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Title: Socio- demographic correlates of HIV sero-discordance among couples in West Bengal, India; A cross sectional analysis.

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Running Head: Socio- demographic factors of HIV discordance.

Keywords: HIV, Serodiscordance, India, Age, Occupation, Residence.

Summary:

Serodiscordant couples serve as a potential source of Human Immunodeficiency Virus (HIV) transmission. Understanding demographic dynamics of serodiscordant couples plays an important role in tailoring interventions towards eliminating HIV. We conducted this cross sectional analysis in 314 Integrated Counseling and Testing Centres (ICTCs) in West Bengal, India during April 2016 to March 2020. General individuals who were detected as HIV reactive and whose spouses were also tested for HIV comprised the study population (8740 couples). Sociodemographic variables were compared across concordant and discordant arms and also between male positive (M+ F-) and female positive (F+ M-) subgroups of serodiscordant. Among the couples studied, 35.2% (95% CI: 34.2- 36.2 %) were serodiscordant. Among serodiscordant couples, the proportion of M+ F- (86.1%) was significantly higher than F+ M- (13.9%). We observed higher mean ages of couples, higher education, business & service

occupations and urban residence as significantly associated with serodiscordance relationship ($p < 0.05$). Higher mean age of couple and lower proportion of housewives were associated with F+M- subgroup. As around 35% serodiscordant couples carry the risk of transmission to negative spouses particularly in higher age and urban residence, thus reorientation of HIV programme may be required accordingly to avert transmission in future.

Text:

Introduction

In India around 2.34 million people are estimated to live with HIV infection with an adult (15-49 years) prevalence of 0.22%. (1) Majority of these transmission happens through heterosexual route (87%). (2) Serodiscordant couples serves as a potential source of transmission as HIV negative sexual partners of infected cases constitute large number of at risk individual.

According to a recent study, around 36% HIV serodiscordance are found in India among the eligible couple. (3) The substantial contribution of serodiscordant partnerships to the burden of HIV/AIDS highlights the fact that HIV-negative individuals in such partnerships are supposed to be continually exposed to the virus and this group perhaps constitutes a major target for HIV transmission prevention strategies such as pre-exposure prophylaxis and HIV vaccine trials.

According to WHO, up to 50% of HIV-positive people globally in on-going relationships have HIV-negative partners (i.e. they are in serodiscordant relationships). Of those HIV-positive individuals who know their status, many have not disclosed their HIV status to their partners, nor do they know their partners' HIV status. Consequently, a significant number of new infections occur within such serodiscordant couples (4). HIV-serodiscordant couples are estimated to account for up to half of all new HIV infections in Africa and are priority population for HIV

prevention interventions. (5) Understanding the demography of serodiscordant couple plays an important role in tailoring specific interventions towards prevention of new infection thus eliminating HIV. Evidence from India on HIV serodiscordance rates and the associated factors are very limited particularly in eastern region and even those conducted had lower sample size and concentrated on single demographic factor at a time. Some data has demonstrated that likelihood of HIV infection in couples is significantly higher where man is a migrant but not mobile, relative to those couples where men are neither migrant nor mobile (6).

In this perspective we have aimed to determine the magnitude of HIV seroconcordance & serodiscordance and to identify associated socio-demographic attributes in West Bengal, an eastern state of India. We have further attempted to understand the variations of exposures among serodiscordant couples classified by the gender of the HIV positive member.

Materials and Method:

Study design and the participants: A cross sectional study was carried out during April 2016 to March 2020 in the setting of 314 (all existing) Integrated Counseling and Testing Centres (ICTCs) in West Bengal, India. General individuals who were detected as HIV positive and whose spouses were also received counselling and testing services during the study period comprised the study population.

Data collection: As per ongoing program, HIV testing was conducted following standard protocol of National AIDS Control Organization (NACO) maintaining confidentiality, privacy and following informed written consent. The program data has been captured and managed in the database of People Living with HIV (PLHIV) – Anti Retroviral Treatment (ART) Linkage Software of National AIDS Control Organization. An abstraction proforma was prepared for the study and accordingly data were abstracted.

Inclusion criteria: HIV infected individual detected at ICTC of West Bengal, during the study period with spouse having the HIV test done at the same time.

Exclusion criteria: HIV infected cases without spouse tested for HIV.

Sample size: All 8740 couples (17480 individuals) fulfilling the inclusion criteria in all 314 ICTCs of West Bengal during the study period were included in the study. The sample size was not pre calculated as universal coverage was exercised. However, considering a 36.5% serodiscordance rate in India [3], 10% relative precision (i.e. 3.6% absolute precision), 95% confidence level, the sample size for infinite population amounted to 683 couples.

Study Variables:

Outcome Variable: Sero-discordant. and Sero-concordant (Rate)

Operational Case definition:

A) Discordant couple- When one partner of a couple is diagnosed as HIV infected and other is non infected

B) Concordant Couple - When both the members (spouses) of a couple are diagnosed as HIV infected

C) Serodiscordance rate- $(\text{No. of spouses of HIV infected index cases tested HIV negative} \times 100) / \text{No. of spouses of HIV infected index cases tested for HIV.}$

D) Seroconcordance Rate - $(\text{No. of spouses of HIV infected index cases tested HIV positive} \times 100) / \text{No. of spouses of HIV infected index cases tested for HIV.}$

E) Index case- HIV positive member of a couple who registered first (prior to their spouse) to the ICTC

F) M + F- : Serodiscordant couple where male is HIV positive and female is negative.

G) F+ M-: Serodiscordant couple where female is HIV positive and male is negative.

Explanatory variable: Sociodemographic variables such as age, sex, education, occupation and type of residence (rural/urban)

Ethical consideration: The study was based on analysis of approved surveillance data under National AIDS Control Program. Anonymized data were abstracted and considered for analysis. Confidentiality of the data was maintained throughout the study.

Data management and Statistical analysis: The data was further analyzed in Statistical Package for Social Science Software (version 17) to determine statistical significance. Overall, rate of seroconcordance and serodiscordance were estimated and compared. Within serodiscordant couples, M + F- and F+ M- rates were measured and compared. The mean age, mean age difference (absolute age difference, nullifying the direction whether male – female or vice versa), mean cumulative age of the couple, education and occupation, rural-urban residential status were analyzed for both concordant and discordant arms and within discordant arm among M+F- and F+ M- subgroups. Independent t test for mean and Chi square test for proportion were used respectively for quantitative and categorical variables along with Odds Ratio (OR) and 95% Confidence Interval (CI). We conducted binary logistic regression separately for male and female attribute to further understand the odds of being serodiscordant keeping seroconcordance as reference and expressed the results in terms of Crude (Unadjusted) Odds Ratio (cOR) and Adjusted Odds Ratio (aOR) 95% Confidence Interval (CI). $P < 0.05$ was considered significant.

Result:

During the study period a total number of 59,81,748 numbers of non pregnant General clients were tested for HIV out of which 14,664 were found to be HIV infected. Out of them 3280 were found to be non eligible as they unmarried, widowed, separated, divorced. A total number of

11384 HIV infected clients were found to be eligible and among them 8740 turned up for spouse testing and comprised our study population.

Out of the index cases, 35.2% (95% CI: 34.2- 36.2 %) couples were serodiscordant and rest 64.8% (95% CI: 63.8- 65.8 %) were in seroconcordant relationship. Serodiscordance rates were much higher for the male (46.2%) index cases as compared to female (14.2%). Among serodiscordance couples, the proportion of M+ F- (86.1%) was significantly higher than F+ M- (13.9%). [Table-1]

Comparing demographic profile among concordant and discordant couples, mean ages of both males and females in discordant relationships were found significantly higher than those in concordant relationship (Male: 41.00 ± 10.26 vs 40.18 ± 9.78 years, $p = 0.0002$, Female: 33.78 ± 9.25 vs 33.14 ± 9.18 , $p = 0.0019$). Almost 69% of males in concordant group were below 45 years age group as compared to 64% in discordant group ($p = 0.000$). The female age distribution also varied significantly ($p = 0.001$) across two groups. Considering literacy status, around 66-70% males and females were found to have completed primary to secondary schooling in both groups. Proportion of illiterate in both sexes was significantly lower in case of serodiscordant couples ($p < 0.01$). Major occupations for males and females were respectively labourer (around 43-46%) and housewife (around 90%) in both the groups of serodiscordant couples. Proportion of couple from urban residence was significantly higher in discordant group (19%) as compared to concordant group (14%) (OR= 1.42, 95% CI 1.27- 1.60). Mean of age differences between couples (around 7 years) was almost similar across two types of serogroups but mean cumulative age of couples was significantly higher in case of serodiscordant ($p=0.000$) than seroconcordant counterparts. Proportion of couples with cumulative age > 70 years was significantly higher in discordant group (54% vs 50% in concordant, $p = 0.000$). [Table-2]

Binary logistic regression analysis showed higher education and certain occupation increased the odds of being serodiscordant for both sexes. For male, aOR was 1.41 (95% CI:1.17-1.70) if they had education of higher secondary level at least as compared to illiterate. aOR of being serodiscordant diminished significantly when the male was labourer / Skilled/Semi skilled worker/Transport Worker with reference to those involved in Business, Cultivation, Service. For female population, the education in primary school (aOR= 1.18 ;1.05-1.32) and higher secondary level onward (aOR= 1.38 ;1.15-1.67) significantly enhanced the probability of being discordant. Compared to housewife chance of serodiscordance was significantly higher (aOR = 1.32;1.01-1.73) if the woman was engaged in occupations such as business, service etc. Rural livelihood was found significantly (aOR =0.73;0.65-0.82) protective for discordance compared to urban residence. [Table-3]

Serodiscordant couples (n=543) were further analyzed comparing the similar attributes between M+ F- and F+M- subgroups. [Table 4]. Significantly higher mean ages were identified for both the members in F+M- subgroup as compared to their counterpart in M+ F-. Mean age of males in F+M- and M+F- were respectively 43.46 ± 11.76 and 40.60 ± 9.94 years. ($p= 0.000$). For the females, the mean ages in respective groups were 36.82 ± 10.02 and 33.29 ± 9.03 . ($p = 0.000$). Around 66% of males and 87% females in M+F- group were below 45 years age group as compared to 53% and 75% in F+M-. Proportions of illiterates in both the sexes was significantly higher in F+M- (M- 24%, F- 32%) group than M+ F- (M- 20%, F-23%). For male occupation, proportion of labourer were more in F+M- group (47% vs 42%, OR = 1.2, 95% CI: 0.92 – 1.4). For female proportion of housewife in M+F- was 92% as compared to 88% in F+ M-. (OR = 3.2, 95% CI: 2.4 – 4.2). Most of the couples were from urban residence in both the groups (around 80%). Mean of age difference of couples in both the groups were almost similar (7.4 years,

$p=0.82$), but mean of cumulative age of couples was significantly high in F+M- group (80.28 ± 20.95 vs 73.89 ± 18.33 , $p=0.000$). Proportion of couples with cumulative age > 70 years was also much more in F+M- group (65% vs 53% in M+F-, $p= 0.000$)

Discussion:

In this study, more than one third of couples were discordant and cumulatively they are older in age, mostly residing in urban areas. Similar proportion of serodiscordant couple had also been reported in other Indian studies (3,7). However, the discordant couple being older can be explained by decreased frequency of sexual interaction between the couples in question as age advances. Similar findings had also been reported in several studies from African continents favoring a biological rather than a socio-cultural phenomenon (8,9). Moreover, younger couples are more likely to have planning for children and hence, lesser use of family planning practices predisposing them to HIV infection and increased probability to be concordant thereof. Even a recent Indian study on sero-discordant couple reported, most of them (64%) were still desirous of having their children (10) and such desire was reported to range from 20% to 50% among HIV infected couples (11). The present study reported 19% of the discordant couples reside in urban area compared to 14% of the concordant couples. Urban livelihood is associated with higher education, enhanced economy, increased awareness and access to health care facility such as contraception methods, HIV screening and counselling. All these may act as social determinants and drivers of safe sex, knowing self & spouse HIV status, thereby remaining serodiscordant. Moreover, urban areas are home for single migrants coming from rural areas for their own livelihood and also home for maximum number of sex worker. Consequently, both these

contrasting lifestyles in urban residence call for increased serodiscordance. Several studies from African continent reported rural couples particularly females practicing risky sexual behavior such as inconsistent condom use, multiple partners compared to urban (12,13). One recent study from Nigeria identified higher social class and condom use to be associated with female serodiscordance (14). In one northern Tanzania based study older age and urban livelihood were found to be associated with HIV serodiscordance (15). In our study, among the discordant couples, males were observed positive member in maximum cases (85%) as the migrant males frequently adapt high risk behavior being engaged in sexual encounter with Female Sex Workers (FSW), thus acquire HIV infection from a high viral load source. This is the most common dynamics of heterosexual transmission leading to HIV epidemic in India where migrant males acquire infection from FSW and then brings the infection to their spouses as representing general population. Moreover, 87% male spouses were found concordant when index case was female as compared to 56% vice versa indicating though females attained the health care provider earlier, the probability of direction of HIV transmission was by far from male to female – corroborating the natural transmissibility of HIV epidemic in India (16,17).

Furthermore, the comparison of two types of serodiscordant couples highlighted higher mean ages of both males and females when female were the positives. F+M- group contradicts the convention of HIV epidemic in India where the married women commonly acquire the infection from her infected male spouse. Higher proportion of non-literates, male laborers and lower proportions of housewives in F+M- group may be indicative of possibilities such as older males having less frequent sexual activities and non- housewives working female with relatively older age venturing in sexual encounters beyond marital relationship thus possibly acquiring infection from outside. Like this study, M+ F- group comprised the majority of serodiscordant in previous

studies (16,17) however, a Tanzania based study reported higher proportion of female discordant (F+M-71% vs M+F- 29%, $p<0.001$). Education, occupation and income particularly of female may act as surrogate of empowerment and decision making. Earlier studies showed that discordant couples were likely employed having higher income (16,18,19). Socio- economic empowerment was likely associated with adoption of family planning practices upon knowledge of HIV positivity of spouses. Though the whole phenomenology of serodiscordance is context sensitive and follows multiple complex non linear interactions, however we observed attributes of higher socioeconomic status for both the sexes increasing the odds of their being a member of an HIV serodiscordant relationship. In this study, since spouses of index cases tested during same point of time, knowledge of a spouse's positivity of a HIV negative individual and preventive measures adopted thereof could not been elicited. According to a Uganda based study < 10% of HIV positives had knowledge about their partners' HIV status and only one fifth of HIV discordant couples aware of their discordant relationship (20).

Serodiscordant couple faces tremendous conflict in personal, conjugal and family front particularly in apprehension of infecting the seronegative spouse and thus tailoring their sexual practices (21). It is pertinent to mention that these discordant couples should be the prime target for preventive intervention such as counseling and testing services, safe sex, condom promotion, follow up services, counseling for risk reduction, initiation of antiretroviral therapy, periodic screening and management of sexually transmitted infection thus their conversion to concordant can be averted (22). A recent cohort study from Tanzania reported significantly high (Hazard rate = 8.86[1.16–67.70], $p = 0.036$) seroconversion rate of seronegative female spouses (59.3[34.4–102.1] per 1000 person/years) in discordant relationship as compared to seronegative male spouses (6.7[0.9–47.5] per 1000 person/years) (23). In our study also, among

serodiscordant couple in 86% cases the females were found negative thus with a much higher risk of seroconversion, these are potential beneficiaries for HIV prevention programme to introduce specific intervention services. Lack of further follow up and monitoring window in current program in India put these potential vulnerable populations in much higher risk of acquiring HIV infection. In the present study we reported a serodiscordance rate of 35% in West Bengal. Studies from other parts of India also reported around one third (28-36%) serodiscordance rate. According to National AIDS Control Program data in India, around 90% HIV transmission occur through heterosexual route. Hence as India has a PLHIV estimate of 2.34 million (1), around 2.1 million will occur through heterosexual route, and applying the serodiscordance rate of 35% , we derive at 0.73 million population who will be at risk of getting the infection from their infected spouses. This at risk population is much higher than the total PLHIV of a developed nation like France, Australia, Argentina, Columbia etc (24). Therefore, the ambit of HIV program in India presently have the scope to encompass follow up component of this discordant cohort, thus enabling assessment of seroconversion rate over time and with respect to preventive intervention.

Conclusion: We conclude that more than one third (35%) of couples were serodiscordant. Among discordant, mostly females were non infected (M+F-) and thus were at a risk of getting infected from her male spouse over time. Older age, higher education, higher status occupation and urban residence were found to be associated with discordance relationship. Hence HIV programme in the country needs reorientation to provide demand driven preventive packages (ART, family planning, counseling, testing) in holistic and inclusive manner along with period follow up and robust documentation.

Limitation:

Our study had some limitations such as information on important variables e.g.- duration of marriage, migration status and sexual & family planning practices of the couple were not available in the program database.

List of Abbreviation:

HIV – Human Immunodeficiency Virus

AIDS – Acquired Immunodeficiency Syndrome

ICTC – Integrated Counseling and Testing Centre

NACO - National AIDS Control Organization

cOR - Crude Odds Ratio

aOR- Adjusted Odds Ratio

M+ F- - Male positive, female negative

F+ M - - Female positive, male negative

Conflict of Interests: The authors declare that they have no competing interests

Funding: No separate funding available for the study as the study has been curated from existing HIV program database of the state.

Authors' contributions

DC & SG - Planning of the study, tool designing, data abstraction and compilation, literature review, data analysis and preparing and reviewing manuscript.

FD & SB - Literature review, data management and analysis, preparation and review of manuscript

MKS & SD - Literature review, data analysis and interpretation, preparation and review of manuscript.

All authors have read and approved the manuscript

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Table 1: Serostatus of spouses of index cases. (n= 8740)

Index case	Condition of spouse.	
	HIV positive (%)	HIV negative (%)
Male (n=5732)	3083 (53.8)	2649 (46.2) (86.1; 95%CI:84.9-87.3)
Female (n=3008)	2581 (85.8)	427 (14.2) (13.9; 95% CI:12.7-15.1)
Total (n= 8740)	5664 (64.8)	3076 (35.2) (100.0)
	95% CI: (63.8- 65.8)	95% CI: (34.2- 36.2)
	(Seroconcordant)	(Serodiscordant)

Table 2: Comparison of socio-demographic attributes between Seroconcordant and Serodiscordant Couples. (n= 8740)

Variables	Concordance (N=5664)	Discordance (N=3076)	P value
Age (Mean ± SD), Male	40.18 ± 9.78	41.00 ± 10.26	0.0002
Age (Mean ± SD), Female	33.14 ± 9.18	33.78 ± 9.25	0.0019
Age group (in years), Male			
16-24	128 (2.26)	79 (2.57)	0.000
25-34	1527 (26.96)	756 (24.58)	
35-44	2236 (39.48)	1142 (37.13)	
≥45	1773 (31.30)	1099 (35.73)	
Age group (in years), Female			
16-24	895 (15.80)	468 (15.21)	0.001
25-34	2487 (43.91)	1235 (40.15)	
35-44	1497 (26.43)	918 (29.84)	
≥45	785 (13.86)	455 (14.79)	
Literacy Status, Male			
Non-Literate	1297 (22.90)	646 (21.00)	0.000
Primary School	2324 (41.03)	1223 (39.76)	
Secondary School	1632 (28.81)	889 (28.90)	
Higher Secondary and above	411 (7.26)	318 (10.34)	
Literacy Status, Female			
Non-Literate	1544 (27.27)	757 (24.61)	0.002
Primary School	2269(40.07)	1277 (41.51)	
Secondary School	1477 (26.09)	786 (25.55)	
Higher Secondary and above	372 (6.57)	256 (8.32)	
Occupation Status, Male			
Business/ Cultivator/ Service	1400 (26.72)	897 (29.16)	0.000
Labourer	2657 (46.91)	1331 (43.27)	
Skilled/Semi skilled worker/Transport Worker	1380 (24.36)	706 (22.95)	
Unemployed/Retired	227 (4.01)	142 (4.62)	
Occupation Status, Female			
Housewife	5130 (90.57)	2775 (90.21)	0.006
Labourer/ Skilled/Semi skilled worker/Transport Worker	399 (7.04)	194 (6.31)	
Business/ Cultivator/ Service	135 (2.38)	107 (3.48)	
Area of residence			

	Urban	824 (14.55)	600 (19.51)	0.000
	Rural	4840 (85.45)	2476 (80.49)	
Mean of age difference between couples (SD)		7.40 ± 4.89	7.46 ± 4.79	0.603
Mean of cumulative age of couples		73.32 ± 18.19	74.78 ± 18.84	0.000
Age difference between couples				
	Less than 5 yr	1645 (29.04)	857 (27.86)	0.491
	5-10 yr	2821 (49.81)	1564 (50.85)	
	More than 10 yr	1198 (21.15)	655 (21.29)	
Cumulative age of couples				
	Less than 50 yr	381 (6.73)	196 (6.37)	0.000
	50-70 yr	2450 (43.26)	1203 (39.11)	
	More than 70 yr	2833 (50.02)	1677 (54.52)	

Table 3: Results of binary logistic regression analysis of factors associated with serodiscordance (ref: seroconcordance)

3A: Male Variables:

Variables	cOR (95%CI)	P value	aOR (95%CI)	P value
Age group (in years)				
16-24	Reference		Reference	
25-34	0.80 (0.60-1.07)	0.141	0.79 (0.59-1.06)	0.118
35-44	0.83 (0.62-1.10)	0.200	0.80 (0.60-1.07)	0.135
≥45	1.00 (0.75-1.34)	0.977	0.96 (0.72-1.29)	0.799
Literacy Status				
Non-Literate	Reference		Reference	
Primary School	1.06 (0.94-1.19)	0.357	1.06 (0.94-1.19)	0.306
Secondary School	1.09 (0.97-1.24)	0.160	1.06 (0.93-1.21)	0.364
Higher Secondary and above	1.55 (1.30-1.85)	0.000	1.41 (1.17-1.70)	0.000
Occupation Status				
Business/ Cultivator/ Service	Reference		Reference	
Labourer	0.78 (0.70-0.87)	0.000	0.87 (0.77-0.97)	0.015
Skilled/Semi skilled worker/Transport Worker	0.80 (0.70-0.90)	0.000	0.87 (0.76-0.99)	0.032
Unemployed/Retired	0.98 (0.78-1.22)	0.835	0.96 (0.77-1.21)	0.761
Area of residence				
Urban	Reference		Reference	
Rural	0.70 (0.62-0.79)	0.000	0.73 (0.65-0.82)	0.000

3B: Female Variables:

Variables	cOR (95%CI)	P value	aOR (95%CI)	P value
Age group (in years)				
16-24	Reference		Reference	
25-34	0.95 (0.83-1.08)	0.440	0.94 (0.83-1.08)	0.439
35-44	1.17 (1.02-1.35)	0.024	1.18 (1.02-1.36)	0.022
≥45	1.11 (0.94-1.30)	0.209	1.12 (0.95-1.32)	0.161
Literacy Status				
Non-Literate	Reference		Reference	
Primary School	1.15 (1.03-1.28)	0.015	1.18 (1.05-1.32)	0.004
Secondary School	1.09 (0.96-1.23)	0.190	1.12 (0.99-1.27)	0.064
Higher Secondary and above	1.40 (1.17-1.68)	0.000	1.38 (1.15-1.67)	0.001

Occupation Status					
	Housewife	Reference		Reference	
	Labourer/ Skilled/Semi skilled worker/Transport Worker	0.90 (0.75-1.07)	0.239	0.90 (0.75-1.08)	0.261
	Business/ Cultivator/ Service	1.46 (1.13-1.89)	0.004	1.32 (1.01-1.73)	0.038
Area of residence					
	Urban	Reference		Reference	
	Rural	0.70 (0.62-0.79)	0.000	0.72 (0.51-0.72)	0.000

Table 4: Comparison of socio-demographic attributes between M+ F- and F+ M- serodiscordant couples (N=3076)

Variables	M+, F- (N=2649)	F+, M- (N=427)	P value
Age (Mean ± SD), Male	40.60 ± 9.94	43.46 ± 11.76	0.0000
Age (Mean ± SD), Female	33.29 ± 9.03	36.82 ± 10.02	0.0000
Age group (in years), Male			
16-24	67 (2.53)	12 (2.81)	0.000
25-34	666 (25.14)	90 (21.08)	
35-44	1016 (38.35)	126 (29.51)	
≥45	900 (33.98)	190 (46.60)	
Age group (in years), Female			
16-24	424 (16.01)	44 (10.30)	0.000
25-34	1099 (41.49)	136 (31.85)	
35-44	777 (29.33)	141 (33.02)	
≥45	349 (13.17)	106 (24.82)	
Literacy Status, Male			
Non-Literate	543 (20.50)	103 (24.12)	0.030
Primary School	1073 (40.51)	150 (35.13)	
Secondary School	771 (29.11)	118 (27.63)	
Higher Secondary and above	262 (9.89)	56 (13.11)	
Literacy Status, Female			
Non-Literate	619 (23.37)	138 (32.32)	0.000
Primary School	1108 (41.83)	169 (39.58)	
Secondary School	691 (26.09)	95 (22.25)	
Higher Secondary and above	231 (8.72)	25 (5.85)	
Occupation Status, Male			
Business/ Cultivator/ Service	768 (28.99)	129 (30.21)	0.000
Labourer	1128 (42.58)	203 (47.54)	
Skilled/Semi skilled worker/Transport Worker	636 (24.01)	70 (16.39)	
Unemployed/Retired	117 (4.42)	25 (5.85)	
Occupation Status, Female			
Housewife	2441 (92.15)	334 (78.22)	0.000
Labourer/ Skilled/Semi skilled worker/Transport Worker	133 (5.02)	61 (14.29)	

	Business/ Cultivator/ Service	75 (2.83)	32 (7.49)	
Area of residence				
	Urban	519 (19.59)	81 (18.97)	0.763
	Rural	2130 (80.41)	346 (81.03)	
Mean of age difference between couples		7.47 ± 4.71	7.41 ± 5.21	0.820
Mean of cumulative age of couples		73.89 ± 18.33	80.28 ± 20.95	0.000
Age difference between couples				
	Less than 5 yr	722 (27.26)	135 (31.62)	0.164
	5-10 yr	1361 (51.38)	203 (47.54)	
	More than 10 yr	566 (21.37)	89 (20.84)	
Cumulative age of couples				
	Less than 50 yr	174 (6.57)	22 (5.15)	0.000
	50-70 yr	1077 (40.66)	126 (29.51)	
	More than 70 yr	1398 (52.77)	279 (65.34)	