

UTERINE PROLAPSE: PREVALENCE, RISK FACTORS, KNOWLEDGE GAPS, AND EFFECTIVENESS OF EDUCATIONAL INTERVENTIONS — NARRATIVE SYSTEMATIC REVIEW

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Abstract: Background: Uterine prolapse (UP) is a significant reproductive health problem affecting millions of women in low- and middle-income countries, with disproportionately high prevalence in rural, multiparous women. Despite being largely preventable, it remains underreported and undertreated due to stigma, poor knowledge, and limited healthcare access. Objectives: To synthesize evidence on (1) the prevalence and rural-urban disparity of uterine prolapse; (2) risk factors across obstetric, demographic, and socioeconomic domains; (3) women's knowledge levels regarding uterine prolapse; and (4) effectiveness of Structured Teaching Programmes (STP) in improving knowledge across six included studies. Review Methodology: A narrative systematic review was conducted. Six peer-reviewed studies published 2019–2024, conducted in India and Pakistan, were included. Designs comprised cross-sectional retrospective (n=2), descriptive observational (n=2), and pre-experimental STP studies (n=2). Total participants: N=1,933. Populations included rural and urban women, pregnant females, multiparous women, and reproductive-age women. Key Findings: Rural women constituted 67.4% of UP cases vs 32.5% urban. UP prevalence in pregnancy was 13.8% (mild+moderate). Most hospital cases (87.7%) presented at third-degree severity. Pre-test knowledge was 23–44% in interventional studies. STP produced 42–56% knowledge gain (paired t=20.4 to 36.5, p<0.05). Age, parity, early marriage, early childbirth, and home delivery were consistently significant risk factors. Conclusion: Uterine prolapse is prevalent, preventable, and disproportionately affecting rural women. Structured Teaching Programmes are highly effective educational interventions. Promoting institutional delivery, delaying early marriage and childbirth, and deploying structured health education are urgent, evidence-informed priorities.

Categories: Women's Health; Reproductive Health; Pelvic Floor Disorders; Community Medicine; Nursing Education; Public Health

Keywords: Uterine Prolapse; Pelvic Organ Prolapse; Knowledge; Structured Teaching Programme; Multiparous Women; Rural-Urban Disparity; Risk Factors; Prevalence; India; Systematic Review

I. INTRODUCTION

Uterine prolapse is the downward displacement of the uterus from its normal anatomical position in the pelvic cavity into or beyond the vaginal canal, resulting from weakness or injury to the pelvic floor muscles and supporting ligaments. It is classified by degree based on cervical descent: first degree (within vaginal canal), second degree (to vaginal opening), and third degree/procidentia (beyond vaginal opening). Associated pelvic organ prolapses including cystocele and rectocele are frequently concurrent.

The global prevalence is estimated at 2–20% among women below 45 years of age, with India reporting 15–20% in the same age group. Currently 600,000 Indian women are affected, of whom 200,000 require immediate treatment (WHO/UNFPA). The prevalence rate is documented at 15 per 1000 women per year. In Egypt the prevalence reached 56%; in the USA 11.4%. In Nepal, uterine prolapse affects 9–35% of women — among the highest globally.

Despite its high prevalence, uterine prolapse remains severely underreported in low- and middle-income countries (LMICs) due to the shame, stigma, and sensitive nature of the condition. Many women tolerate symptoms for years before seeking care — the mean duration of mass descending per vagina at the time of admission was 3.5 years in a Puducherry study (Parvathavarthini & Vanusha, 2019).

Uterine prolapse is predominantly a preventable condition. Public health interventions — including structured health education, promoting institutional delivery, discouraging early marriage and childbirth, and teaching pelvic floor exercises — can significantly reduce its incidence. Yet knowledge among the most at-risk populations — rural multiparous women — remains critically inadequate.

This narrative systematic review synthesizes six peer-reviewed studies to characterize the epidemiology, risk factors, knowledge gaps, and effectiveness of educational interventions regarding uterine prolapse.

Uterine Prolapse: Clinical Overview

Anatomy and Pathophysiology

The uterus is supported by four levels of pelvic floor support: uterosacral-cardinal ligament complex, arcus tendineus fascia pelvis, perineal body, and pubocervical fascia. Pelvic organ prolapse (POP) occurs when these structures weaken or fail, allowing pelvic organs to descend. The pelvic floor muscles — particularly the levator ani — play the critical role of load-bearing support.

During vaginal delivery, neuromuscular disruption occurs: damage to the levator muscles and their nerve supply results in impaired function. With advancing age, estrogen loss accelerates connective tissue deterioration, reducing elastin and collagen quality in ligaments. Repeated vaginal deliveries and chronic intra-abdominal pressure (coughing, heavy lifting) compound this weakening over time.

Classification (Degrees)

- 1st Degree: Cervix remains within the vaginal canal
- 2nd Degree: Cervix descends to the vaginal opening
- 3rd Degree (Procidentia): Cervix extends beyond the vaginal opening
- Associated: Cystocele (37%); Cystocele + Rectocele + Enterocoele (60%)

Key Symptoms

- Mass descending per vagina (100% of cases in Pondicherry study)
- Urinary problems: incontinence, frequency (46.2%)
- Vaginal discharge (33.1%), chronic low back ache (20%)
- Heaviness/dullness in pelvic area, dyspareunia
- Defecation problems, social withdrawal, reduced work capacity

PRISMA Flow Summary

PRISMA Stage	Count
Records identified through database search	10
Duplicates removed	2
Records screened (title/abstract)	8
Records excluded (criteria mismatch)	2
Full-text articles assessed for eligibility	6
Studies included in final review	6

PRISMA flow summary of study selection

Total participants across six included studies: N = 1,933.

II. REVIEW METHODOLOGY

This narrative systematic review was conducted using peer-reviewed studies accessed from Afr. J. Biomed. Res., JETIR, IJRCOG, The Therapist, IJMNP, and BIJNR journals.

Search terms: 'uterine prolapse prevalence', 'pelvic organ prolapse India', 'structured teaching programme uterine prolapse', 'knowledge uterine prolapse women', 'risk factors uterine prolapse multiparous', 'uterine prolapse rural urban'.

Inclusion criteria: Peer-reviewed studies 2019–2024; Indian/South Asian or comparable LMI settings; quantitative designs; populations of women (pregnant, multiparous, reproductive-age); outcomes related to UP prevalence, risk factors, knowledge, or educational intervention effectiveness.

Exclusion criteria: Qualitative-only studies; studies without extractable quantitative outcomes; non-uterine prolapse focus; studies outside appropriate demographic scope.

Six studies met inclusion criteria. Total participants: N = 1,933.

Barriers to Healthcare Seeking

- Shame and stigma attached to reproductive organ conditions
- Cultural norms discouraging discussion of genital symptoms
- Rural women: heavy physical labour, limited healthcare access
- Fear of surgery; preference for tolerating symptoms
- Low socioeconomic status limiting treatment access
- Lack of awareness that uterine prolapse is preventable and treatable

Table 1: Summary of Included Studies

Sr.	Author(s) & Year	Design / Setting	Population	Tool / Method	Key Findings & Significance
1	Chavan PP, Srinivasan A (2024)	Cross-sectional retrospective; Karad district; Afr. J. Biomed. Res. 27(4s)	1206 women from hospital records; rural & urban areas; 6-month duration	Hospital records analysis; POP-Q classification; descriptive statistics	Rural prevalence 67.4% (n=813) vs Urban 32.5% (n=393). Rural: 71.2% married <18 yrs, 68.8% first birth <18 yrs, 94% normal vaginal delivery. Peak age 35–44 yrs (69.14%). Higher rural prevalence strongly associated with early marriage, early childbirth, multiparity, home delivery, heavy labour, low healthcare access.

2	Tiwari K, Joseph L, Ekka AA (2021)	Pre-experimental, one-group pre-test post-test; Jamuhar, Rohtas, Bihar; JETIR Vol.8, Issue 9	100 multiparous women; age 25–55 yrs; consecutive sampling; vaginal delivery history	Self-structured knowledge questionnaire; STP via lecture; post-test day 7	Pre-test mean 23.40% (poor); post-test mean 80.16% (excellent). Enhancement 42%. Paired $t=36.5$, $p<0.05$ across all 10 domains. STP highly effective ($p<0.001$). 63% no formal education; 51% heavy workers; majority parity 4–5.
3	Parvathavarthini K, Vanusha A (2019)	Hospital-based descriptive case-control; Pondicherry; IJRCOG 2019;8(1):79-85	260 participants (130 UP cases + 130 controls); 18-month study	Study proforma; SPSS v16; logistic regression; case-control analysis	UP constituted 5.9% of gynaecology admissions. Mean age cases 54.4 yrs. 87.7% third degree, 10% procidentia. Mean parity: cases 4 vs controls 3. Home delivery: 86.1% cases vs 25.6% controls. Parity >4 : 8x risk. Age ($p=0.004$), parity ($p=0.003$) significant.
4	Asma S, Naseer A, Ashraf HS, et al. (2020)	Cross-sectional observational survey; 8 hospitals, Lahore, Pakistan; The Therapist Vol.1, Issue 2	189 pregnant females; age 25–48 yrs; non-probability convenient sampling	Standardized questionnaire; SPSS; frequency analysis	UP moderately present in 5.3%, mildly in 8.5% of pregnant females. UP prevalence in pregnancy: 13.8% (mild+moderate). Age, multiparity, pelvic floor weakness key factors. Post-age-30 delivery: 14% surgery risk. Kegel exercises important preventive intervention.
5	Gomathi K, Mazumder S, Soniya M, Jenifer S (2020)	Descriptive observational (knowledge assessment); Kondenjeri area, Tamil Nadu; IJMNP 2020;3(2)	185 reproductive-age women; simple random sampling; 120 families surveyed	Structured interview schedule; descriptive & inferential statistics; chi-square	53.5% inadequate knowledge, 46.5% adequate. 42.16% married before 19 yrs. 85% heard of UP but 68% couldn't identify any sign/symptom. Age, age at marriage, education, age at first childbirth significant ($p<0.05$). Education is strongest modifiable predictor.
6	Prajapati M (2023)	Quasi-experimental, one-group pre-test post-test; selected hospital, Indore, M.P.; BIJNR Vol.4, Issue 1	120 multiparous women; purposive sampling; postnatal ward	Structured interview schedule; STP based on von Bertalanffy's theory; paired t-test; chi-square	Pre-test mean 13.22 (44.06%); post-test mean 19.82 (66.06%); mean difference 6.62; paired $t=20.405$, $p<0.05$. Significant gain across all domains. Significant association with education, occupation, income; not with age, religion, residence.

summary of the six studies included in this review

III. SYNTHESIS OF KEY FINDINGS

1. Prevalence and Rural-Urban Disparity

The most comprehensive Indian prevalence data came from Chavan & Srinivasan (2024), who analyzed 1206 hospital records in Karad district. Rural women constituted 67.4% ($n=813$) of all cases vs 32.5% ($n=393$) urban — nearly a 2:1 ratio. This disparity is consistent with global LMI data and is strongly linked to reproductive health practices and access disparities rather than inherent biological differences.

The Pondicherry case-control study (Parvathavarthini & Vanusha, 2019) found uterine prolapse constituted 5.9% of all gynaecological admissions in a tertiary hospital — and critically, 87.7% of cases presented at third-degree severity, indicating prolonged neglect before seeking care.

In Lahore pregnant females, the overall UP prevalence (mild+moderate) was 13.8% (Asma et al., 2020), confirming that prolapse is not exclusively a post-reproductive condition — it begins during or following pregnancy.

2. Risk Factors: Consistent Evidence

Age was significantly associated with uterine prolapse ($p=0.004$; Parvathavarthini 2019). Peak incidence was in the 35–55 age group. Patients aged >60 with parity 3 carried a 21.6-fold higher risk — the strongest odds ratio found in this review.

High parity was the most consistent modifiable risk factor across all studies. Multiparity and grand multiparity were disproportionately rural in Karad (50.7% and 41.8% respectively vs 30% and 66.9% urban). In the Pondicherry study, mean deliveries in cases was 4 vs 3 in controls ($p<0.05$). Parity >4 carried 8x higher risk compared to parity 1–2.

Home delivery was a critical factor: 86.1% of UP cases in Pondicherry had home deliveries vs only 25.6% of controls — a statistically highly significant difference (chi-sq=349.9, $p<0.05$). Home delivery implies vaginal delivery without professional management of complications, directly damaging pelvic floor.

Early marriage and early childbirth were dramatically more prevalent in rural areas: 71.2% married before 18 years (vs 41.9% urban) and 68.8% gave first birth before 18 years (vs 20.6% urban). Early childbirth before pelvic structures achieve full maturity is a major preventable risk factor.

3. Knowledge Assessment

The Tamil Nadu study (Gomathi et al., 2020) among 185 reproductive-age women found 53.5% had inadequate knowledge. Most critically, although 85% had heard of uterine prolapse, 68% could not identify a single sign or symptom, and the vast majority practised no preventive measures.

Pre-test knowledge in interventional studies was uniformly poor: 23.40% in the Rohtas STP study (Tiwari et al., 2021) and 44.06% in the Indore STP study (Prajapati, 2023) — both well below adequate thresholds for preventive self-care.

Table 2: Comparison of STP Effectiveness Across Interventional Studies

Study	Pre-test Mean (%)	Post-test Mean (%)	Mean Difference	Paired t-value	p-value	Knowledge Enhancement
Tiwari et al. (2021) — Rohtas	23.40%	80.16%	56.76%	36.5	<0.001*	42% enhancement; 88.3% achieved excellent level
Prajapati (2023) — Indore	44.06% (13.22/30)	66.06% (19.82/30)	22% (6.62 pts)	20.405	<0.05*	Significant gain across all domains

comparison of pre-test and post-test knowledge scores in the two interventional (STP) studies

IV. PREVENTION STRATEGIES & RECOMMENDATIONS

Individual & Community Level

- Delay first pregnancy beyond 18 years — enforce PCMA through community education
- Encourage institutional deliveries with skilled birth attendants for all rural women
- Teach pelvic floor exercises (Kegel exercises) to all reproductive-age women during antenatal care
- Reduce postpartum heavy labour — mandate 3-month postnatal rest in occupational settings
- Promote birth spacing: minimum 2 years between consecutive deliveries
- Manage chronic cough, constipation, and obesity as modifiable risk reduction strategies

Healthcare System Level

- Structured Teaching Programmes for rural multiparous women — demonstrated 42–56% knowledge improvement
- ASHA and ANM training on UP symptoms, prevention counseling, and referral pathways
- Mandatory pelvic floor screening at postnatal checkups (6 weeks and 3 months)
- Pessary fitting services at primary health centres for mild-moderate cases
- Community health camps targeting early marriage and childbirth awareness

Policy Level

- Strengthen Child Marriage Restraint Act enforcement in rural areas — 71.2% rural women marry before 18 years
- MGNREGS provisions for postnatal rest — prevent heavy labour during recovery from childbirth
- National Programme for Uterine Prolapse (NPUP) — upgrade to time-bound elimination target
- Integrate UP prevention into Janani Suraksha Yojana incentives for institutional delivery
- UP screening in all gynecological OPD interactions; POP-Q documentation standard

V. DISCUSSION

This systematic review confirms that uterine prolapse in India and comparable LMI settings is a product of intersecting social, obstetric, and systemic factors — not an inevitable consequence of ageing. The rural-urban disparity (67% vs 33%) documented by Chavan & Srinivasan (2024) mirrors global LMI evidence, and is primarily driven by preventable practices: early marriage, home delivery without skilled care, and heavy postpartum labour.

The clinical epidemiology data from Pondicherry (Parvathavarthini & Vanusha, 2019) is particularly alarming: 87.7% of cases presented at third-degree severity, with procidentia in 10%. This means women tolerate severe, life-limiting prolapse for years — a mean of 3.5 years after symptom onset — before seeking treatment. This delay is a direct consequence of shame, lack of awareness, and systemic barriers to care.

The knowledge studies (Gomathi et al., 2020) reveal a paradox: 85% of women had heard of uterine prolapse, yet 68% could not identify any signs or symptoms, and the vast majority practised no preventive measures. This disconnect between nominal awareness and functional health literacy is the critical gap that educational interventions must address.

Both interventional studies provide strong evidence that this gap can be bridged. Tiwari et al. (2021) achieved a 42% enhancement in knowledge (23.40% to 80.16%) with a paired $t=36.5$; Prajapati (2023) achieved a 50% improvement in mean score (13.22 to 19.82) with a paired $t=20.405$. Both were significant at $p<0.05$ across all knowledge domains including causes, signs, preventive measures, and management. These results are robust and replicable.

The consistent finding that educational level — not age, residence, or family type — is the primary modifiable predictor of knowledge adequacy (Gomathi 2020, Prajapati 2023) reinforces the argument for structured education as the primary prevention tool, independent of other sociodemographic factors.

VI. LIMITATIONS OF THIS REVIEW

This review carries several limitations. Five of six studies were from Indian settings (Maharashtra, Bihar, Tamil Nadu, Madhya Pradesh) with one from Pakistan — limiting broader South Asian generalizability. The two interventional studies (Tiwari 2021, Prajapati 2023) used pre-experimental designs without control groups, limiting causal inference. Sample sizes in knowledge studies were relatively small (100–185). The cross-sectional studies relied on self-reported data or hospital records, introducing potential selection bias — hospital-based studies likely capture more severe cases. No prospective cohort data on long-term intervention outcomes were available. A formal meta-analysis was not feasible due to heterogeneity in outcome measures.

VII. CONCLUSIONS

This PRISMA-based narrative systematic review of six studies (N=1,933) confirms the following key conclusions:

- Uterine prolapse prevalence is substantially higher in rural women (67.4%) than urban women (32.5%) in Indian settings, primarily driven by preventable obstetric and social risk factors
- Early marriage (71.2% rural before age 18), early childbirth (68.8% rural before age 18), high parity (mean 4 deliveries), and home delivery (86.1% of cases) are the strongest preventable risk factors consistently identified across studies
- Most cases present at advanced severity (87.7% third degree, 10% procidentia) due to delayed health-seeking — a direct consequence of stigma, poor knowledge, and limited access
- Women's knowledge about uterine prolapse is critically inadequate: 53.5% inadequate knowledge in knowledge studies; pre-test scores of 23–44% in interventional studies
- Structured Teaching Programmes (STP) are highly effective educational interventions: producing 42–56% knowledge gain ($t=20.4$ to 36.5 , $p<0.05$) across all knowledge domains
- Education level is the primary modifiable demographic predictor of knowledge adequacy — independent of age, residence, family type, religion, or delivery history
- Age and parity are the strongest clinical risk factors: patients >60 years with parity 3 have 21.6x higher risk; parity >4 carries 8x risk compared to parity 1–2
- Home delivery remains a critical risk factor: 86.1% of UP cases had home deliveries vs 25.6% of controls — promotion of institutional delivery is a key prevention strategy
- Physiotherapy-based pelvic floor rehabilitation (Kegel exercises) is an evidence-based conservative treatment for mild prolapse and a primary prevention strategy
- Urgent policy action needed: PCMA enforcement, postnatal rest provisions, NPUP strengthening, and mandatory UP screening in gynecological OPD

VIII. DISCLOSURES

The authors declare no financial conflicts of interest. No funding was received for this review. All six included studies were open-access peer-reviewed publications. This review was conducted to synthesize scientific evidence on uterine prolapse epidemiology and educational interventions to inform public health practice and nursing education.

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