

# Sexual behavior and contraceptive practices: Study among married heterosexual HIV serodiscordant couples of reproductive age group attending anti-retroviral therapy centre at a Tertiary care hospital in Mumbai, India

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## ABSTRACT

**Background:** As many as half of people with HIV who are in a long-term sexual relationship have an HIV-negative partner. Data on sexual behavior and contraceptive needs of heterosexual serodiscordant couples are scarce in India. Keeping these facts in mind, it was considered imperative to conduct a study on sexual behavior, contraceptive practices and associated high risk factors among heterosexual serodiscordant couples. **Objectives:** The objective of the study was to assess the sexual behavior, current contraceptive practices and various risk factors of HIV transmission among married heterosexual HIV serodiscordant couples. **Materials and Methods:** Descriptive study conducted at antiretroviral therapy (ART) centre from where 100 discordant couples were included, data were collected related to their sexual practices, knowledge about different contraception methods and high risk factors related to infection transmission were recorded. **Results:** All couples had knowledge of use of condoms (100%) while consistent usage was seen only in 18%. The high risk of HIV transmission was seen among recently married serodiscordant couples. Couples engaged in daily intercourse were more likely to have high risk of transmission ( $P$  value  $< 0.05$ ). **Conclusion:** This study showed various risk factors for infection transmission to the seronegative partner among serodiscordant couples. Henceforth, given conception that prevention of these factors could reduce overall seroconversion rate among such couples.

**Keywords:** Heterosexual, HIV transmission risk, serodiscordant, sexual behaviour

## Introduction

Overall, India's HIV epidemic is slowing down, with a 32% decline in new HIV infections (86,000 in 2015), and a 54% decline in AIDS-related deaths between 2007 and 2015. The adult HIV prevalence at national level has continued its steady decline from an estimated peak of 0.38% in 2001–2003 to 0.26% in 2015. The five states with the highest HIV prevalence (Manipur, Mizoram,

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**Table 1: Reasons for not using condoms**

| Condom Usage                     | Reasons                     |                         |            |           |                  |                  |                | Total |
|----------------------------------|-----------------------------|-------------------------|------------|-----------|------------------|------------------|----------------|-------|
|                                  | Don't Engage in Intercourse | Lack of Sexual Pleasure | Want Child | Expensive | Fear of Weakness | No Reasons Cited | Not Applicable |       |
| Condom not used at all           | 30                          | 3                       | 2          | 1         | 0                | 0                | 0              | 36    |
| Condom used but not consistently | 0                           | 20                      | 0          | 0         | 1                | 25               | 0              | 46    |
| Condom Used consistently         | 0                           | 0                       | 0          | 0         | 0                | 0                | 18             | 18    |

Nagaland, Andhra Pradesh and Karnataka) are in the south or east of the country.<sup>[1]</sup> Serodiscordant relationship conjures up the image of monogamous heterosexual couple where one partner is HIV positive and other HIV negative.<sup>[2]</sup> HIV negative individuals in discordant partnerships are at a high risk of infections and preventive interventions targeted at such individuals is the need of the hour.<sup>[3]</sup> However, data about the incidence and risk factors associated with HIV transmission through heterosexual intercourse in India remain very limited.<sup>[4]</sup>

An increasing focus of HIV preventive strategies has been to move away from solely reducing the risk-taking behaviours of HIV-uninfected individuals to focusing on HIV-infected individuals who may continue to practice HIV risk-taking behaviours.<sup>[5]</sup> According to WHO's medical eligibility criteria for contraceptive use, most contraceptive methods are considered to be safe and effective for HIV positive women, both with asymptomatic HIV and AIDS.<sup>[6]</sup> Strategies must be developed, which minimize the risk of HIV negative females being infected by semen as they are trying to conceive.<sup>[7]</sup> Serodiscordant couples who are aware of each other's HIV status may be able to support access and adherence to treatment, to give each other emotional support and to support uptake of and adherence to interventions.<sup>[8]</sup> India's ART programme is the second largest globally and has been acclaimed as one of the best public health programmes providing HIV care services. Currently, HIV care services are being delivered through a network of 541 antiretroviral therapy centres and 1108 link centres along with 310 care and support centres to approximately 1.2 million PLHIV across the country.<sup>[9]</sup>

HIV transmission within serodiscordant couples contributes substantially to the overall burden of disease. Various risk factors seem to be related to this seroconversion among such couples and their assessment can help in reducing the HIV incidence. Keeping the current situation in mind, this study was planned to assess the sexual behavior, current contraceptive practices and various risk factors of HIV transmission among married heterosexual HIV serodiscordant couples.

### Relevance of Study to Primary Care Physicians

This study helps us to find commonly used contraceptives in serodiscordant couples and could help in reducing seroconversion.

### Material and Methods

Study was planned and conducted in ART centre of a tertiary

care hospital in Mumbai after getting approval from Institutional Ethics Committee. In India, ART centres are set up under National AIDS Control Programme with objectives to provide care, support and treatment to all People living with HIV (PLHIV). All clients detected HIV positive at Integrated Counseling and Testing Centre (ICTC) are referred to the nearest ART centre and registered in "HIV care", irrespective of their clinical status (symptomatic or not) where patient's demographic details and other relevant information are recorded in Patient Treatment Record.

Participants who were enrolled for one year were married discordant couples from ART centre in which HIV status of both the partners was confirmed with their medical records. In all, 107 discordant couples attended ART centre during period of data collection. Three of them did not wish to participate due to personal reasons. In case of four couples, spouse was reported to be at native place and HIV status report of spouse could not be confirmed, so they were excluded from the sample. Hence, a sample of 100 discordant couples was included in study. Consent was obtained from all the participants and confidentiality was maintained at all levels irrespective of HIV status.

Data were collected using the predesigned pretested semistructured interview schedule, comprising information on current sexual behaviour and contraception practices. The cases that were at high risk of transmission of HIV from positive to negative partner due to nonuse or inconsistent use of condom while engaging in intercourse were coded as "High risk couples" and those who either abstained from sex or used condoms consistently during intercourse were coded as "Low risk couples".

Statistical analysis was done by using Chi-square test, Fisher's exact test, unpaired *t*-test and multivariate analysis. A *P* value < 0.05 was considered statistically significant. Statistical software used was IBM SPSS Version 21.0 and Microsoft Office Excel 2007.

### Results

Out of 100 couples, males were positive in 66% couples (men positive couples) and wives were positive in 34% couples (women positive couples). Mean age of positive partner was 37.2 years and that of negative partner was 35 years. Mean age of the positive male and female partner was 39.6 years and 32.6 years, respectively, whereas mean age of negative male partner was 37.4 years and that of negative female partner was 33.8 years. Mean age difference between the couples was 5.4 years.

All participant couples had knowledge of use of condoms; however, 98 couples were aware of the advantages of condom. Out of 100 couples, 70 (70%) engage in sexual course with their spouse of which 64 (91.4%) were using condoms as a method of contraception, whereas 6 (8.6%) couples did not use condoms despite engaging in sexual intercourse. Out of these 64 couples, 18 (28%) were consistent condom users and rest 46 (72%) were nonconsistent users.

Amongst 100 participant couples, 71 (71%) of couples were using modern method of contraception, most common was condom 47 (47%). Proportion of other contraceptive methods in addition to condoms which were currently used was 24 (24%), while 29 (29%) couples were not using any contraceptive method currently.

Among 100 study couples, 36 (36%) were not using condoms at all, of which 30 were not engaging in sexual intercourse. Out of 46 participants who were not using condoms consistently, 30 cited lack of sexual pleasure with usage of condoms. Most common reason for not using condoms was sexual abstinence and lack of sexual pleasure was the most common reason for inconsistent use of condoms. Only 18 (18%) were using condom consistently [Table 1].

High risk of HIV transmission among serodiscordant couple was seen when duration of marriage was between 0 and 10 years and decreased as the duration of marriage increases. This was

found to be statistically significant ( $P$  value  $< 0.05$ ). Among the couples, majority were having intermittent intercourse in high risk group and the risk of HIV transmission found to be statistically significant ( $P$  value  $< 0.05$ ). Also, desire for children among the couples and risk of HIV transmission found to be statistically significant ( $P$  value = 0.007) [Table 2].

High risk of transmission was seen when duration of marriage was less ( $P$  value  $< 0.0005$ ), when HIV status was known for a lesser duration of time ( $P$  value = 0.002) and time postmarriage when HIV was detected in positive was less ( $P$  value = 0.009) [Table 3].

A logistic regression analysis was conducted to predict higher risk of transmission of HIV from positive to negative partner among 100 discordant couples. Regression model demonstrated that only duration of marriage made a significant contribution to prediction ( $P = 0.012$ ). Intercourse frequency, desire for child and repeated prodding by people for child bearing were not significant predictors. It was found that with every one-year increase in the time since marriage, the couples were 0.8 times less likely to be at high risk for transmission of HIV to the uninfected partner.

## Discussion

The current study provides understanding on awareness and current use of contraception among married serodiscordant couples. Also, finding out the risk factors related to HIV transmission to seronegative partner would help to controlling the overall incidence of HIV.

Condom was the most commonly known contraceptive for both men and women. Present study findings were comparable with Joshi *et al.*<sup>[10]</sup> mentioning awareness regarding one or more methods of contraception as 95%, 93% were aware of condoms and only 27% of were aware of contraceptive methods other than condoms. Manjunatha *et al.*<sup>[11]</sup> mentioned that majority of participants (99.7%) were aware about condoms. Grabbe *et al.*<sup>[12]</sup> reported high level of knowledge of any modern contraceptive method with a range of 90%–99.8%, indicating awareness of about at least one type of modern contraception. However, they have also reported oral contraceptive pill as the most commonly known contraceptive for both women and men (97% and 86%, respectively;  $P < 0.0001$ ).<sup>[12]</sup>

**Table 2: Relation of marital and sexual behavioural factors with HIV transmission among couples**

| Factor                          | High risk couples (n=52) | Low risk couples (n=48) | P       |
|---------------------------------|--------------------------|-------------------------|---------|
| Duration of Marriage            |                          |                         |         |
| 0-10 years                      | 18                       | 5                       | <0.05*  |
| 10-20 years                     | 24                       | 28                      |         |
| >20 years                       | 10                       | 15                      |         |
| Frequency of having intercourse |                          |                         |         |
| Everyday                        | 5                        | 0                       | <0.05** |
| 2-3 times a week                | 23                       | 7                       |         |
| Occasionally                    | 24                       | 12                      |         |
| Never                           | 0                        | 29                      |         |
| Desirous of children            |                          |                         |         |
| Yes                             | 20                       | 7                       | 0.007*  |
| No                              | 32                       | 41                      |         |

Chi-square test applied. \*Significant at 0.05 level of significance. \*\*Fisher Exact test used

**Table 3: Relation of various factors with HIV transmission among couples**

| Variables   | Mean (SD)                |                         | P        |
|---|--------------------------|-------------------------|----------|
|   | High Risk Couples (n=52) | Low Risk Couples (n=48) |          |
| Duration of marriage (years)  | 11.8 (6.1)               | 16 (4.3)                | <0.0005* |
| Age of positive partner   | 35.2 (5.8)               | 39.4 (3.6)              | <0.0005* |
| Age of negative partner   | 34.2 (5.2)               | 35.9 (3.8)              | 0.056    |
| Number of children  | 1.9 (1.2)                | 2.1 (1.2)               | 0.357    |
| Age difference between the couple (male partner's age - female partner's age) | 5.3 (2.3)                | 5.6 (2.1)               | 0.567    |
| Status known (since years)  | 4.3 (3)                  | 5.9 (2.1)               | 0.002*   |
| Time postmarriage when HIV was detected (in years)                            | 7.5 (5.2)                | 10.1 (4.3)              | 0.009*   |

Unpaired t-test applied. \*Significant at 0.05 level of significance

Current study showed that only condom usage as a contraceptive method was high (47%) compared to national data of 5.6% (as per National Family Health Survey [NFHS-4]).<sup>[13]</sup> our study showed that 24% of couples were using dual method of contraception while 29% were not using any contraceptive method currently. Similar findings were observed by Marfatia *et al.*<sup>[3]</sup> wherein 47% serodiscordant couples used condoms. Laryea *et al.*<sup>[14]</sup> observed that 42.6% of respondents and/or their partners were currently using a method of contraception. The most commonly used method of contraception was male condom (79.6%). Respondents and their partners not using any modern method of contraception accounted for 57.4%. Beyeza-Kashesya *et al.*<sup>[15]</sup> observed that the most common type of contraceptive used was the condom (90%); less than 4% used dual methods.

In spite of 100% couples having knowledge of condoms and 98% of the being aware of its advantages, consistent use of condom was very low. This may be due to nonavailability of condoms at the time of intercourse or reluctance of the male partner to use condom every time. This explains why the female partners should also be involved in negotiation of safe sex. Present study findings were partially comparable with Lau *et al.*<sup>[16]</sup> who observed that 27.9% of discordant couples used condom inconsistently in last year. Condom nonavailability was the most commonly given main reason for not using condoms. But the findings observed by Rispel *et al.*<sup>[17]</sup> were different wherein majority of participant discordant couples were using condom consistently (72%). In a study by Umutesi, only 16.9% seroconcordant married cohabiting couples reported regular use of condoms, and most of the reasons reported for not using it were related to alcohol intoxication, social and cultural beliefs as well as gender inequality.<sup>[18]</sup>

Tang *et al.*<sup>[19]</sup> in their study observed that the desire to conceive a child (OR = 5.18, CI: 1.19–22.58) significantly increased the odds of HIV seroconversion. Consistent condom use was a protective factor of spousal HIV seroconversion (OR = 0.05, CI: 0.01–0.28). Lu *et al.*<sup>[20]</sup> reported condoms usage (RR = 8.42; CI = 4.83–14.67) and sexual activity  $\geq 4$  times per month (RR = 5.24; CI = 2.55–10.77) as associated risk factors for seroconversion.<sup>[20]</sup>

## Conclusion

In our study, all the couples had knowledge of one or more methods of contraception and all of them had knowledge about condoms (100%). Condom was the most commonly known and used (47%) contraceptive for both men and women while (29%) were not using any contraception. 70 (70%) of the discordant couples engage in sexual course with their spouse. 8.6% couples do not use condoms despite engaging in sexual intercourse. 28% were consistent condom users and rest 72% were nonconsistent users. Out of 70 who were engage in sexual intercourse with their spouse, 74% were at high risk of HIV transmission from seropositive partner due to nonuse of condoms ( $P$  value < 0.05). Risk of HIV transmission found to be higher in case of less

duration of marriage, frequent intercourse, age of positive partner ( $P$  value < 0.05). In summary, it is clear that assessing sexual behaviour of HIV-infected couples along with making them aware of consistent use of contraception can definitely reduce the risk of transmission to seronegative partners.

## Key points

Out of 100 serodiscordant couples, males are positive in 66 (66%) couples and females are positive in 34 (34%) couples.

Mean age of positive partner was 37.2 years and that of negative partner was 35 years.

Mean age of the positive male and female partner was 39.6 years and 32.6 years, respectively, whereas mean age of negative male partner was 37.4 years and that of negative female partner was 33.8 years. Mean age difference between the couple was 5.4 years.

Condom was the most commonly known contraceptive for both men and women.

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## Conflicts of Interest

There are no conflicts of interest.

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