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Original Research Article

## Pelvic inflammatory disease and the risk factors

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### ABSTRACT

**Background:** Pelvic inflammatory disease is one of the most common gynecological disorders of women. It is a clinical condition where in the endometrial, fallopian tubes and the adjacent pelvic structures are infected due to the ascending infection from the lower genital tract such as vagina and cervix through the uterine cavity leading to severe morbidity.

**Methods:** 150 non-pregnant women who came in with clinical symptoms suggestive of Pelvic inflammatory disease and diagnosed as acute pelvic infection or PID were included in the study. Demographic details such as age, weight, height, parity, socio-economic status, education levels etc were noted.

**Results:** 54% of them belonged to 26-30 years age group, followed by 19.3% of women between 20-25 years. 35.3% of the patients were illiterate followed by primary school education in 29.3%. 74% of the patients belonged to the lower class while 24.7% were from the middle class. Condoms were the most common contraceptive method used in 32% of the cases, while 27.3% of the patients used intrauterine devices.

**Conclusions:** Proper education must be given regarding the hazards of early marriages lack of hygiene, and to abstain from multiple partners, to the women especially those from the lower socioeconomic strata.

**Keywords:** Pelvic inflammatory disease, Risk factors, Socioeconomic status

### INTRODUCTION

Pelvic inflammatory disease is one of the most common gynecological disorders of women all over the world. It is a clinical condition where in the endometrial, fallopian tubes and the adjacent pelvic structures are infected due to the ascending infection from the lower genital tract such as vagina and cervix through the uterine cavity.<sup>1,2</sup> This leads to severe morbidity and complication such as infertility, ectopic pregnancy or chronic pelvic pain.<sup>3-5</sup>

It is said to occur in 1% of the 15-25-year age group of young adults around the world, 24-32% of women in India and around 8% in Pakistan are estimated to be

affected.<sup>6-8</sup> In developed countries, the annual incidence is estimated to be 10-13 per 1000 women, with 20 per 1000 women being in the age group of 20-24 years. However, there are not many studies which would give an insight to the magnitude and determinants of this disease.<sup>9</sup>

Number of risk factors has been associated with this disease, such as age, previous sexually transmitted infection, previous PID, multiple sexual partners, or an intrauterine contraceptive device.<sup>10-13</sup> Several microbial infections such as that with *Chlamydia trachomatis* and *Neisseria gonorrhoeae* have also been associated with this condition.<sup>13</sup> Diagnosis of PID is often difficult. The best

method today is by laparoscopic appearance of the inflammation of the fallopian tubes.<sup>14</sup> However, this is not always easy to perform based on suspicion alone. Several clinical symptoms like lower abdominal pain, cervical motion tenderness and bilateral adnaxal tenderness are considered to be the minimal criteria for PID.<sup>15</sup>

However, there are many women who are asymptomatic. This makes it further difficult. In such conditions, a knowledge of the risk factors which may contribute in the diagnosis of PID will be helpful.<sup>1,16</sup> Hence this study was performed to identify the risk factors of Pelvic Inflammatory disease among women.

**METHODS**

This prospective study was conducted by the department of Gynecology at Dr VRK Women’s Medical College from March 2016 to June 2017, on 150 non-pregnant women who came in with clinical symptoms suggestive of Pelvic inflammatory disease and diagnosed as acute pelvic infection or PID were included in the study. All pregnant women and women with other gynecological problems not related to PID were excluded from the study.

Demographic details such as age, weight, height, parity, socio-economic status, education levels etc were noted. They were all subjected to complete physical and clinical examination.

Investigations such as hemoglobin levels, complete blood picture, erythrocyte sedimentation rate, Random blood sugar, serum bilirubin levels, SGPT, SGOT, urea, creatinine were performed. Tests for VDRL, routine urine examination, gram’s stain, PAP smear, etc were also done. All the patients were also subjected to pelvic ultrasound.

**RESULTS**

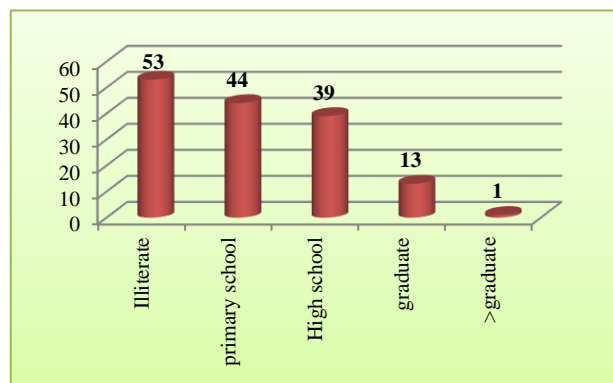
Out of 150 patients, most of them belonged to 26-30 years age group (54%). This was followed by women between 20-5 years (19.3%) and 31-35 years (15.3%). Very few patients (4%) were above the age of 40 years (Table 1).

**Table 1: Age wise distribution of patients.**

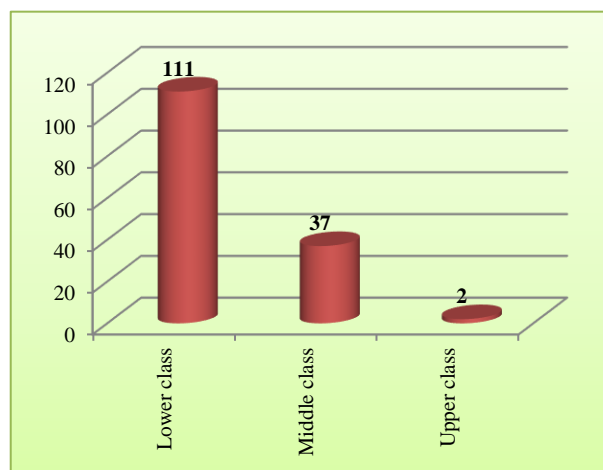
Age	Number (%)
20-25	29 (19.3%)
26-30	81 (54%)
31-35	23 (15.3%)
36-40	12 (8%)
>40	5 (3.3%)

Most of the patients were illiterate which accounted for 53(35.3%) patients, followed by primary school

education in 44(29.3%). Only 1 patient was a post-graduate, a school teacher (Figure1).



111 (74%) of the patients belonged to the lower class while 37 (24.7%) were from the middle class (Figure 2). Use of condoms was the most common contraceptive method used among the patients with 48(32%) users, while 41 (27.3%) of the patients used intrauterine devices.



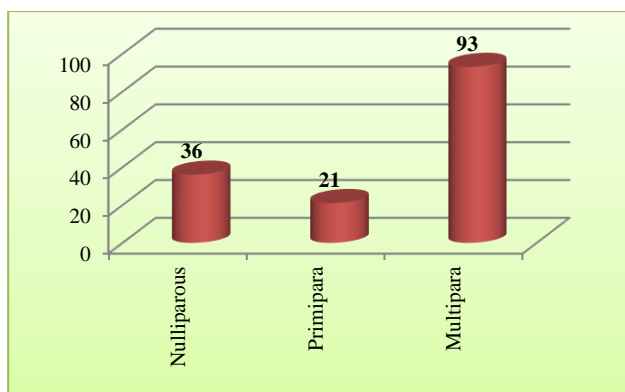
**Figure 2: Distribution based on socio-economic levels.**

28 (18.6%) of the patients did not use any specific method and depended on early withdrawal for contraception. Oral pills were used only by 14% (21) patients (Table 2).

**Table 2: Contraceptive use among patients.**

Contraceptives	Number (%)
Oral pill	21 (14%)
Barrier method	48 (32%)
IUD	41 (27.3%)
Tubal Ligation	12 (8%)
None	28 (18.7%)

Most of the patients had more than one child i.e. 93 (62%) patients, while 36 (24%) were nulliparous. 21 (14%) were primipara (Fig: 3).



**Figure 3: Distribution based on parity**

## DISCUSSION

Pelvic inflammatory disease is a clinical disease of the female genital tract which involves the inflammation of the endometrium, fallopian tubes ovaries or the peritoneum. It can occur due to several reasons including untreated bacterial infections. As there is no specific diagnostic test for PID, clinicians normally sort to the diagnosis based on the signs and symptoms of PID. It is most often seen in young adults of reproductive age and among people with multiple children. However, the true identification of the disease is always not possible as most of the sub clinical ones go undetected.

PID is among one of the most common diseases among the married women in India. In the present study, it was observed in more prominence among the married women between the ages 20-30 years. Similar cases were observed in another study by Westrom et al.<sup>2</sup> Early marriages and early age of sexual activity were considered to be risk factors for PID.<sup>17-19</sup> In a study by Suss et al., it was observed that younger girls, with older sexual partners were more likely to get PID than others. This could be due to the fact the older males are more sexually experienced and can pass on sexually transmitted diseases to their young partners. People with sexual abuse, rape and trauma are more likely to be at a higher risk for PID than others.<sup>13</sup> Sex workers are other category of women who are at high risk for PID especially since they are more prone to Sexually transmitted diseases.<sup>20-22</sup>

Another reason for this disease to go undetected is due to the reluctance of the women to admit the disease as well as the social stigma associated with it. So most of the time, it is detected only when there is an acute presentation with hospitalization.

In the present study, most of the women who had PID were illiterate, followed by those who underwent only primary education. Very few women with PID were educated above high school level. Naaz et al also found similar results in their study wherein 30% of the women with PID were illiterate, with only 10% having graduate

level of literacy status.<sup>23</sup> It was therefore suggested that educated women were better prepared to deal with the disease compared to others.<sup>24,25</sup>

The women who had PID predominantly belonged to the lower socioeconomic strata. Very few of them were from middle class and only 1.3% belonged to the upper class. However, in a study by Naaz et al., it was observed that women in middle class were more prone to PID rather than upper or lower.<sup>23</sup> This association of socioeconomic strata with the incidence of PID was also established by WHO.<sup>24</sup> The possibility of accessibility to better hygiene in the higher socioeconomic groups was probably the reason of lesser incidence of PID as compared to the lower categories.

Barrier method was the most common method of contraception used by most of the couples in present study. This was followed by IUCD users. Association of IUCD to PID was also found by other authors.<sup>26</sup> It has been suggested that infections, spread due to the use of contraceptive devices are also one of the causes for PID.<sup>27</sup> Female sterilization, contamination and unhygienic practices of tubal ligations especially in the rural areas have also been identified as the cause, although in the present study we could not find any such association.<sup>6</sup>

## CONCLUSION

Young age of first coitus, multiple sexual partners, lower socioeconomic status, lesser education levels and use of contraceptives play a major role in the prevalence of Pelvic inflammatory diseases among women. Therefore, proper education must be given regarding the hazards of early marriages and lack of hygiene among these people. Also, the importance of abstaining from having several sexual partners, either by the woman or the spouse must be properly reiterated.

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