

## **PREVALENCE OF ANAL INCONTINENCE ACCORDING TO AGE AND GENDER: A SYSTEMATIC REVIEW AND META-REGRESSION ANALYSIS.**

### Hypothesis / aims of study

Anal incontinence is increasingly being recognised as a significant cause of physical and psychological morbidity with implications for healthcare provision within the community. There is controversy about which population groups are most disadvantaged by this chronic condition. In order to evaluate the prevalence of this condition in the community according to age and gender, a systematic review was performed.

### Study design, materials and methods

Embase and Medline were searched as well as bibliographies of known articles and experts in the field were contacted. Data were extracted using a piloted form on participants' characteristics, study quality and incontinence rates. Meta-analysis was used to combine data from multiple studies and meta-regression evaluated the variation in rates according to age and gender in an analysis adjusted for study quality.

### Results

There were 29 studies (69 152 participants), of which 5 met over half of the high quality criteria. The rate of solid and liquid faecal incontinence among people aged 15-60 years was 0.8% (95% CI 0.3-1.9) in men and 1.6% (95% CI 0.8-3.1) in women. In those aged over 60 this increased to 5.1% (95% CI 3.4-7.6) in men and 6.2% (95% CI 4.9-8.0) in women. Meta-regression showed that age had a significant influence on rates of solid and liquid faecal incontinence ( $p=0.007$ ) but not gender ( $p=0.368$ ) or study quality ( $p=0.085$ ). Results are demonstrated graphically in figure 1 (see below).

### Interpretation of results

This is the first systematic review of the prevalence of anal incontinence. It suggests that the 1% rate presumed by government agencies (1) is an underestimate. The average rate of solid and liquid anal incontinence alone was more than four times this. The rates of anal incontinence were higher in women than in men, particularly in older people, but the difference between the sexes did not reach statistical significance.

Critics argue that primary studies, and thus their systematic reviews, represent an underestimate of the true prevalence of anal incontinence because only a minority of those affected seek help (2). If this is true, our summary rates have even more clinical significance, as previously the disease burden has been presumed to be lower (1) than the results depicted in this paper. An increase in anal incontinence in older people is plausible due to multiple factors that affect continence such as diabetes mellitus, cerebro-vascular events and dementia become commoner in an elderly population. Deteriorating mobility make reaching the toilet in time more difficult. However it would be expected that these ageing issues affect both men and women. It has long been thought that the incidence of anal incontinence is higher in women because trauma occurs to the anal sphincter during childbirth which can impair anal continence (3). However this paper does not provide evidence that women under sixty years have higher rates of incontinence when compared with men of a similar age. Many experts believe that the effects of obstetric trauma may only appear in older age but we did not find a significant interaction between age and gender.

### Concluding message

The up to date evidence summarised in this study shows that the prevalence of anal incontinence in the community is much higher than that previously assumed by government agencies. Older people have higher rates of anal incontinence.

Women have a higher rate of anal incontinence than men, particularly among older people, but this gender difference did not reach statistical significance.

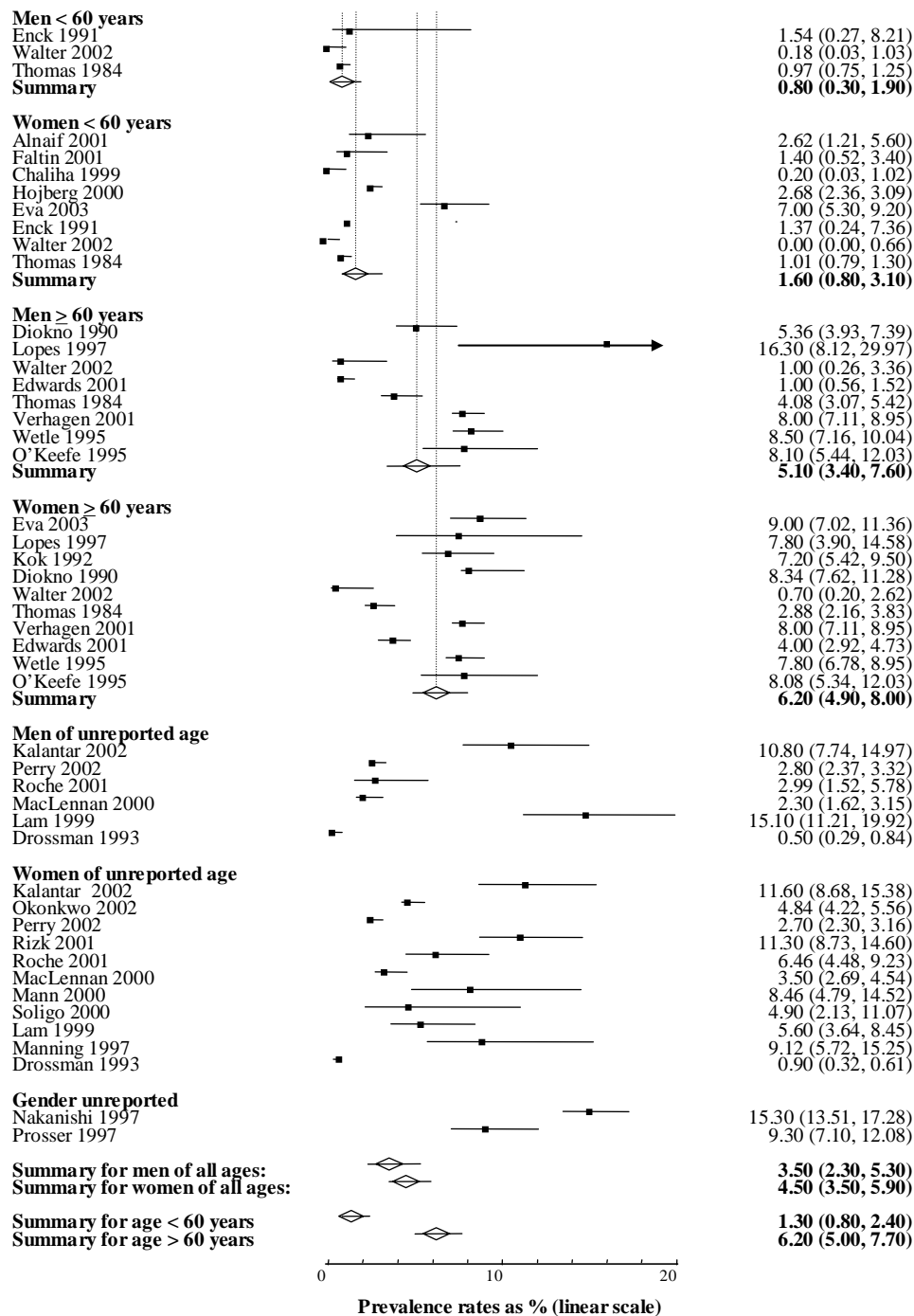


Figure 1: Rates of solid and liquid anal incontinence stratified according to age and gender

**References**

1. Working group. Prevalence of incontinence. *Department of Health Guidelines 2 A.D.*;Section 2:6-7.
2. Prevalence of Anal Incontinence and other Anorectal Symptoms in Women. *Int Urogynecol J* 2001;12:117-21.
3. Anal sphincter disruption during vaginal delivery. *New England Journal of Medicine* 1993;329:1905-11

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