

Original Article

Prevalence of Anal Incontinence in Women Attending Gynecological Outpatient Department

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Abstract

Objective: To determine the frequency of anal incontinence among women visiting the gynecological outpatient department (OPD) of a tertiary care hospital.

Methodology: A cross-sectional study was conducted at the Gynecology OPD of Isra University Hospital, Hyderabad, from August 2024 to September 2025. Women aged 18–60 years with a history of at least one obstetric or gynecological procedure, including perineal tears, who attended the gynecological OPD were included. Patients were interviewed separately to ensure privacy and confidentiality. Detailed information regarding their previous medical and gynecological history, including obstetric procedures, gynecological surgeries, episiotomy, and perineal injuries, was obtained. Patients were specifically questioned about involuntary loss of fecal matter, including solid stool, liquid stool, and gas, as well as their ability to control leakage, to assess the presence of anal incontinence. Relevant data were entered and analyzed using SPSS version 26.

Results: The overall mean age of the women was 43.74 ± 13.67 years, and the mean BMI was 25.55 ± 3.49 kg/m². The majority of women were housewives (70.3%). The overall prevalence of anal incontinence was 8.1%. Anal incontinence was significantly associated with advanced age, increased BMI, instrumental vaginal delivery, episiotomy, perineal tears, and hysterectomy ($p < 0.05$), whereas cesarean section appeared to have a protective effect. These findings highlight obstetric trauma and pelvic floor weakening as important contributors to anal incontinence.

Conclusion: The study revealed that anal incontinence is a relatively uncommon but clinically significant condition among women attending the gynecological OPD, with an overall prevalence of approximately 8.1%. However, referral bias inherent to this facility, which serves as a major center for pelvic floor disorders, may have influenced the observed prevalence.

Keywords: Anal incontinence; fecal incontinence; women; gynecological OPD; prevalence; vaginal delivery; perineal tear.

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Introduction

Millions of women throughout the world suffer from pelvic floor disorders (PFD), which include Pelvic Organ Prolapse (POP), fecal incontinence (FI), and urinary incontinence (UI).¹ Women make up 25% of those who have one or more PFDs, and as they get older, that percentage rises to 53% and the prevalence of fecal incontinence in these patients is about 6.9%.² Every fifth woman will experience PFD surgery at some time in their life.³ PFD limit women's ability to go about their everyday lives, lower their wellbeing, and entail

enormous social costs.⁴ Although the causes of PFD are numerous, pregnancy and childbirth are frequently implicated. There are several patients with PFD associated with FI and some of cases come at worst stages. AI defined as the involuntary loss of flatus, liquid, or solid stool, is a common yet frequently under recognized complaint among women, carrying significant physical, social and psychological consequences, including reduced quality of life (QOL) and significant social stigma. Regardless of its clinical

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importance, it remains considerably underreported, mainly due to the embarrassment and reluctance among affected patients to disclose symptoms to healthcare providers, significance that its true burden is likely greater than existing prevalence suggested approximately,

Both pregnancy-related and obstetric-related risk factors are seen as important predictors for UI, FI, and POP. Like a Chinese study detected increasing parity, instrumental vaginal delivery, and perineal tear as key risk factors for AI following vaginal delivery,⁵ while additional evidence points to advancing age, raised BMI and prior hysterectomy, specifically via the route of abdomen, as further essential contributors.⁶⁻⁸ According to growing epidemiological research; women who have just given birth are more likely to experience UI. It appears that risk factors include both pregnancy and delivery. Similarly, these women, especially those who have had vaginal births, appear to be more susceptible to fecal incontinence (FI).⁹ Moreover, according to a comprehensive evaluation proposed that a third- or fourth-degree tear of the exterior anal sphincter is the etiological component most significantly linked to postpartum FI.¹⁰

The reported prevalence varies considerably across populations and study designs, as the prevalence estimates range from 17% to 62% if there was a forceps delivery or serious perineal trauma during births according to previous old observations. However a recent study found a prevalence of around 8.6% at six weeks after vaginal delivery, whereas a large Turkish population-based study of over 4,000 women demonstrated a considerably higher prevalence of AI approximately 19.8% as part of a broader assessment of PFD.¹¹ Moreover a French population-based survey found an overall prevalence of 5.1%, rising to 13.1% among women specifically attending gastroenterology consultations, with physicians remaining unaware of the disorder in 84.8% of affected patients.¹¹ However compared to the general female population, women who frequent gynecological outpatient clinics had a greater frequency of FI (1-16%) increasing with age.^{14,15} As FI associated with imbalance of propulsive and resistive forces of pelvis certain condition with increased abdominal pressure (obesity, chronic cough), increased intestinal motility (IBD, loose stool, diabetes, colectomy, cholecystectomy) or nerve defects may also contribute to FI.⁴

In spite of this growing body of international evidence, substantial inconsistency remains across studies regarding the true prevalence and leading risk factors for AI, largely may due to the differences in population selection criteria of the studies, diagnostic protocols, and clinical health setting. The given substantial impact of this condition on quality of life of women and its frequent under recognition in routine practice of gynecology, this study was conducted to assess the prevalence of AI and its related demographic, obstetric, and gynecological key factors in women attending the gynecology OPD, at Isra University Hospital.

Methodology

This cross-sectional study was conducted at the Gynecology Outpatient Department (OPD) of Isra University Hospital, Hyderabad. The study was conducted after obtaining ethical approval from the Ethical Review Committee of Isra University (Ref. No. IU/CP.REC(FCS)/2025/1427) and approval of the research proposal from the College of Physicians and Surgeons Pakistan (CPSP). The study duration was one year, from December 2024 to September 2025, as per the synopsis approved by CPSP.

The estimated sample size was 357 participants, calculated using the sample size formula based on an expected prevalence of anal incontinence of 16%, with a 99% confidence level and a 5% margin of error.

Women aged 18–60 years with a history of at least one obstetric procedure (e.g., vaginal delivery, instrumental delivery, or cesarean section) or gynecological procedure (e.g., hysterectomy), along with a history of perineal tear, who attended the gynecological OPD were included in the study. Pregnant women, women with a history of rectal or pelvic surgery, women with neurological disorders such as spinal cord injuries, and those who declined to participate in the study were excluded.

Before enrollment, each participant was provided with a detailed explanation of the purpose and procedures of the study, and verbal informed consent was obtained. Participants were informed about the confidentiality of their information and their right to withdraw from the study at any time. All participants were interviewed separately to ensure privacy and confidentiality.

During the interviews, detailed information was collected regarding the participants' previous medical and gynecological history, including obstetric procedures such as vaginal delivery, cesarean section,

and instrumental delivery, as well as gynecological surgeries such as hysterectomy or pelvic surgery. Information regarding episiotomy and perineal injuries was also recorded. Participants were specifically questioned about involuntary loss of fecal matter, including solid stool, liquid stool, and gas, as well as their ability to control leakage, to assess the presence of anal incontinence.

The severity of anal incontinence was assessed using the Wexner Incontinence Score, which evaluates the frequency of incontinence episodes involving solid stool, liquid stool, and gas. Each domain was scored from 0 (never) to 4 (always). The scores were summed to obtain an overall severity score, which was categorized as no incontinence (0), mild incontinence (1–5), moderate incontinence (6–10), and severe incontinence (11–15).

All data were recorded using a structured study proforma. The collected data were entered and analyzed using SPSS version 26. Quantitative variables, including age and BMI, were expressed as mean and standard deviation after assessing the normality of the data using the Shapiro–Wilk test. Qualitative variables, including residential status, occupational status, marital status, socioeconomic status, educational status, history of episiotomy, history of perineal tear, history of forceps or vacuum-assisted delivery, history of hysterectomy, history of pelvic surgery, and severity of anal incontinence, were presented as frequencies and percentages.

Potential effect modifiers were controlled through stratification. Post-stratification analysis was performed using the chi-square test. A p-value ≤ 0.05 was considered statistically significant.

Results

The mean age of all enrolled participants was 43.74 ± 13.67 years, and the mean BMI was 25.55 ± 3.49 kg/m², indicating that, on average, the participants were of advanced age and fell within the overweight category. The majority of participants were married (88.8%), while smaller proportions were widowed (4.8%), single (4.5%), or divorced (2.0%). Illiteracy was the most common educational status, affecting 29.7% of the women. The majority of women were housewives (70.3%), followed by office workers (11.8%), teachers (7.6%), nurses (5.0%), factory workers (2.8%), and shopkeepers (2.5%). Regarding socioeconomic status, nearly half of the women belonged to the poor

socioeconomic group (45.4%), while approximately one-third belonged to the middle-income group (35.0%) and 19.6% belonged to the upper-income group, as presented in Table I.

Table I: Demographic characteristic of the patients.

Variables		N	%
Marital status	Divorced	07	02.0
	Married	317	88.8
	Single	16	04.5
	Widowed	17	04.8
	Graduation	62	17.4
Educational Status	Illiterate	106	29.7
	Primary education	97	27.2
	Secondary education	92	25.8
Occupational status	Housewife	251	70.3
	Office Worker	42	11.8
	Teacher	27	7.6
	Nurse	18	5.0
	Factory worker	10	2.8
	Shopkeeper/Business	9	2.5
SES	Middle	162	45.4
	Poor	125	35.0
	Upper	70	19.6
Age	(Mean $\pm$ SD)	43.74 $\pm$ 13.67 years	
BMI	(Mean $\pm$ SD)	25.55 $\pm$ 3.49 kg/m ²	

The majority of women had a history of 1–3 normal vaginal deliveries (53.2%), while 31.7% had more than three vaginal deliveries. The remaining 15.1% had a history of cesarean sections and/or other gynecological procedures without vaginal delivery. Regarding cesarean sections, 46.2% of women had undergone 1–3 cesarean sections, whereas 35.9% had no history of cesarean delivery. Episiotomy was reported in 33.9% of participants, while perineal tears were reported in 22.7%. Forceps- or vacuum-assisted deliveries were reported in 9.8% of women. Furthermore, 12.3% of women had undergone hysterectomy, and 8.4% had a history of pelvic surgery, as presented in Table II.

Table II: Obstetrics and gynecological history of the patients.

Variables		N	%
NVD	No	54	15.1
	1-3	190	53.2
	>3	113	31.7
C-sections	No	128	35.9
	1-3	165	46.2
	>3	64	17.9
Episiotomy	No	236	66.1
	Yes	121	33.9
Forceps Vacuum	No	322	90.2
	Yes	35	9.8
Perennial Tear	No	276	77.3
	Yes	81	22.7
Gynecological Surgery	No	283	79.3
	Hysterectomy	44	12.3
	Pelvic surgery	30	8.4

The overall frequency of anal incontinence was 8.1%. Among the affected women, mild anal incontinence was the most common severity category (5.6%), followed by moderate (2.0%) and severe anal incontinence (0.6%). The distribution of anal incontinence and its severity is presented in table III and IV.

Table III: Frequency of anal incontinence among women.

Anal incontinence		n	%
Valid	Yes	29	8.1
	No	328	91.9
	Total	357	100.0

Table III: Severity of anal incontinence among women.

Severity	n	%
Mild	20	5.6
Moderate	07	2.0
Severe	02	.6
No anal incontinence	328	91.9
Total	357	100.0

Table IV: Post stratification analysis based on demographic and clinical variables for AI.

Variables		ANAL INCONTINENCE		p-value
		Yes	No	
Age groups	20-30 years	3	68	71
		0.8%	19.0%	19.9%
	31-40 years	7	71	78
		2.0%	19.9%	21.8%
	41-50 years	11	57	68
		3.1%	16.0%	19.0%
BMI	51-60 years	8	132	140
		2.2%	37.0%	39.2%
	Underweight	4	16	20
		1.1%	4.5%	5.6%
	Normal weight	6	141	147
		1.7%	39.5%	41.2%
C-section	Overweight	10	117	127
		2.8%	32.8%	35.6%
	Obese	9	54	63
		2.5%	15.1%	17.6%
	No	19	109	128
		5.3%	30.5%	35.9%
NVD	1-3	6	159	165
		1.7%	44.5%	46.2%
	>3	4	60	64
		1.1%	16.8%	17.9%
Episiotomy	No	7	185	192
		2.0%	51.8%	53.8%
	1-3	22	143	165
		6.2%	40.1%	46.2%
Gynecological	>3	7	185	192
		2.0%	51.8%	53.8%
	No	7	229	236
		2.0%	64.1%	66.1%
Hystere	Yes	22	99	121
		6.2%	27.7%	33.9%

Surgery	ctomy	3.4%	9.0%	12.3%	0.001
	No	8	275	283	
		2.2%	77.0%	79.3%	
Perennial Tear	Pelvic Surgery	9	21	30	0.001
	No	2.5%	5.9%	8.4%	
	Yes	7	269	276	
	No	2.0%	75.4%	77.3%	0.001
	Yes	22	59	81	
		6.2%	16.5%	22.7%	

Post-stratification analysis showed that women aged 41–50 years had the highest frequency of anal incontinence among the different age groups (3.1%, $p = 0.036$). Overweight and obese women also had higher frequencies of anal incontinence (2.8% and 2.5%, respectively), with a statistically significant association between BMI and anal incontinence ($p = 0.017$). Women with no history of cesarean section had a notably higher frequency of anal incontinence (5.3%) than those with a history of cesarean delivery ($p = 0.002$). Women with 1–3 vaginal deliveries had the highest frequency of anal incontinence (6.2%), with a statistically significant association between the number of vaginal deliveries and anal incontinence ($p = 0.026$).

Episiotomy was significantly associated with anal incontinence, with 6.2% of women who had undergone episiotomy experiencing anal incontinence compared with 2.0% among those without a history of episiotomy ($p = 0.001$). Women with a history of hysterectomy and other gynecological surgeries also demonstrated higher frequencies of anal incontinence. Similarly, perineal tears were significantly associated with anal incontinence, affecting 6.2% of women with a history of perineal tears compared with 2.0% of those without such a history ($p = 0.001$), as presented in Table III.

Discussion

In this study, the prevalence of anal incontinence was 8.1%, which falls within the range reported in recent literature. A cross-sectional study conducted across three teaching hospitals in Addis Ababa, Ethiopia, reported a prevalence of 8.6% at six weeks after vaginal delivery, which is remarkably similar to the present finding.¹¹ Our findings are also consistent with those of a French population-based study by Damon H et al.¹³, which reported an overall prevalence of anal incontinence of approximately 5.1%, increasing to 13.1% among gastroenterology patients and 5.0% among gynecology patients. These findings underscore the potential under-recognition of anal incontinence, as highlighted in the present study.

Similarly, a survey from Norway involving unselected pregnant women attending routine second-trimester ultrasound examinations in Oslo reported a self-reported anal incontinence prevalence of 8.4% (238/2,846), which closely corresponds to the prevalence observed in the present study.¹⁴ In contrast, a large Turkish population-based study of 4,002 women reported that 67.5% had at least one major pelvic floor disorder, with anal incontinence specifically affecting 19.8% of women.¹² This prevalence is considerably higher than that observed in the present study, possibly because the Turkish study assessed women with major pelvic floor disorders in a broader population-based sample, whereas the present study included women attending a general gynecological OPD.

Our findings were also comparable to those reported by Ng SC et al.¹⁶, who studied 320 women attending a urogynecology outpatient clinic and found a prevalence of anal incontinence of 15.9%. Of these women, 12.3% had flatus incontinence alone, while 3.6% reported leakage of liquid and/or solid feces. The higher prevalence compared with the present study may reflect the fact that the study population was specifically recruited from a urogynecology clinic.

Furthermore, the findings of the present study are broadly consistent with those of a Norwegian follow-up study¹⁷ involving 207 women who had received perineal sutures following vaginal delivery. That study reported fecal urgency in 11.7% of women and weekly flatus incontinence in 8.7%. In contrast, Okeahialam NA et al.¹⁸ reported an overall incidence of anal incontinence of 18.1%, which was markedly higher than that observed in the present study. This difference may largely be explained by the inclusion of women with a history of obstetric anal sphincter injury in their study population.

In the present study, anal incontinence was significantly associated with advancing age, particularly age >40 years, increased BMI, instrumental vaginal delivery, episiotomy, perineal tears, and a history of gynecological surgery, whereas cesarean delivery appeared to have a protective association. Most cases were mild in severity. These findings are broadly consistent with the existing literature, in which advancing age and progressive pelvic floor weakening, constipation, obstetric trauma associated with vaginal delivery and perineal injury, obesity, and abdominal hysterectomy have been identified as potential contributors to anal incontinence.^{11,16,17,19,20}

Substantial variations in the reported prevalence of anal incontinence have been observed across different studies. These differences may be attributed to variations in the age and characteristics of study populations, sample selection criteria, and assessment methods. In particular, many studies have focused on selected high-risk populations, including women with previous anal sphincter injury, pelvic floor disorders, or complicated vaginal deliveries, which may result in higher reported prevalence rates than those observed in general obstetric or gynecological populations.

The present study was conducted among women attending a general gynecological OPD; however, the study facility also serves as a major referral center for pelvic floor disorders. The hospital has a dedicated ward for the management of major pelvic floor disorders and provides treatment at minimal or no cost to many patients. It serves a large urban and rural population, with patients from various areas of interior Sindh being referred specifically for pelvic floor disorders, particularly urinary incontinence (UI) and anal incontinence (AI). Therefore, the prevalence observed in the present study may have been influenced by the referral characteristics of the study population.

Limitations: The present study has several limitations that should be considered when interpreting its findings. First, the cross-sectional design and single-center setting may limit the generalizability of the findings to the broader population. Second, referral bias may have influenced the observed prevalence because the study facility serves as a major referral center for pelvic floor disorders, including UI and AI. Third, anal incontinence was assessed based on self-reported symptoms, which may be subject to recall bias and underreporting because of the social stigma and embarrassment associated with this condition.

Conclusion

Study revealed that the anal incontinence to be a relatively uncommon but a clinically significant issue among women attending the gynae OPD, with overall prevalence around 8.1%. However, the referral bias inherent to this facility, which specifically serves as a major center for pelvic floor disorders, may have influenced the observed prevalence. The condition was substantially associated to obstetric trauma, specifically episiotomy, perineal tears, and instrumental vaginal delivery, along with prior gynecological surgery and raised BMI. Overall anal incontinence often goes unreported due to social stigma, and the findings overall highlighted the importance of proactive screening in high risk women, along with timely

assessments of pelvic floor and rehabilitation to reduce its long term impact on quality of life (QOL).

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