

PREVALENCE OF FECAL INCONTINENCE IN THE URBAN POPULATION OF A CITY IN SOUTHERN BRAZIL

Hypothesis: The prevalence of fecal incontinence and associated factors (such as female sex, advanced age, multiple pregnancies, type of delivery, and previous anorectal surgeries) among the residents of the urban area of Londrina, a city in southern Brazil, are similar to what was reported in a Brazilian study¹ and in the international literature.^{2,3}

Aims: The aims of this study were to determine the prevalence of fecal incontinence in adults living in Londrina (Paraná, Brazil), and verify the demographic and clinical factors associated with its occurrence.

Study design, materials and methods: This was an epidemiological study and a secondary analysis of data from an unpublished study on the evaluation of bowel habits and risk factors for fecal incontinence in the urban population of Londrina. The primary study was conducted in 2008 by two of the authors of the present paper after the approval from the Research Ethics Committee. A sample of 2162 adults (aged 18 and older) was selected from an adult urban population of 305,695 using stratified cluster sampling for which streets from 390 census sectors of Londrina were randomly selected. The participants were interviewed at their homes using the Bowel Function in the Community questionnaire developed by Reilly and collaborators, and adapted and validated for Brazil by Domansky and Santos. Only data on the 'presence of fecal incontinence' domain, sociodemographic characteristics (age, sex, race, level of education, profession and occupation, marital status, and monthly income), clinical characteristics (diseases, and previous and recent urogenital and anorectal surgeries, neurological diseases, systemic arterial hypertension), and reproductive variables (pregnancy/delivery) were evaluated to determine the prevalence of fecal incontinence and associated factors. Statistical analysis was carried out with the Statistical Package for the Social Sciences (SPSS) release 16.0. The sociodemographic and clinical variables were analyzed descriptively. The Pearson's chi-square and Fisher's exact tests were used to analyze the association between the presence/absence of fecal incontinence and clinical, and sociodemographic variables. A backward stepwise logistic regression model was used and included 'presence of fecal incontinence' as the dependent variable, and clinical, sociodemographic and reproductive variables considered significant by the Pearson's chi-square or Fisher's exact test as independent variables. All statistical tests were performed at a significance level of 5%.

Results: The sample consisted predominantly of women (56%), Caucasians (74%), with a mean age of 40.6 ± 16.4 years, and 9 to 12 years of education (36%). Seventy-seven participants had fecal incontinence (prevalence of 3.6%) of which 54 (70.1%) had liquid stool incontinence. Previous urogenital and anorectal surgeries were predictors for fecal incontinence ($p = 0.002$), while systemic arterial hypertension ($p = 0.015$), and diarrhea/constipation ($p = 0.009$) were factors inversely associated with the presence of fecal incontinence (Table 1, in bold).

Table 1. Multiple logistic regression for fecal incontinence and clinical variables.

VARIABLES	B	SE	Wald	df	Sig	Exp(B)	95.0% CI for Exp(B)	
							Lower	Upper
Abscess(1)	0.527	0.518	1.034	1	0.309	1.694	0.614	4.676
Fistula(1)	0.584	0.674	0.750	1	0.386	1.793	0.478	6.719
Fissura(1)	0.721	0.413	3.039	1	0.081	2.056	0.914	4.623
Urogenital or anorectal surgery (1)	1.297	0.427	9.234	1	0.002	3.659	1.585	8.449
Trauma(1)	0.772	0.629	1.505	1	0.220	2.163	0.631	7.421
Prolapse(1)	0.267	0.739	0.131	1	0.718	1.306	0.307	5.560
Hemorrhoids(1)	0.164	0.329	0.249	1	0.618	1.178	0.619	2.244
Neurological disorders(1)	0.400	0.283	1.997	1	0.158	1.491	0.857	2.595
Cerebral Vascular Accident (1)	0.945	0.599	2.484	1	0.115	2.572	0.794	8.328
Irritable bowel (Dic 1)	-0.455	0.350	1.683	1	0.195	0.635	0.319	1.261
Systemic Arterial Hypertension (Dic 1)	-0.693	0.284	5.948	1	0.015	0.500	0.287	0.873
Diarrhea/constipation (Dic 1)	-0.667	0.255	6.861	1	0.009	0.513	0.311	0.845
Constant	-2.219	0.432	26.379	1	0.000	0.109		

Dic 1, dichotomized yes; B, variable coefficient; SE, standard error; Wald, Wald coefficient; df, degrees of freedom; Sig., significance of the Wald statistic; Exp (B), odds ratio; CI, confidence interval.

Interpretation of Results: Although the findings of this study are consistent with the international literature^{2,3} regarding the prevalence of fecal incontinence, the prevalence rate is lower than that reported in the Brazilian study¹ by 7%. Only urogenital

and anorectal surgeries were found to be predictors of fecal incontinence, which is also in agreement with international literature.^{2,3}

Concluding message: This study contributed to the current knowledge of the epidemiology of fecal incontinence in the Brazilian population, by determining its prevalence rate and associated factors, which will allow the development of preventive measures and early diagnosis.

References

1. Santos CRS, Santos VLCCG. Prevalence of fecal incontinence in the urban population of Pouso Alegre, Minas Gerais. Rev Esc Enf USP 2010 (in press).
2. Quander CR, Morris MC, Melson J, Bienias JL, Evans DA. Prevalence of and factors associated with fecal incontinence in a large community study of older individuals. Am J Gastroenterol. 2005; 100(4): 905-9.
3. Macmillan AK, Merrie AE, Marshall RJ, Parry BR. The prevalence of fecal incontinence in community-dwelling adults: a systematic review of the literature. Dis Colon Rectum serial on the Internet. 2006 cited 2007 Aug; 47(8): about 9 p.. Available from:

<i>Specify source of funding or grant</i>	The study "Prevalence of fecal incontinence in the urban population of a city in southern Brazil" is a secondary study using the database of the study "Bowel habits evaluation and anal incontinence risk factors in the general population", developed by Domansky and Santos (2008). The original study was financially supported by Research Support Foundation of São Paulo State (FAPESP), through a research scholarship. This is a governmental agency for research support, in São Paulo State, Brazil.
<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 original study "Bowel habits evaluation and anal incontinence risk factors in the general population", developed by Domansky and Santos (2008), was approved by Ethics Committee of the Nursing School of the University of São Paulo (Protocol number 485/2005/CEP-EEUSP, on October 27th, 2005).
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes