

# Risk Factors of Pelvic Inflammatory Disease in Rural Population of Haryana

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## ABSTRACT

**Introduction:** Pelvic inflammatory disease is an infection of female upper genital tract including the uterus, fallopian tubes, ovaries, and cervix. The disease is caused by bacteria that spread from the vagina and cervix. Infections by *Neisseria gonorrhoeae* or *Chlamydia trachomatis* are present in 75 to 90 percent of cases. Even when the PID infection is cured, effects of the infection may be permanent because of the confounding risk factors. This makes early identification of risk factors essential. Treatment resulting in cure is very important in the prevention of damage to the reproductive system.

**Material And Methods:** This study was conducted by the department of Obstetrics and Gynecology at AMCH, Mohri. Total of 200 non-pregnant women suggestive of PID were included in the study. After complete history, examination and investigations, risk factors causing PID were assessed.

**Results:** In the present study most of the patients belonged to 26-30 years age group (36%). Maximum number of females had marriage before age of 20 years. Most of the females were illiterate and belonged to middle class. In the present study, 75% females were multipara and were not using any method of contraception.

**Conclusion:** Early marriage, illiteracy, lack of any contraceptive method usage, multiparity were the main risk factors associated with PID. This study thus identified sexual, social, and demographic risk factors for the acquisition of PID. This can help to formulate local health promotion measures and to reduce the incidence and consequences of PID.

**Keywords-** PID, risk factors, contraception

## INTRODUCTION

Pelvic inflammatory disease (PID) is a broad term used for upper female genital tract infection i.e. endometritis, salpingitis and oophoritis which spread from the vagina or cervix through the uterine cavity. [1] The clinical spectrum of PID can range from subclinical endometritis to frank salpingitis, tubo-ovarian abscess, pelvic peritonitis, periappendicitis and perihepatitis. [2] It can be associated with long term morbidity and complications such as infertility, ectopic pregnancy or chronic pelvic pain. [3-5] It is considered to be the major source of

gynaecological morbidity throughout the world. [6]

The organisms most commonly isolated in cases of acute PID are *Neisseria* and *Chlamydia trachomatis*. [7] Other organisms implicated in the pathogenesis of PID include *Gardnerella vaginalis*, *Mycoplasma genitalium*, *Ureaplasma urealyticum*, Herpes simplex virus 2, *Trichomonas vaginalis*, *Escherichia coli*, Enterococcus, Peptococcus species, anaerobes etc. Laparoscopic studies have shown that in 30-40% of cases PID is polymicrobial.

Many patients exhibit few or no symptoms, whereas others have acute, serious illness. The most common presenting complaint is lower abdomen pain and abnormal vaginal discharge. The CDC recommends instituting empiric treatment of PID when a sexually active young woman who is at risk for STI has pelvic or lower abdominal pain (no identifiable cause for her illness) and, on pelvic examination, 1 or more of the minimal criteria of cervical motion tenderness, uterine tenderness, adnexal tenderness. [8]

Risk factors for PID include younger age, multiple sexual partners, failure to use contraception, history of prior STIs or PID, history of sexual abuse [9] or an intrauterine contraceptive device. Gynecologic surgical procedures which affect the cervix such as endometrial biopsy, curettage (after termination of pregnancy), and hysteroscopy break the cervical barrier, predisposing women to ascending infections. [10,11]

It is believed that the presentation of PID is evolving, trending towards less severe clinical presentations. As many women are asymptomatic so, knowledge of the risk factors may contribute in the diagnosis of PID [12] and can be managed accordingly. Hence, this study was performed to identify the risk factors of Pelvic Inflammatory Disease among women in rural area of Haryana.

## METHODS

This study was conducted by the department of Obstetrics and Gynecology at AMCH, Mohri. Total of 200 non-pregnant women who came to OPD with clinical symptoms suggestive of PID and already diagnosed as acute pelvic infection or PID were included in the study. Complete history including demographic details such as age, marital status, parity, use of contraception, socio-economic status, education levels etc were noted. Clinical examination was done after taking history. Investigations such as complete blood picture including erythrocyte sedimentation

rate, random blood sugar, VDRL, routine urine examination, PAP smear, etc were also done. All the patients were also subjected to pelvic ultrasound. Informed written consent was taken. The study was approved by ethics committee of the institute.

## RESULTS

Many cases of PID are asymptomatic or present with minimal or atypical symptoms. [13] This means that diagnosing PID on purely clinical grounds is often difficult and the margin for error is wide. [12] In this context, knowledge of risk factors and markers for PID could substantially aid diagnosis.

Although there are no definitive risk factors for PID, there are several likely contributors. Younger age confers 10 times the risk for the development of PID for several reasons. Younger females have a cervical barrier more easily breached by pathogens, often have less frequent use of barrier contraceptives, and tend to seek health care later. Other risk factors include earlier age at first intercourse, instrumentation including induced abortion and intrauterine device insertion (not the IUD itself), and the period immediately following menses.

In the present study, out of 200 patients, most of them belonged to 26-30 years age group (36%). Very few patients (9%) were above the age of 40 years (Table 1). Maximum number of females had marriage before age of 20 years (Table 4). Most of the females were illiterate and belonged to middle class (Table 2& 3). In the present study most of the women were multipara and were not using any method of contraception (Table 5 & 6).

Table 1. Age distribution of patients

Age(Years)	Number of patients (%)
20-25	31(15.5%)
26-30	72(36%)
31-35	49(24.5%)
36-40	30(15%)
>40	18(9%)

**Table 2. Educational status**

Educational status	Number of patients(%)
Literate	80 (40%)
Illiterate	120(60%)

**Table 3. Socioeconomic status**

Socioeconomic status	Number of patients(%)
Upper	45( 22.5%)
Middle	90 (45%)
Lower	65 (32.5%)

**Table 4. Age at marriage**

Age at marriage	Number of patients(%)
<20	88 (44%)
20-30	79 (39.5%)
>30	33 (16.5%)

**Table 5. Use of Contraception**

Contraceptive	Number of patients(%)
Barrier	47(23.5%)
IUD	41(20.5%)
OCP	22(11%)
Tubal Ligation	32(16%)
None	58(29%)

**Table 6. Parity**

Parity	Number of patients(%)
Nullipara	18 (9%)
Primipara	32 (16%)
Multipara	150 (75%)

## DISCUSSION

PID is a common infection in reproductive age women that presents an enormous public health and economic burden. As there is no specific diagnostic test for PID, clinicians normally sort to the diagnosis based on the signs and symptoms. PID is a key issue towards women's reproductive health. Effective prevention and control rest on improved knowledge of the epidemiology of the aetiological agents that cause this clinical syndrome, as well as detection and management of risk factors. Behavioural modification will be an important component of such future intervention strategies. [14]

In present study maximum numbers of patients (36%) were observed in age group of 26-30 years. These findings are similar with study by L Westrom [13] suggesting that PID is one of the most common diseases among the married women in India. Early marriages and early age of sexual activity are possible risk factors for PID. [15] But in our study, only small percentages of females (15.5%) were in age group of 20-25 years as compared to

Westrom study. This can be due to the reason that in our study population, being from rural area young girls might be reluctant to come to hospital for lower pelvic infection and associated social stigma.

Our study showed the incidence of PID of 60% in illiterate females. Naaz et al also found similar results in their study where in most of the women with PID were illiterate. [16] This implies the finding that with education, people are better prepared to prevent disease and to use health services effectively. [17,18] Moreover, educated people are, more aware of contraception, personal hygiene and consequences of early marriage.

The highest incidence of PID was observed in middle class (45%), followed by patients in lower class (32.5%) as compared to only 22.5% in upper class, again implementing the fact that better socioeconomic is associated with overall better hygiene resulting in lower susceptibility to PID . It was interesting to see that more females from middle class reported with PID as compared to lower class, probable reason could be that lower class females are less concerned and have poor access to health.

The present study shows that about 44% of subjects were married before 20 years of age, followed by 39.5% between 20-30 years. Lower age incurs an increased risk of PID because of biologic and behavioral risk factors. Cervical mucus in younger women may be estrogen dominated, creating an environment more accessible to pathogens. Moreover, adolescents tend to have cervical ectopy, which provides large zones of columnar epithelium for the targeted attachment of Chlamydia trachomatis and Neisseria gonorrhoeae. [13]

Most common method of contraception was barrier method in present study (23.5%), followed by and IUCD (20%) users. Majority of the females (29%) were not using any method of contraception. Contraceptives play an important role in

predisposing women to acquisition of PID. Non-use of contraception is a risk factor for PID, whereas barrier methods can decrease the risk of STD acquisition and subsequent development of PID. [13] Association of IUCD to PID was also found by other authors. [19]

In our study higher incidence of PID was found in multipara as compared to nullipara. Delivery by untrained person can be a risk factor for PID.

Although, PID is not associated with high mortality, it is associated with high morbidity. So, risk factors need to be identified.

## CONCLUSION

This study aimed to identify sexual, social, and demographic risk factors for the acquisition of PID and on the basis of these findings to formulate health promotion recommendations to reduce the incidence and consequences of PID. On the basis of identification of risk factors, it can be concluded that women should be encouraged to reduce the number of sexual partners, to avoid unsafe sexual practices, and routine use of appropriate barrier protection. Adolescents can be advised to delay the onset of sexual activity until age 16 years or older. Last but not the least, education standards need to be improved to maintain the health standards.

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