

Prevalence of Pelvic Floor Dysfunction among Married Women of Udupi Taluk, Karnataka, India

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Abstract

Background: Pelvic floor dysfunction predominantly affects women of all the ages with an increasing prevalence with advancing age. Very few studies on prevalence of urinary incontinence have been conducted in India and none in Udupi taluk.

Aim: The aim of this cross-sectional study is to estimate the prevalence of Pelvic Floor Dysfunction among married women of Udupi taluk, Karnataka, India and to evaluate the impact of age, educational qualification, occupation, parity and mode of delivery on pelvic floor dysfunction.

Materials and Methods: A cross-sectional study was conducted on 1256 married women using a structured questionnaire. Women were interviewed at their residence using the questionnaire. Institutional ethical committee approval and written informed consent was obtained before the interview.

Result: Prevalence of pelvic floor dysfunction was reported to be 21% with 19.02% of the women experiencing urinary incontinence and 1.99% experiencing pelvic organ prolapse. The mean age of the women participated in this study was 45.4 ± 11.8 (ranging between 18-70 years). Eighty seven percent of the women were housewives and 69% of the women had only primary education. Statistically significant association was found between age ($p \leq 0.001$), occupation of the women ($p \leq 0.001$), presence of urinary incontinence during pregnancy which disappeared after delivery ($p=0.009$) and occurrence of at least one type of pelvic floor dysfunction. Age, occupation and presence of symptom of urinary incontinence during pregnancy which disappeared after the delivery were reported as the independent predictor of symptoms of pelvic floor dysfunction when analyzed with multivariate logistic regression model.

Conclusion: Prevalence of pelvic floor dysfunction among women of Udupi Taluk, Karnataka, India was found to be 21% with age, occupation and presence of symptom of urinary incontinence during pregnancy which disappeared after the delivery as the independent predictor of symptoms of pelvic floor dysfunction.

Keywords: Urinary incontinence; Prevalence; Pelvic floor dysfunction; Indian women; Pelvic organ prolapse; Occupation

Introduction

Globally, Pelvic Floor Dysfunction (PFD) is one of the largest unaddressed issues in women's health care today [1]. It is common and undermines the quality of life (QOL) of at least one-third of adult women of all ages [2]. Patients with pelvic floor dysfunction usually present with symptoms of incontinence which can be either urinary or anal, pelvic organ prolapse or dysfunctional bowel. The development of PFD is multifaceted and can be influenced by multiple factors like neurological, emotional, behavioral and/or environmental.

Pelvic Floor Dysfunction is rarely life threatening, but the symptoms can be embarrassing and, if left untreated, it can lead to social isolation, sexual inhibition, restricted employment and leisure opportunities and potential loss of independence.

In spite of changing attitudes, many women across various ethnic groups throughout the world endure and are reluctant to report symptoms either because of fear or embarrassment while some believe it to be untreatable and are unaware of the available options. Similar attitudes are seen among Indian women. The women are accustomed to endure pain and discomfort, particularly when it is associated with their reproductive functions. The women consider PFD as a normal part of the aging process and not as a disease/disorder and this is one of the reasons for not seeking medical treatment. The other reasons for non-consultation are fear of hospital visits, investigations and surgeries, lack of money/time, shyness to report issues related to reproductive system, lack of female doctors in the rural setup and dependency on their husband for treatment in terms of permission, escort and finance

[3]. The cultural background of the women, kind of dress worn by the Indian ladies (Sarees, lehenga) may also be the reason for neglecting this problem.

Low consultation rates and lack of awareness of the available treatment options has lead to scarcity of available data on PFD. This motivated us to conduct the current study on prevalence of PFD. Thus, the present study aims to estimate the prevalence of Pelvic Floor Dysfunction among married women of Udupi taluk, Karnataka, India and to evaluate the impact of age, educational qualification, occupation, parity and mode of delivery on pelvic floor dysfunction.

Materials and Methods

This cross-sectional study was conducted in 6 Rural Maternity and Child Welfare (RMCW) centers which are under the direct administration of Department of Community Medicine located at a distance of 5-25 Kms from Manipal University. A total of 1256 married women were interviewed with a structured questionnaire by

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trained personnel. Married women aged 18 years to 70 years including pregnant and postnatal women were included in this study. Women with acute illness, recent abdominal surgery, musculoskeletal issues which impedes day-to-day activities, spinal cord injury resulting in quadriplegia or paraplegia, cerebral palsy, inability to answer the question and cognitive impairment were excluded from the study.

Stratified random sampling with each RMCW being a stratum was used to select women from all the six RMCW centers. Subjects were selected from each stratum proportionately as the ratio in the population. Ethical clearance was obtained from then Institutional ethical committee. Oral informed consent was obtained before the interview. Privacy and confidentiality was ensured during the entire study.

House to house survey was conducted to interview the women at their residence. For ease of access to women, each center was divided into many localities. Lottery method was used to select women to be interviewed from a particular locality. Age stratification was done so that women of all the age group were represented in the study.

Questionnaire was transliterated to local language, Kannada. Pretesting and validation of the questionnaire was done via a pilot study. The questionnaire consisted of socio-demographic details, obstetric history and screening questions related to different types of urinary incontinence and anal incontinence and pelvic organ prolapse. Obstetric history included number of children, type of delivery and any symptom of urinary incontinence during pregnancy which disappeared after delivery. Educational qualification in women was classified as those who had no schooling, those who had primary schooling (Class 1-10), and those with secondary schooling (Class 11 and 12), undergraduates and postgraduates. Occupation was classified as housewives, professional job (Postgraduate lecturer, Lawyer, engineer), white collar jobs (Nurse, LIC agent, Lab technician, School teacher, Clerical job, office accountant), skilled worker (Tailor, Beautician), semiskilled worker (Beedi rolling) and unskilled worker (Fish seller, coolie, attender, agricultural laborer).

Data analysis was done using SPSS (version 15). Prevalence was reported with 95% confidence interval. Chi-square test was done to determine the association between the demographic factors, obstetric factors and pelvic floor dysfunction. These factors were then analyzed using Multivariate logistic regression model to determine the contribution of these factors in the development of PFD.

Result

Age of the women participated in this study ranged between 18-70 years and the mean age of the participated women was 45.4 ± 11.8 . Eighty seven percent of the women were housewives and 69% of the women had only primary education. One hundred and eleven (9%) women were nulliparous, 943 (75%) had children ranging from one to three and 186 (14%) had children more than 3.

Overall, 264 (21.01%) women reported having symptoms of at least 1 type of pelvic floor dysfunction being urinary incontinence and pelvic organ prolapse. Nineteen percent of the women experienced urinary incontinence and 2% experienced pelvic organ prolapse. Women with types of PFD are described in the table below (Table 1).

The demographic characteristics of women with and without PFD are described in Table 2 and Figures 1-3. There was steady increase in the number of women having symptoms of at least one or more type of PFD with increasing age. Higher prevalence of PFD was found in women having 2 or 3 children and in those who delivered vaginally. Statistically significant association was found between age, occupation

of the women and occurrence of at least one type of pelvic floor dysfunction.

Multivariate logistic regression analysis reported that age, occupation and presence of symptom of urinary incontinence during pregnancy which disappeared after the delivery is the independent predictor of symptoms of PFD (Table 3). Further adjustment was

Types of PFD	n (%)
Urinary Incontinence	239 (19.02%)
Pelvic organ prolapse	25 (1.99%)

Table 1: The distribution of women with different types of pelvic floor dysfunction.

Characteristics	Symptomatic (n=264)	Asymptomatic (n=992)	P value
Age in years			
18-27 yrs	12	111	<0.001
28-37 yrs	62	310	
38-47 yrs	78	246	
48 yrs and above	112	325	
Educational qualification			
No schooling	28	135	0.21
Class 1-10	188	681	
Class 11-12	35	100	
Undergraduation	12	69	
Postgraduation	1	7	
Occupation			
Housewife	228	862	<0.001
White collar job	9	10	
Skilled worker	5	5	
Semi-skilled worker	6	65	
Unskilled worker	16	50	
Number of children			
Nulliparous	27	100	0.69
One child	51	226	
2-3 children	142	524	
≥4 children	44	142	
Type of delivery			
Vaginal delivery	192	680	0.20
Caesarean section	27	162	
Forceps delivery	18	48	
Symptom of urinary incontinence during which disappeared after delivery	14	22	0.009

Table 2: The demographic characteristics of women with and without PFD.

Risk factors	Odds ratio	95% CI
Age in years		
18-27 yrs	2.2	1.1-4.5
28-37 yrs	3.5	1.6-7.3
38-47 yrs	4.1	2-8.7
48 yrs and above		
Occupation		
Housewife	0.9	0.5-1.6
White collar job	2.8	0.9-8.4
Skilled worker	3.3	0.8-13.6
Semi-skilled worker	0.2	0.1-0.7
Unskilled worker		
Symptom of urinary incontinence during which disappeared after delivery	2.6	1.2-5.4

Table 3: The odds ratio with 95% CI for PFD done using multivariate logistic regression model.

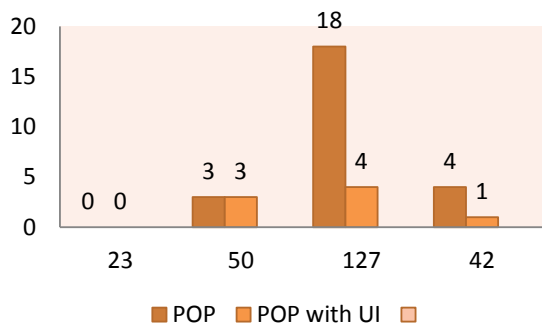


Figure 1: Prevalence of urinary incontinence, prolapse and prolapse with urinary incontinence by age.

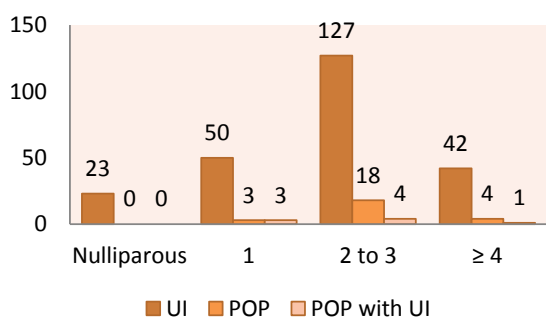


Figure 2: Prevalence of urinary incontinence, prolapse and prolapse with urinary incontinence by parity.

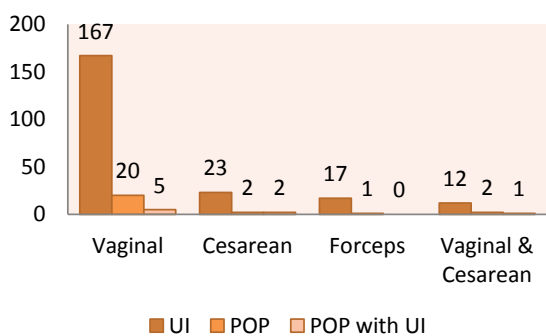


Figure 3: Prevalence of urinary incontinence, prolapse and prolapse with urinary incontinence by mode of delivery.

done with the variables, type of delivery and number of children and no difference in the result was seen in spite of the adjustments. As the age advanced the likelihood of developing PFD also increased as shown by the steady increase in the odds ratios. Housewives (OR-0.9) and semiskilled workers (OR-0.3) were less likely to develop symptoms of PFD as compared to the women with other types of occupation. Skilled workers were two times (OR-2.08) more likely to develop PFD and semiskilled workers were three times (OR-3.3) more likely to develop PFD than the housewives. Women with urinary incontinence during pregnancy which disappeared soon after delivery were two times more likely to develop PFD than the women without these symptoms.

Discussion

Previous epidemiological studies have shown that pelvic floor dysfunction predominantly affects women and there exists a great deal of variation among the prevalence rates and risk factors for pelvic floor dysfunction quoted in the previous literatures. In a cross-sectional study by Kepenekci et al. the prevalence of pelvic floor dysfunction of at least one major type was 67.7% [4]. In this current study, the prevalence of pelvic floor dysfunction was reported to be 21% with 19% of the women experiencing urinary incontinence and prolapse having the least prevalence rate of 2%. Similar results were found in a National Health and Nutrition Examination Survey (NHNES) of United States for the year 2005-2006 and 2005-2010 conducted by Nygaard et al. who reported the prevalence of at least one pelvic floor dysfunction in women to be 23.7% with 15.7% of the women experiencing urinary incontinence, 9% having fecal incontinence and 2.9% of the women having pelvic organ prolapse [5].

Prevalence studies in India have been conducted in the context of either incontinence (urinary or anal) or prolapse alone. None of the studies conducted in India in regard to prevalence has studied Pelvic Floor Dysfunction as a whole. Hence, this study is the first of its kind in India. The reported prevalence of the urinary incontinence across India ranges between 10-67.9% [6-13]. The prevalence of self-reported uterine prolapse is 7.6% [7] and anal incontinence is 1.3% [10].

The prevalence of anal incontinences is reported to be ranging between 2-24% and the prevalence of fecal incontinence is reported to be ranging between 0.4-18%. In this study, no women reported with a complaint of fecal incontinence. Embarrassment, shyness and considering these issues as a part of aging process might be the reasons for not talking about it. In contrary, a study conducted by Chitra et al. reported the prevalence of anal incontinence in India to be 1.3% [11].

The relationship between age, parity, mode of delivery, occupation, education, presence of symptom of urinary incontinence during pregnancy which disappeared after the delivery and pelvic floor dysfunction has been studied extensively and gives us a varied result. In this study, analysis of these factors has demonstrated that advancing age, occupation and presence of symptom of urinary incontinence during pregnancy which disappeared after the delivery is a major factor in developing pelvic floor dysfunction as stated by the previous studies. As the age advances, the prevalence of pelvic floor dysfunction also increased which has been reported in national [11,12] as well as international studies [14]. Occupation was also found to be associated with pelvic floor dysfunction in this study. Since the study sample mainly consisted of the rural population, the type of activities performed [repeated bending and lifting weights, activities in squatting position (washing clothes, vessels, cleaning the house)] by these women could be attributed as a factor for the development of pelvic floor dysfunction. Woodman et al. reported that women who worked as laborers or factory workers had significantly elevated rates of severe POP compared with women with more sedentary jobs [15]. Presence of urinary incontinence during pregnancy was noticed towards the 3rd trimester of pregnancy.

In this study, parity and mode of delivery did not have an association with pelvic floor dysfunction which differs from the common perception that these factors are correlation with pelvic floor dysfunction which has been established in numerous studies.

Advancing age is a non-modifiable factor whereas occupation and presence of symptom of urinary incontinence during pregnancy which disappeared after the delivery can be classified as modifiable factors.

Certain modification like sitting on a stool instead of using squatting position, using of appropriate ergonomics while lifting heavy weights in the workplace may be helpful in preventing the development of PFD. Practicing and adherence of pelvic floor muscle exercise in the antenatal period and continuation of these exercise in postnatal period should be emphasized.

Although this is a large cross-sectional study with a sample size over 1000, there are few limitations to this study. The data obtained in this study is solely via the verbal response or the patient subjective recording using the questionnaire as a guide to determine the subject's symptoms. Use of a clinical examination or laboratory investigation would have strengthened this study. Lack of resources, time constraint and manpower was the reason for not conducting a clinical examination and investigations. Defining the association between the obstetric factors and development of pelvic floor dysfunction with a cross-sectional study design limits the strength of the study. In future case-control, longitudinal studies can be conducted to study this relationship thoroughly.

Conclusion

This study shows a relatively high prevalence of pelvic floor dysfunction in married women of Udupi Taluk. Very few women seek treatment for PFD for the reason being that they assume it to be a natural part of the aging process. These findings will help us in designing an educational program which can be directed more towards creating awareness on PFD and preventive strategies rather than the curative aspect.

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