1.528-2.018)*	1.735 (1.500-2.007)*
Hysterectomi (892)	23.9 (21.1-26.7)	1.185 (1.008-1.392)*	1.116 (0.940-1.324)

* = significant at $p < .05$

Bivariate analyses are adjusted for age, except age. Multivariate odds ratios are adjusted for all variables in the table.

Concluding message

Prevalence of anal incontinence in the study population was 19.3%.

The study confirms that anal incontinence is an age-related disorder. Childbirths are not associated with anal incontinence. BMI ≥ 35 , being menopausal and having surgery treatment for pelvic organ prolapse are significantly associated with prevalence of anal incontinence.

References

1. Nygaard I, Barber M, Burgio K et al. Prevalence of symptomatic pelvic floor disorders in US women. JAMA, 2008. 300(11): p. 1311-1316.
2. Pretlove SJ, Radley S, Toozs-Hobson PM, Thompson PJ, Coomarasamy A, Khan KS. Prevalence of anal incontinence according to age and gender: a systematic review and meta-regression analysis. Int Urogynecol J, 2006. 17: p. 407-417.

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<i>Is this a clinical trial?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	The study was approved by the Regional Committee for Medical and Health Research Ethics
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes