Title
Lack of Gender Equality Perceptions as a Predictor of Risky Sexual Behaviors among
Men in Northern India

Abstract
Objective(s):
To explore whether men's attitudes toward gender equality influence their higher-risk
sexual behaviors.
Design:
Men's data from the north Indian states of Uttar Pradesh and Uttarakhand (n=12,240)
from the National Family Health Survey (NFHS-3) were used to identify risk factors for
men's reported higher-risk sexual behaviors. Key explanatory variables were based on
gender equality constructs: men's attitudes to wife-beating, family violence history,
views on whether women had the right to refuse having sex with their partners, and views
on whether women had the right to make household decisions and have financial
autonomy.
Methods:
 Descriptive analyses were conducted to explore the relationship between higher-risk sex
and each of the gender equality and socio-demographic variables. Logistic regression
models were then fit to explore the independent influence of men's gender equality
factors on higher-risk sex.
Results:
After controlling for socio-demographic factors, gender equality factors were
significantly and independently associated with men's higher-risk sex. Men who were
significantly more likely to engage in higher-risk sex were those who had a history of
family violence [OR=1.87 (1.43-2.44)], viewed wife-abuse favorably [OR=1.30 (1.01-
1.68)] and felt that women did not have the right to refuse having sex with their husbands
[OR=1.52 (1.03-2.25)]. To reduce Indian men's higher-risk sex, HIV/STI prevention
efforts must promote gender equality acceptance men, including an emphasis on the need
to eliminate violence against women.

Introduction

India's adult HIV prevalence is estimated at 0.36% of the total population, amounting to approximately 2.5 million people. This is the third largest HIV-positive population in the world, and the largest in Asia.[1] Further, studies indicate that HIV prevalence rates among high-risk populations such as injecting drug users, men who have sex with men and female sex workers range between 10-26%, and high HIV prevalence among these groups is a precursor to increased incidence among the general population.[2] Risky heterosexual sex accounts for 86% of all reported HIV infections, and 88.7% of all infections occurs in the most sexually active 15-49 age group.[1] Studies examining self-reported data from India have found that up to 14.6% of all sexually active women and 4.1% of men report having at least one STI symptom,[3] and that incidence of STIs, especially syphilis, gonorrhea and type 2 herpes is increasing.[4, 5] The increased transmissibility of HIV in the presence of STIs has been well documented by numerous studies, and high prevalence of STIs is recognized as a precursor to increased HIV incidence.[6]

While high HIV prevalence appeared to be confined in the eighties and nineties to southern India, 26 new districts with high HIV prevalence have been recently identified in northern India, including the states of Uttar Pradesh (UP) and Uttarakhand (which was a part of UP until 2000).[7] This is India's most populous region (with over 17% of the nation's population), lags far behind the national average in major economic and literacy indicators, and its women have less autonomy and worse health outcomes than in most other states.[8]

Earlier men's studies from India have shown that higher-risk sex (sex with non-cohabitating partners) takes place in special populations such as truck drivers.[9] Yet, recent studies estimate that up to 15-19% of married men and 15-47% of unmarried men in the general population might be engaging in higher-risk sexual behaviors.[10,11] Studies since the mid-nineties have suggested that HIV incidence has been increasing among married, monogamous Indian women in the general population, whose only risk factor was sexual contact with a husband who had acquired the infection primarily through higher-risk sex.[12] Studies have shown that the risk of having HIV/STIs increases for Indian women who live with abusive husbands; report that their freedom to socialize and participate in activities outside the home was being curtailed by their husbands; and report being concerned about husbands' extramarital relationships.[13, 14] A number of studies emphasize that reducing men's risky sexual behaviors is key to slowing HIV incidence in India.[12, 14]

Few studies have explored the link between men's gender equality attitudes and their own risk-taking behaviors. The patriarchal nature of Indian family structure instills differing sexual behavior norms for men and women; unmarried girls are expected to resist premarital sex in order to maintain their "purity", and to engage in sexual activities with their husbands for procreation and motherhood. On the other hand, it is tacitly acknowledged that men can engage in higher-risk sex for the sake of gaining "experience" and learning to be sexual decision makers.[15, 16] Studies have reported that the reasons men give for justifying higher-risk sex include their perceived right to have access to multiple sexual partners, their perceived natural need for frequent sexual satisfaction, and married men's perceived superiority over their spouses within the marriage.[17, 18]

We hypothesize that men who believe that women should have less autonomy and rights than men are more likely to engage in higher-risk sexual activity. To examine the link between men's gender equality notions and their risky sexual behaviors, we used data from the National Family Health Survey (NFHS-3), the first nationally representative men's survey to collect this information in India.

Methods

The NFHS-3 was carried out in India in two phases from November 2005 to August 2006. As part of the nationally representative survey, a total of 74,369 Indian men 15-54 years were interviewed in 109,041 households. For the current analyses, data were restricted to men from the states of UP (*n*=11,458) and Uttarakhand (*n*=983).

The outcome measure for this analysis was men's reported higher-risk sex, defined by the NFHS-3 as men's reported sexual intercourse with someone other than a spouse or cohabiting partner in the 12 months prior to the survey. Men reported their last three sexual partners in the 12 months prior to the survey. For this analysis, if a man reported that any one of his last three sexual partners was someone other than a spouse or cohabiting partner, that man was considered as having had higher-risk sex.

The key explanatory variables in this study were men's reported measures of gender equality, assessed in terms of the following five constructs:

1. A series of seven questions in the survey asked men if they believed that a husband was justified in beating his wife under the following conditions: (1) if the husband suspected her of being unfaithful, (2) if she showed disrespect for in-laws, (3) if she went out without telling her husband, (4) if she neglected the children, (5) if she argued with him, (6) if she refused to have sex with him, and (7) if she burnt the food. Men who answered yes to any one of these were classified as believing that wife-beating was acceptable.

2. Men were asked a series of three questions on whether a woman had the right to refuse sex with her husband under the following circumstances: (1) if the husband had an STD, (2) if the husband had relations with other women, and (3) if the wife was tired or not in the mood to have sex. Men answering no to any of these questions were classified as believing that women did not have the right to refuse sex with her husband.

3. Men were asked four questions on who they thought should make the following decisions: (1) making household purchases for daily needs, (2) purchasing major household items, (3) making a decision on how many children to have, and (4) having the final say on visits to family or relatives. Men who felt that decisions should be made by women alone or jointly with their husbands were considered as believing that women should have high decision-making power, while men who felt that husbands alone should make decisions were classified as believing that women should have low decision-making power.

4. Men were asked who should have a final say on how a wife's earnings should be spent. Men who felt that women alone or jointly with their husbands should have this say were considered to believe that women should have financial autonomy. Men who felt that husbands alone should have the final say were considered to believe that women should not have financial autonomy.

5. Men's family violence history was measured by a single question that asked men if their fathers ever beat their mothers. Men who responded in the affirmative were considered to have a history of violence in their families.

Other measures used were independent variables reported in the literature to influence higher-risk sex among men: alcohol use; mobility (whether men spent more than a month away from home in the year prior to the survey); and HIV knowledge. Men were asked if they had heard of HIV, and those who answered in the affirmative were asked the following six questions: can the risk of getting AIDS be reduced by 1) not

having sex at all, 2) always using condoms during sex, 3) having only one sex partner; and whether 4) a healthy person can have AIDS, 5) one can get AIDS from mosquito bites, and 6) one can get AIDS from sharing food with an infected person. A "yes" to questions 1-4 and "no" to questions 5 and 6 were deemed correct answers and given a score of one. Men scoring at the median (3) or higher were classified as having high HIV knowledge; those who score less than 3 or had not heard of HIV were classified as having low HIV knowledge.

Socio-demographic measures expected to influence the outcome included men's age; urban versus rural residence; education; standard of living index; marital status; religion; caste; employment status; and whether or not a married respondent's partner lived with him. The standard of living index, represented by low, medium and high categories, was calculated by the NFHS-3 based upon ownership of household possessions, consumer durables, land and livestock.[3]

Descriptive analyses were first conducted to explore the relationship between higher-risk sex and each of the gender equality and socio-demographic variables. Logistic regression models including all socio-demographic factors - deemed as important study controls – were then fitted to investigate the factors that predict reported higher-risk sex. Then, secondary predictors of interest and gender equality variables were added in a step-wise manner to the models and log-likelihood tests were conducted to assess whether the addition of each of these variables helped to predict the outcome. To account for the complex survey design, the state level individual sampling weight and clustering variable (primary sampling unit) were taken into account. Statistical analyses were conducted using Intercooled Stata version 9.

Results

Of the 12,441 men surveyed in UP and Uttarakhand states, 28 men who did not respond to the question asking about whether or not they had sex, and 173 married men who reported not having sex in the year prior to the survey, were excluded from the analysis. This resulted in a final sample size of 12,240 men.

Table 1 provides self-reported prevalence of higher-risk sex among surveyed men. Of the 12,240 men in the survey who reported being sexually active in the past 12 months, 581 men (5%) reported having had higher-risk sex. Of these 581 men, 194 men (33%) used condoms during higher-risk sex.

Men's socio-demographic characteristics and secondary predictors of interest are shown in Table 2. A fifth of surveyed men were in the age group of 15-25 years, and nearly half of all surveyed men were between 26-39 years old. Over two-thirds of men lived in a rural residence. A fourth of all men reported having no education, and most of these men were in the oldest age group of 40-54 years. Nearly a quarter of surveyed men were classified as having a low standard of living, as measured by NFHS-3. Most surveyed men (93%) reported being married. Nearly two-thirds of men reported not consuming alcohol at all and 14% of men reported spending more than a month away from home in the 12 months prior to the survey. Roughly 71% of all men in the survey were found to have high HIV knowledge, as compared to 29% of men who had low or no HIV knowledge.

Married and unmarried men's reported measures of gender equality are shown in Table 3. Around 40% of men indicated that wife-beating was justified, and 20% of men reported that they had witnessed their fathers physically abuse their mothers. Roughly 88% of men believed that a woman had the right to refuse having sex with her husband. Over two-thirds of all men indicated that women should have high decision-making power in the household, and 93% of men believed that a woman should have the right to spend her earnings how she wishes.

The results of the final logistic regression model are shown in Table 4. After controlling for socio-demographic factors and secondary predictors of interest, at least three of the five gender equality dimensions under consideration demonstrated a statistically significant relationship with men's reported higher-risk sex. Men who believed that wife-beating was acceptable were significantly more likely to report higher-risk sex [OR=1.30 (1.01-1.68)], compared with men who thought wife-beating was never acceptable. Men with the higher estimated odds of having had higher-risk sex were those who believed that women did not have the right to refuse having sex with their husbands [OR=1.52 (1.03-2.25)]. Men who reported having a history of family violence history were significantly more likely to report higher-risk sex [OR=1.87 (1.43-2.44)], compared with men who reported not having a similar history of family violence. Two of the gender equality dimensions, decision-making power and men's perceptions on financial autonomy for women, were significant in bivariate analyses, but neither retained significance in the final model.

Among the secondary predictors of interest, alcohol use and mobility were significantly and positively associated with men's higher-risk sex (see Table 4). Alcohol use had the largest effect size of any variable in the model, and displayed a dose-response relationship; greater frequency of alcohol use was associated with a greater likelihood of reporting higher-risk sex.

Discussion

A small proportion of surveyed men (5%) reported having had higher-risk sex. These findings are contrary to those from smaller studies in northern India that reported roughly 15-47% prevalence of higher-risk sex among men.[10, 11] It is pointed out that strong cultural taboos regarding higher-risk sex result in under-reporting of such sexual behaviors among respondents, and studies among Indian men and women have shown that such reporting bias is far less in culturally specific interactive interviews than in face-to-face interviews such as the NFHS-3.[19]

Despite low reported prevalence of higher-risk sex among surveyed men, these data come from the first Indian men's survey that is representative at both the national and state level. Specifically, results from this study demonstrate that among men in northern India, at least three of the five gender equality measures under consideration were found to independently associated with men's higher-risk sex. This is an important finding given that 40-50% of Indian men do not believe in at least some gender equality notions, and these men are also more likely to engage in higher-risk sex. This could provide an explanation to findings from studies in India that have found increasing HIV incidence among married monogamous Indian women.

Men who felt that wife-beating was acceptable were significantly more likely to engage in higher-risk sex, as compared to men who felt that wife-beating was never acceptable. This finding has important implications for STI/HIV transmission and prevention. A number of studies have demonstrated that forced sex associated with domestic violence can cause abrasions in the mucosal lining of the vagina, thereby increasing the transmissibility of HIV and other STIs, if one of the partners is infected.[6] Studies point out that monogamous Indian women who report abuse by their husbands have higher HIV and STI prevalence rates as compared to women who are not abused.[13, 14] This study possibly provides an answer as to why this is so, by showing that men who view wife-abuse as acceptable are also more likely to engage in higher-risk sex, thereby putting themselves and their partners at increased risk of HIV/STI contraction.

Family violence history was a predictor of men engaging in higher-risk sex. Previous studies have shown that men who either witnessed abuse at home or were victims of abuse in childhood are more likely in turn to be perpetrators of violence against their partners.[20] Given the links between domestic violence and increased HIV/STI transmission, and given the findings from this study that men with a history of family violence are more likely to engage in higher-risk sex, these men are at increased risk of acquiring STIs/HIV through higher-risk sex and passing on the infection to their regular partners.

Prior Indian studies have found that men who are younger, more mobile, alcohol users, and having lesser education are more likely to engage in risky sexual activity.[17, 21] Results from this study confirm these findings with one exception; no significant association was observed between men's educational level and reported higher-risk sex after controlling for all other factors. Given that men who were younger, reported using alcohol, and were more mobile were highly likely to report having higher-risk sex, interventions for these groups of men remain important to curtail HIV/STI spread in India, as highlighted by other studies.[22, 23]

Findings from this study have important implications for HIV/STI prevention programs in India. While it has been shown that programs aimed at increasing women's

empowerment improve their reproductive health outcomes,[24] altering women's autonomy in a short period of time will be difficult given the high levels of gender stratification in India and deeply entrenched patriarchal norms.[24, 25] Consequently, HIV programmatic efforts must incorporate a gender-based approach in their interventions, one that focuses on addressing men's gender equality attitudes.

Studies examining men's HIV prevention interventions in high-risk-settings in India have found that sustained behavior change communication (BCC) strategies that reinforced messages of monogamy, condom use with sexual partners, and provision of government-provided condoms significantly reduced men's sex-worker visits and increased their condom use during higher-risk sex.[25] Studies recommend that existing interventions directed toward women should include partner notification and counseling services for both couples and husbands.[26, 27] Men's HIV prevention interventions should move beyond their current focus on high-risk-settings and include men in the larger community through innovative methods such as village-level peer education. HIV-prevention interventions tailored specifically for men must incorporate gender-related social contexts that promote an understanding of women's autonomy and rights.[28]

Given that domestic violence is a strong predictor of men's higher-risk sex, addressing this widely prevalent social problem is important not only in terms of enhancing women's rights and health, but also as an HIV prevention tool that can benefit both women and men. Such risk reducing strategies could be incorporated into already-successful men's programs aimed at reducing domestic violence in India. One such program for boys and men, MASVAW (Men's Action for Stopping Violence Against Women) is a violence-prevention campaign conducted in schools, colleges and community centers in both urban and rural settings in over forty districts of Uttar Pradesh and Uttaranchal states.[29] Following enrollment in MASVAW, men reported a qualitative improvement in their marital relationship and a reduction in violence and coercive sex with their spouses.[29] Importantly, given the findings of this study, such interventions could also reduce men's risky sexual behaviors, and hence need to be an important component of HIV prevention programs. The long term implications of such policies aimed at promoting gender equality and reducing violence against women would be to curb men's higher-risk sex and the consequent spread of HIV and other STIs in India.

Table 1: Self-reported higher-risk sex among men living in the north Indian states of Uttar Pradesh and Uttarakhand

Higher-risk sex	n (weighted %)
No[a]	11,659 (95)
Yes[b]	581 (5)
Total	12,240 (100)

[a] Had sexual intercourse within past 12 months exclusively with spouse or cohabiting partner
[b] Had sexual intercourse within past 12 months with someone other than spouse or cohabiting partner

Table 2: Socio-demographic characteristics and secondary predictors (by weighted percentage) of men living in Uttar Pradesh and Uttarakhand

	Men in sample (n=12,240)
Socio-demographic variables	
Age	
15-25 years	21
26-39 years	49
40-54 years	30
Residence	
Rural	72
Urban	28
Highest level of education	
None	25
Primary	15
Secondary	47
Secondary plus	13
Standard of living index	
Low	23
Medium	38
High	39
Marital status	
Married	93
Unmarried	7
Religion	
Hindu	84
Muslim	15
Other	1
Caste	
Scheduled caste/tribe	26
Other backward caste	47
Privileged (upper) caste	27
Employment status	
Employed	96
Unemployed	4
Secondary predictors	
Alcohol consumption	
Never consumed	66
Less than once a week	28
At least once a week	4
Almost daily	2
Mobility	
No	86
Yes	14
HIV knowledge level	
No or low	29
High	71

Table 3: Self-reported measures of gender equality (by weighted percentage) of men living in Uttar Pradesh and Uttarakhand

	Men in sample (n=12,240)
Attitude to wife-beating	
Acceptable	40
Never acceptable (Ref.)	60
Family violence history	
Yes	20
Woman has right to refuse sex with husband	
No	12
Yes (Ref.)	88
Woman should have high decision-making power	
Yes	68
No (Ref.)	32
Woman should have financial autonomy	
Yes	93
No (Ref.)	7

Table 4: Odds ratios[a] and 95% confidence intervals from logistic regression models[b] investigating the likelihood of reporting having had higher-risk sex, among men living in Uttar Pradesh and Uttarakhand

	OR (95% CI) (n=12,240)
Gender equality dimensions	
Attitude to wife-beating	
Acceptable	1.30* (1.01-1.68)
Never acceptable (Ref.)	1.0
Woman has right to refuse sex with husband	
No	1.52* (1.03-2.25)
Yes (Ref.)	1.0
Family violence history	
Yes	1.87* (1.43-2.44)
No (Ref.)	1.0
Woman should have high decision-making power	
Yes	1.65 (0.87-3.12)
No (Ref.)	1.0
Woman should have financial autonomy	
Yes	0.82 (0.34-1.99)
No (Ref.)	1.0
Secondary predictors	
Alcohol use	
Almost daily	8.72* (2.28-33.40)
At least once a week	4.92** (2.63-9.20)
Less than once a week	3.41** (2.54-4.56)
Never (Ref.)	1.0
Mobility	
Yes	1.36* (1.01-1.84)
No (Ref.)	1.0
Socio-demographic variables	
Age	
15-25 years	6.05* (2.08-17.55)
26-39 years	3.29* (1.28-8.47)
40-54 years (Ref.)	1.0

[a] Reported at $p<0\cdot001$, $p<0\cdot05$, and $p<0\cdot1$
[b] Controlling for other socio-demographic factors not significant in final model: residence, education, standard of living, marital status, religion, caste, and employment status.
*$p<0\cdot05$, **$p<0\cdot001$

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	(n=12,240)
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