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Risky Extra-Marital Sexual Behaviour and Induced Exposure among Couples in Burkina Faso

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Abstract

Analyses of the factors involved in HIV/AIDS transmission have generally focused mainly on the risks that individuals face through their sexual networks. This study looks instead at the risks posed by the behaviour of each partner in the couple to the other. This helps us to understand the reciprocal consequences that the fulfilment of the marital duty now has on the health of both partners. The analysis is based on data from the fifth Burkina Faso Demographic and Health Survey of 2021, which provides a nationally representative sample of 4,697 couples. For polygamous households, the husband was matched to each of his wives. On this basis, we found that the vast majority of couples (87.2%) can be considered risk-free, as neither partner is involved in an unprotected extramarital relationship. However, in 40 couples both partners had had unprotected sex outside their regular union. In 292 couples only the man was in this situation and in 270 couples only the woman was concerned. Although men are more responsible for the couple's risk, women make a significant contribution. Other factors include being young, belonging to the Lobi/Dagara ethnic group, being animist, being polygamous, having a higher education level and having a greater degree of autonomy. These are pillars on which a targeted risk reduction approach should be focused.

Keywords: Couple; Burkina Faso; Risk; HIV/AIDS; Sexuality

Introduction

The prevalence of HIV/AIDS in Burkina Faso has been declining steadily for several years. The results of epidemiological surveys based on serology conducted among the general population showed that the level fell from 1.8% in 2003 to 1.0% in 2010 [1], a reduction of about half in seven years. This is a general trend that has also been observed in neighbouring countries. In Côte d'Ivoire, the decline is much more marked, from a relatively high baseline of 4.7% in 2005 to 3.7% in 2011/2012 [2]. In Mali, prevalence fell from 1.8% to 1.1% between 2001 and 2012 [3]. In Niger, there was a downward trend from 0.7% to 0.4% between 2006 and 2013 [4]. Globally, UNAIDS estimated that 39.9 million people were living with the virus in 2023, representing a prevalence rate of 0.8%. The number of people newly infected with HIV that year had not been this low since the late 1980s, with around 39% fewer new infections than in 2010 [5]. This fact has contributed to a certain mental shift, from the frenzy caused by the emergence of HIV/AIDS in the early 1980s and the subsequent prevalence peaks in the 2000s, to a general decline in psychosis among the population. This significant change can certainly be attributed to the major decisions and actions taken at the international level, including the creation of UNAIDS to mobilise resources and coordinate all global initiatives more effectively. The unprecedented mobilisation of individual goodwill has played a major role, but the involvement of governments themselves has also helped to alleviate the plight of those infected and affected, partly through medical advances that have greatly increased the healthy life expectancy of those infected. In recent years, the ways in which the disease is transmitted are well known and widely disseminated to increase awareness and individual responsibility for health. HIV is known to be transmitted through the body fluids of an infected person, particularly blood, breast milk, semen and vaginal secretions. Transmission is facilitated by unprotected anal or vaginal intercourse, the presence of another sexually transmitted infection, the sharing of contaminated syringes, other injection equipment or solutions, injections, high-risk blood transfusions, tissue transplants, medical procedures involving cutting or puncturing of the skin under non-sterile conditions and accidental needle sticks injury [6]. However, sexual transmission remains the predominant mode of disease spread. Heterosexual transmission of HIV accounts for at least 80% of infected adults in sub-Saharan Africa [7]. And 53% of people living with HIV are women and girls [5]. This situation has led to a focus on promoting responsible sexuality. Strategies have focused on categorising populations according to their sexual practices, grouping them into so-called key populations.

Although the number of people living with HIV is falling worldwide, the rate of decline in these populations is still relatively low, which could jeopardise the efforts made and the positive results achieved. Whereas the overall prevalence is 0.8%, prevalence is relatively high among gay men and other men who have sex with

men (7.7%), sex workers (3%), injecting drug users (5%), transgender people (9.2%) and those who are in prison (1.3%) [5]. The focus is oriented on these specific subpopulations, due to their high-risk sexual behaviour, which exposes them to contamination. The priority is therefore to encourage them to protect themselves as much as possible to prevent the disease from spreading to the general population. For people outside these groups, the emphasis has been put on the urgency of having safe sex outside the home and/or restricting their sexuality to the strict confines of a union or stable relationship. The fact is that these different sub-groups are not hermetically separated, so that inappropriate behaviour by some inevitably has repercussions within the household, the community and society as a whole. Conversely, households can also be sources of disease spread; for example, in Mali, no less than 8.2% of HIV-positive couples with a detectable viral load continue to have unprotected extramarital sex [8]. There is therefore a need to investigate the extent to which spouses engage in risky sexual behaviour in their extramarital relationships and the risk of contamination they pose to their spouses within their own household. There is also an overriding interest in considering the possibility of mutual exposure of both partners to the disease. To this end, the study objective is to identify the factors contributing to the risky sexual behaviour of individual partner and of the couple as a whole, in order to guide action to reduce contamination. Knowledge of these determinants will encourage practitioners to focus not only on individual, but also on couple as a unit of interest, and to provide programmatic content.

To this end, a number of factors have been identified that may influence the propensity of partners to engage in extramarital relationships. Emigration, which is a major feature of Burkina Faso's demography, tends to affect men who are young, illiterate, rural, single and lacking community support, all of which could encourage the adoption of permissive sexual behaviour [10]. Cultural and emotional isolation leads to relationships with sex workers in particular [11]. Once back in their community of origin and with substantial subsidies at their disposal, they will tend to reproduce the deviant behaviour inherited from their professional sojourn [12]. The exercise of a particular activity may also, incidentally, encourage risky sexual behaviour. This includes street vendors. Because their mobility facilitates multiple partnerships, their sexual practices are more similar to those of sex workers. Their rejection of prostitution means that they systematically refuse to use condoms [13]. Road hauliers are among the populations with problematic behaviour due to low levels of education, spatial mobility and the establishment of multiple residences along their routes, with inconsistent use of protection [13,14].

Poverty also leads to the adoption of risky sexual behaviour because even when disadvantaged people have access to information, they are not always able to use it. Moreover, when inequalities are too pronounced, the temptation to engage in risky behaviour such as sex work seems likely [15]. Conversely, men from more affluent households are more likely to engage in multiple sexual partnerships due to the greater resources available to them [16]. Education also has the effect of providing access to more resources and thus more opportunities for occasional sex [7]. However, educated people are less likely to engage in risky sexual behaviour; on the other hand, they are more likely to use protection during extramarital relationships [16]. Although education was initially an important factor in risk-taking at the start of the pandemic, there now seems to be a reversal. Education has enabled people to seek out and use the right information [16].

Male circumcision reduces the likelihood of HIV infection by 60% by preventing the foreskin from tearing during sexual intercourse and sexually transmitted infections [15]. Although disproven, there is still a belief that the foreskin has a positive effect on sexual sensitivity [17]; it might be assumed that this encourages circumcised people not to use condoms. However, Phiri et al. [16] found that circumcised men were more likely to use condoms during sex (AOR = 1.17; 95% CI: 1.08-1.27; $p < 0.001$). For women, the implicit idea behind female circumcision is to influence a young girl's sexuality. Through the reduction in libido it is supposed to induce, excision aims to ensure that she reaches marriage in purity, a desirable condition for access to marriage in some communities [18]. Once in marriage, excision is intended to help ensure fidelity and loyalty to her husband. It therefore aims to protect women from their own sexuality by shielding them from the temptations of deviation, suspicion and shame [19]. However, this mechanism does not seem to work very well in Burkina Faso, where girls who are cut are significantly more likely to have their first sexual experience before marriage, and once married they are not more faithful than others [20].

People who started having sex at an early age are more likely to have multiple sexual partners [14,16]. Older men were also less likely to use condoms when having sex with their most recent partner (AOR = 0.63; 95% CI: (0.49 to 0.81) [16]. Their alcohol consumption is often thought to be associated with poorer self-control and riskier sexual behaviour. Alcohol therefore tends to blunt vigilance and the protective reflex. In addition, alcohol drinking places are also meeting venues for people seeking commercial or occasional sex [7]. This is accentuated in urban areas, where sexual relations occur earlier [7] and where individuals have more sexual partners than rural dwellers [14]. However, the latter are less likely to use condoms (AOR = 0.72; 95% CI: (0.66-0.78); $p < 0.001$) [16].

The fact is that polygamy does affect sexual behaviour. Younger polygamous women are more likely to have extramarital partners than monogamous women [21]. Furthermore, men who have occasional sexual relations are those who have more than one regular partner. Many more men than women report having had multiple sexual partners (49% *versus* 25.2%; OR = 1.69; 95% CI = 1.51-1.90) [14]. This means that even women who do not have sexual relations outside their regular partner are at risk of suffering the consequences of their partner's behaviour [7]. Despite this, there are very few opportunities for them to discuss issues relating to sexuality because it remains a deeply rooted cultural taboo [22]. In the absence of communication, internet use and exposure to traditional media take over and unfortunately become significant predictors of risky sexual behaviour [23]. On the other hand, when discussions about sexuality and HIV/AIDS do take place, they are significantly associated with fewer sexual partners for both men and women [14]. Clear and open communication about HIV within a couple actually reduces risky behaviour [24].

Methods

This study is an in-depth secondary analysis of dataset from the fifth Burkina Faso Demographic and Health Survey. Fieldwork was conducted from 30 July to 30 November 2021. This nationwide operation had a representative sample of men aged 15-59 and women aged 15-49. Sampling was based on a two-stage stratified survey. A total of 26 strata were drawn from urban and rural areas in each of the country's 13 regions. In the first stage, 572 clusters were drawn proportionally to the number of households. In the second stage, 32 households were selected from clusters in the Sahel region and 26

households from clusters in other regions. In the 13,251 households identified, 17,659 women and 7,720 men were interviewed. The men interviewed came from half of the households issued from women's clusters. The response rate was 98% for each of the male and female targets [25]. The men in union in this sub-sample and their wives from the same household made up 4,697 couples on which this study is based. In polygamous households, each woman formed a couple with the partner in common. The processing of the data took account the complexity of the draw process and incorporated the weighting of women in union.

The analyses are based on a descriptive approach followed by an explanatory component. The description uses Cohen's Kappa statistic to assess the agreement between the information obtained from each of the spouses. It measures the conformity between the results obtained by two sources on the same object. This statistic is applicable only for two dummy variables with similar modalities. It is formulated as follows: K= (P. Agreement - P. Chance)/(1-P. Chance), where P. Agreement is the probability of agreement and P. Chance is the probability of agreement at random. The value varies between 0 and 1. K = 0 indicates a total unconformity. If 0<K< = 0.20, then the agreement is very low. If 0.40<K< = 0.60, the agreement is moderate. If 0.60<K< = 0.80, the agreement is strong. If 0.8<K< = 1.0, the agreement is almost perfect [26].

Alcohol consumption is defined by four levels, in line with WHO recommendations. These are: no consumption, low consumption, moderate consumption and abusive consumption. The levels of average daily consumption are defined differently according to gender: None (never consumed alcohol), Low (amount of pure alcohol less than 40 g per day for men and less than 20 g for women), Moderate (amount of pure alcohol between 40 g and 59.9 g per day for men and between 20 g and 39.9 g for women), Abusive (amount of pure alcohol greater than or equal to 60 g per day for men and greater than or equal to 40 g for women). The conversion is made on the basis of the equivalence of one glass of alcohol for 10 g of ethanol; the recall period considered is the month. This categorisation is used to define the alcohol consumption of men and women.

A parameter for women's autonomy was constructed from a set of three groups of variables. There are constraints and violence actually suffered by the woman. These include the degree of control exercised by the social environment, emotional violence (humiliating, insulting, embarrassing, hurting someone close to her, etc.), physical violence (pushing, shaking, stoning, slapping, twisting the arm, pulling the hair, hitting with an object, kicking or punching, burning, etc.), sexual violence (forcing or threatening to have intercourse or other sexual acts). Women's financial autonomy (owning their own house and land or owning land jointly) was also taken into account. Gender perceptions were also taken into consideration through five questions: Is it normal to beat a wife if she goes out without warning? If she neglects the children? If she fights with her partner? If she refuses sex? Or if she burns food? These different groups are combined using multiple correspondence analysis. The first two factorial axes resulting from this are then used in a hierarchical classification analysis to form three degrees of women's autonomy.

Sexual risk behaviour has been assessed in terms of the different ways of transmission and the types of protection that can be used. Although there are different modes of transmission, we will focus mainly on sexual transmission, particularly heterosexual transmission, which is the most important factor in the spread of the disease in sub-Saharan Africa. For this purpose, a sexual relationship is considered to be at risk if it takes place between two persons with opposite sex and not linked by marriage or a stable partnership. In addition, a condom must not have been used during the sexual encounter. For a couple, the sexual risk is established if at least one of the sexual partners has been involved in an extramarital relationship outside of marriage or a stable partnership that binds the two spouses. Two partners in an unstable relationship are indeed considered at risk. However, if partners in the same relationship have conflicting claims about the stability of the relationship, any sexual intercourse within that relationship puts the couple at risk. Therefore, the risk status of the couple is coded in two items, based on the 'status' variable for each spouse, by combining them to obtain the following modalities: couple at risk (man and/or woman at risk) and couple not at risk (man and woman not at risk). Even though oral pre-exposure prophylaxis (PrEP) for the healthy and treatment as prevention (TaSP) for those living with HIV to prevent transmitting the virus to their HIV-negative sexual partners are highly effective methods, they remain rarely used by people because of insufficient knowledge, low accessibility and high cost [9]. Thus, these medications have not been taken into considerations in the present analyses.

Based on the brief overview, the independent socio-demographic variables to be considered are: age, sex, religion, ethnicity, occupation, education, place of residence, marital status and wellbeing. This last parameter is based on the durable goods owned by the household and the characteristics of the dwelling (ease and comfort), following the method elaborated by Filmer and Pritchett [27]. The behavioural factors to be included are number of sexual partners, type of sexual partnership, communication between partners, exposure to media, level of alcohol consumption, length of abstinence, age at first sexual intercourse and migration. The collinearity test for the factors will make it possible to apply a parsimony based on the correlation between the factors for each sex.

The explanatory approach starts with a logistic regression that highlights the factors related to the status of each spouse in the couple, followed by a model for the couple that includes the significant factors retained at individual and household level. For certain characteristics of the spouses, recoding is applied according to the degree of concordance of items for the same variables relative to each spouse. For variables with a high level of agreement between spouses (kappa> = 0.8), the couple variable is constituted by an initial variable to which an additional item is added, grouping together all the couples with items from discordant spouses. This procedure is applied to the ethnicity, religion and number of wives variables. For variables with low concordance between partners, multiple factor correspondence analysis helped to construct synthetic parameters on the couples obtained by grouping the close modalities of the spouses. Household variables such as place of residence and household living standard are included without any modification in the individual and couple models.

Results

(a) **Characteristics of the sample:** Classifying couples according to the number of wives of the husband and co-wives of the wife shows that the rate of polygamy among women is 35.9%, i.e. more than one woman in three has lived with a man who already has another wife (Table 1). High polygamy (three or more wives) accounts for 7.7% of husbands and 7.8% of wives. More than three quarters of polygamists have two wives (78.1% and 78.8% respectively). There was also almost perfect agreement between the two spouses on the number of wives their partner had (kappa = 0.871), which is certainly due to the widespread practice of wives living together.

Among men, 68.9% have no education, compared with 71.5% for women (Table 2). The proportion of couples with the same level of education is 66.7%. The majority of these are couples where both partners have no education (57.2%). In 18.8% of couples the man has the higher level of education and in 14.6% the opposite is true. There is little agreement between the spouses in terms of education (kappa = 0.289).

Islam is the dominant religion among spouses, with three out of five people practising it (Table 3). Christianity (Catholicism and Protestantism) is a distant second, with a quarter of the population practising it. There is also a high degree of agreement between the religions practised by spouses. This can be seen firstly in the almost similar distribution of the individual religious frequencies. Secondly, in 89.7 per cent of couples both spouses practise the same religion; the majority of these are Muslim couples (58.4 per cent), followed by Catholics (22.6 per cent). Clearly, cohabitation is strongly influenced by religion. Only 10.3% of couples are made up of spouses of different religions.

More than half of all couples have a Mossi man, followed by those with a Fulani man (54 per cent and 8.6 per cent respectively) (Table 4). Overall, spouses show strong ethnic affinity. This is indicated by the high kappa value (0.807), despite the large number of modalities considered. Again, only 12.7% of the couples differed in terms of ethnicity. The Mossi/Bissa represent the majority of homogeneous couples (58.2%), due to their high initial weight in the total population. The Fulani and the Gurunsis follow in order of importance. This similarity in the proportions of individuals and couples reflects the strong ethnic endogamy of marriage in Burkina Faso.

Table 1: Distribution of couples according to number of husband's wives given by each spouse.

Male	Female						
	1	2	3	4	5	Total	%
1	2893	86	3	2	5	2989	63,6
2	107	1199	34	3	3	1346	28,7
3	10	33	252	3	0	298	6,3
4	1	2	10	33	1	47	1
5	2	0	0	2	13	17	0,4
Total	3013	1320	299	43	22	4697	100
%	64,1	28,1	6,4	0,9	0,5	100,0	
Kappa	0.871						

Table 2: Distribution of couples according to spouses' education level.

Male	Female					
	Uneducated instruction	Primary	Secondary	Superior	Total	%
Uneducated	2689	321	224	0	3234	68,9
Primary	479	173	129	0	781	16,6
Secondary	183	110	235	11	539	11,5
Superior	7	9	93	34	143	3,0
Total	3358	613	681	45	4697	100,0
%	71,5	13,1	14,5	1,0	100,0	
Kappa	0,289					

Table 3: Distribution of couples according to spouses' religion.

Male	Female				
	Moslem	Christian	Animist/Atheist	Total	%
Moslem	2936	131	37	3104	66,1
Christian	78	1093	27	1198	25,5
Animist/Atheist	32	155	208	395	8,4
Total	3046	1379	272	4697	100,0
%	64,8	29,4	5,8	100,0	
Kappa	0.801				

In 28.7% of cases, both spouses work in agriculture (Table 5). Men are more involved than women (58.2% compared with 36.6%). The second most common activity of couples is selling. It concerns 4.8% of couples and is carried out more by men than by women (36.2% compared with 23.1%). Men involved in selling tend to be wholesalers or semi-wholesalers, while women are more likely to be retailers in the country's many weekly markets. We also find that a significant proportion of male farmers are married to women involved in sales. This undoubtedly reflects the division of labour within households. Men are responsible for producing food and women for marketing it. However, responsibilities are not always divided, as women are certainly support workforce, especially in less mechanised farming.

The vast majority of spouses do not drink alcohol (71.7% for men and 82.6% for women) (Table 6). Of those who do, most drink lightly (23.3% for men and 13.9% for women). Heavy drinking is more common among men (3.2% for men and 1.3% for women). In three quarters of couples (76%), both partners drink at the same level. In 17.9% of cases, the man consumes more than his partner. In only 6.1% of couples does the woman drink more than her partner. The majority of couples do not drink at all (67.7%). The distortion between spouses, characterised by the predominance of male drinking, resulted in a low level of agreement within the couple (Kappa = 0.359).

Men's most recent sexual partners were their wives (91.9%) (Table 7). In 1.8% of cases it was their fiancée or girlfriend. In 4.6% of cases it was the concubine. In 1.7% of cases, the relationship was temporary (occasional or paid). For women, the frequencies were 93.3% for husbands, 0.1% for boyfriends and 6.6% for partners. In order to understand the level of exposure to the risk of contamination, the survey also collected information on two partners other than the most recent partner, again in the last 12 months. Of the 4,546 men who had one partner, 1,543 had a second and 356 had a third. The type of relationship with the second partner was also dominated by wives (76.8%). The proportion of girlfriends was 11.3%, with occasional sexual partners or sex workers accounting for 7.7%. For the third partner, 67.4% were wives and 9.6% were girlfriends. Occasional partners or sex workers accounted for 16.8%. Overall, an increase in the number of sexual partners is accompanied by an increase in non-legitimate and occasional partners, as shown by the upward trend in the proportion of sex workers, which rises successively from 0.2% to 1.0% and then to 3.9%.

The status based on the last three partners is established on a systematic categorisation as being at risk if at least one sexual relationship has been at risk. As a result, men are generally more likely

Table 4: Distribution of couples according to spouses' ethnicity.

	Femme								
Homme	**Bobo/Djula /Senufo**	**Peulh/Touareg**	**Gurmantche**	**Gurunsi**	**Lobi/Dagara**	**Mossi/Bissa**	**Other**	**Total**	**%**
Bobo/Djula /Senufo	259	2	2	1	2	20	69	355	7,6
Fulani/Tuareg	3	350	1	1	1	16	30	402	8,6
Gourmantche	1	1	188	0	0	16	0	206	4,4
Gurunsi	1	2	8	188	1	21	9	230	4,9
Lobi/Dagara	1	0	1	1	237	3	12	255	5,4
Mossi/Bissa	22	21	14	13	16	2384	66	2536	54,0
Other	48	13	1	15	12	130	493	712	15,2
Total	335	389	215	219	269	2590	679	4696	100
%	7,1	8,3	4,6	4,7	5,7	55,2	14,5	100,0	
Kappa	0.807								

Table 5: Distribution of couples according to spouses' occupation.

				Female				
Male	**Jobless**	**Technic/Manager /Clerk**	**Sale**	**Agriculture**	**Domestic** /Service	**Manual**	**Total**	**%**
Jobless	22	1	10	5	1	2	41	0,9
Technic/manager/Clerk	117	77	71	44	14	26	349	7,5
Sale	206	18	223	120	18	48	633	13,6
Agriculture	853	22	413	1340	38	52	2718	58,2
Domestic/Service	37	6	34	25	5	16	123	2,6
Manual	278	17	213	177	39	82	806	17,3
Total	1513	141	964	1711	115	226	4670	100
%	32,4	3,0	20,6	36,6	2,5	4,8	100,0	
Kappa	0,160							

than women to engage in risky sexual behaviour (Table 8). However, it is clear that both men and women behave responsibly overall. Only 6.6% of women and 7.1% of men had engaged in risky sex in the 12 months prior to the survey (Table 4). However, the similarity of behaviour between partners was very low (kappa = 0.06). In only 40 couples had both partners engaged in risky extramarital sex (Table 8). In 270 couples only the wife had engaged in risky sex and in 292 couples only the husband had engaged in risky sex. In short, when only one partner has had a high-risk relationship, the exposure to HIV contamination is induced by the other spouse in the couple. In total, there were 552 couples with discordant risk behaviour. Overall, one in ten couples (11.8%) exposes one partner to the potential consequences of the other's sexual behaviour. In couples with concordant risk behaviour, the two partners reinforce each other's risk and could therefore increase transmission and possibly viral load if both are HIV positive at the same time.

The determinants of risky sexual behaviour: The logistic regression model is applied to the sexual behaviour status derived from the last three sexual partners. A model diagnostic was applied to correct for collinearity of factors, specification and model fit. The level of explanation of the model including all explanatory variables is presented (Table 9). For each spouse, a logistic model was constructed to explain the status of risky sexual behaviour. The aim was to highlight the factors specific to each sex or contributing to the common risk status. A synthetic model focused on risk shared by couples, as a couple is considered to be at risk if at least one of the partners is at risk. For the latter model, only variables that were significant in the sex-specific models were retained. To take account of interactions and confounding effects, we tested several models, each time adding a second-order combined variable (results not shown). As these elements did not appear to be significant overall, we retain here only those models that include only main effects. Overall, the level of explanation and the fit of the regression models are quite good. The R-square values (>80%) show that the variables included do effectively explain the phenomenon in question for the units considered. The Hosmer and Lemeshow tests were all non-significant; thus the predicted values followed the logistic model as expected. The agreement between the classification predicted by the model and the observed risk behaviour status is exceptionally high (over 80%).

Table 6: Distribution of couples according to the amount of spouses' alcohol drunk.

Male			Female			
	Not at all	Low	Moderate	Abusive	Total	%
Not at all	3182	163	11	13	3369	71,7
Low	633	367	59	37	1096	23,3
Moderate	31	34	13	3	81	1,7
Abusive	35	89	19	8	151	3,2
Total	3881	653	102	61	4697	100,0
%	82,6	13,9	2,2	1,3	100,0	
Kappa	0.359					

Table 7: Nature of the relationship according to rank of sexual partnership.

	Last		One before last		Two before last	
Relationship	N	%	N	%	N	%
	Male					
Spouse	4177	91.9	1185	76.8	240	67.4
Girl friend/fiancée	81	1.8	174	11.3	34	9.6
Occasional partner	67	1.5	103	6.7	46	12.9
Sexe worker	11	0.2	16	1	14	3.9
Concubine	207	4.6	64	4.1	22	6.2
Other	3	0.1	1	0.1		0
Total	4546	100	1543	100	356	100
	Female					
Spouse	4188	93.3	8	29.6		0
Boyfriend/fiancé	5	0.1	14	51.9	2	100
Occasional partnere	1	0	2	7.4		0
Cohabitant	297	6.6	2	7.4		0
Other		0	1	3.7		0
Total	4491	100	27	100	2	100

Table 8: Distribution of couples according to spouses 'risky sexual status.

		Female		
Male	No	Yes	Total	%
No	4095	270	4365	92.9
Yes	292	40	332	7.1
Total	4387	310	4697	100.0
%	93.4	6.6	100.0	
Kappa	0.060			

Table 9: Logistic regressions of partners' risky sexual status.

Male			Female		
Variables/Items	Exp(B)	Sig.	Variables/Item	Exp(B)	Sig.
Alcohol consumption			Social status		
Not at all	2.514	0.001	High	1.139	0.320
Low	3.136	0.000	Low	0.678	0.034
Moderated	0.677	0.462	Intermediary (Ref)	1.000	
Abusive (Ref)	1.000		Ethnicity		
Ethnicity			Bobo/Djula/ Senufo	0.403	0.007
Bobo/Djula/ Senufo	0.614	0.070	Fulah/Tuareg	0.706	0.169
Fulani/Tuareg	0.435	0.012	Gurmantche	0.264	0.005
Gurmantche	0.118	0.000	Gurunsi	0.559	0.100
Gurunsi	0.473	0.028	Lobi/Dagara	0.959	0.876
Lobi/Dagara	3.822	0.000	Mossi/Bissa	0.928	0.633
Mossi/Bissa	0.772	0.114	Other (Ref)	1.000	
Other (Ref)	1.000		Education		
Religion			Illiterate	0.229	0.000
Moslem	0.244	0.000	Primary	0.374	0.000
Catholic/ protestant	0.304	0.000	Secondary	0.290	0.000
Animist/Atheist (Ref)	1.000		Superior (Ref)	1.000	
Polygamy			Exposition to media	0.759	0.000
1 Wife	0.528	0.001	Age	0.975	0.000
2 Wives	0.561	0.005	Abstinence Duration	0.943	0.032
3 Wives + (Ref)	1.000				
Age	0.958	0.000			
Exact Classification	91.8		Exact Classification		92.9
Test of Hosmer & Lemeshow	0.082		Test of Hosmer & Lemeshow		0.367
R2 Nagelkerke	0.813		R2 Nagelkerke		0.798

Table 10: Logistic Regressions of risky sexual status of couples.

Model 1 : Individual characteristics			Model 2 : Combined characteristics		
Variables/Items	Exp(B)	Sig.	Variables/Items	Exp(B)	Sig.
Female's status			Ethnicity of couple		
High	1.135	0.196	Bobo/Djula/Senufo	0.337	0.000
Low	0.760	0.031	Fulani/Tuareg	0.805	0.336
Intermediary (Ref)	1.000		Gurmantche	0.187	0.000
Female's Ethnicity			Gurunsi	0.520	0.025
Bobo/Djula/Senufo	0.339	0.000	Lobi/Dagara	2.091	0.000
Fulani/Tuareg	0.582	0.009	Mossi/Bissa	0.990	0.942
Gurmantche	0.177	0.000	Other	1.072	0.695
Gurunsi	0.408	0.001	Ethnicity different (Ref)	1.000	
Lobi/Dagara	1.233	0.173	Religion of couple		
Mossi/Bissa	0.757	0.015	Moslem	0.548	0.000
Other (Ref)	1.000		Catholic/protestant	0.592	0.001
Female's Religion			Animist/Atheist	1.995	0.001
Moslem	0.303	0.000	Religion different (Ref)	1.000	
Catholic/protestant	0.339	0.000	Occupation du couple		
Animist/Atheist (Ref)	1.000		Jobless - Jobless	0.757	0.108
Male's religion of			Tech - tech.	0.575	0.028
Moslem	0.542	0.005	Agric/sale of couple	0.818	0.231
Catholic/protestant	0.613	0.008	Domest/Manual woman (Ref)	1.000	
Animist/Atheist (Ref)	1.000		Alcohol Consumption of couple		
			Couple sober	1.327	0.146
			Low Consumption of female	1.255	0.403
			Low Consumption of male	1.633	0.013
			Low Consumption of couple	2.300	0.000
			Moderate/abusive consu. couple	1.000	
			Age Difference of couple		
			< = 2 years	0.723	0.033
			3-7 years	0.590	0.000
			8-12 years	0.701	0.005
			13 years or + (Ref)	1.000	
			Age of male	0.968	0.000
Test Hosmer & Lemeshow		0.081	Test Hosmer & Lemeshow	0.458	
Rate of exact classification		83.4	Rate of exact classification	83.7	
R2 Nagelkerke		0.640	R2 Nagelkerke	0.655	

The explanatory model for men shows that risk-taking is related to alcohol consumption (Table 9). The amount of alcohol consumed is inversely related to the likelihood of risky sexual behaviour. Those who drank less were more likely to engage in risky sex. There is a clear difference between men according to their ethnic group of origin. On the one hand, the Lobi/Dagara have a risk multiplied by about four (aOR = 3.82), and on the other hand, all other ethnic groups have a risk that is significantly lower than the reference represented by 'other ethnic groups'. Men who are polygamous, especially those with more than two partners, have twice the risk of men with fewer wives. Increasing age reduces the likelihood of risky sexual behaviour for both men and women. An additional year of age reduces the risk by 0.042. For women, there is a similar risk among those from the Mossi/Bissa, Lobi/Dagara, Gurunsi and Fulah/Tuareg ethnic groups. Women from other ethnic groups, such as the Bobo/Djula/Senufo and Gurmantche, appear to be less at risk. Furthermore, risky sexual behaviour increases

with a woman's level of education. At the same time, women who are exposed to the media tend to be more responsible (aOR = 0.759). Risk behaviour tends to decrease with age and with the duration of abstinence (aOR = 0.975 and aOR = 0.943).

In the model of couple risk based only on the individual variables of the spouses, the status of the woman had an effect on the risk of the couple, especially those with the highest autonomy status (Table 10). They tended to reduce the risk associated with the couple's sexual behaviour (aOR = 0.760). On the other hand, women from the Lobi/Dagara ethnic group increased the couple's risky sexual behaviour. They were 23.3% more likely to be in a high-risk relationship than women from other ethnic groups. Women from other ethnic groups had significantly lower risks than those in the reference group. Irrespective of gender, Muslims and Christians are less at risk than followers of traditional religions or atheists. Moreover, the effect of Islam and Christianity on avoiding risky sexual behaviour is stronger among women than among men.

In model 2, using the combination of spouse characteristics, it is clear that couples with Lobi/Dagara partners are twice as likely to have at least one partner with risky sexual behaviour (Table 10). On the other hand, Gurmantche, Bobo/Djula/Senufo and Bobo/Djula/Senufo couples have the lowest risk compared to couples with partners from discordant ethnic groups. Couples with only people of traditional/atheist religion are twice as likely to engage in risky sexual behaviour as couples with discordant religions. Uniquely religious Christian and Muslim couples are at least 40% less likely to be at risk. In terms of occupation, couples with two managers are significantly less at risk than couples with farmers/traders or the unemployed. Couples who drink moderately or heavily behave in almost the same way as sober couples. On the other hand, couples who drink little or only with a male drinker are at higher risk. If the age difference between the spouses is large, the couple is more likely to be at risk, but this risk decreases with the age of the man.

The predicted probability of risky behaviour for the couple is 0.128, for the man 0.070 and for the woman 0.067 (Table 11). The increase in probability induced by the fact that the woman is in a couple is 0.061, the equivalent value for the man in a couple is 0.057. This lower value for the man is certainly due to the fact that he already starts from a high level compared to the woman. In fact, the probability of risky behaviour is 0.0038 higher for men than for women. These significant differences reflect the fact that men's sexual behaviour is more often risky. It follows that the probability of risky behaviour in a couple is more strongly correlated with that of the man (0.811). Consequently, the risk induced by being in a couple is more harmful for women than for men. However, both are still negatively affected by the risk-taking behaviour of the other partner in the couple, in addition to the risk generated by the individual.

Discussion

Our analysis is based on the behavioural status of the spouses, which depends mainly on the type of relationship. This status therefore depends on the bias in the definition of relationships given by the spouses themselves. The process of collecting this information is based on the marital status declared by the persons concerned. In this respect, there may be a difference in consideration depending on the type of marriage celebrated. Depending on whether the traditional, religious or civil ceremony was partially or fully completed, individual assessments may lead to a reclassification in the category of engagement, cohabitation or actual marriage. In order not to depend on this possible discrepancy in considerations between partners, a harmonisation of the declarations could proceed by adopting a system of questions based on the types of marriage celebrated, in order to help standardise the importance reached by the relationship and thus reduce the variation of subjectivity. This should be accompanied by a more appropriate capturing on alcohol consumption, which is more closely linked to risk-taking. The data collection focused more on the regularity of consumption, making it possible to determine the average daily quantity consumed by an individual. This average masks more irregular consumption, which is characterised by occasional excessive abuse leading to loss of control and irresponsive behaviour. Recording this particular situation, known as binge drinking, would certainly have revealed different levels of risk-taking behaviour.

Despite the involvement of AIDS projects/programmes in the intensive promotion of condom use, there are still barriers to its effective widespread use. These barriers are of several kinds. In terms of stigma, the possession or use of condoms still carries a certain connotation of lack of trust and evidence of infidelity. This situation is particularly acute for women, who risk at best reprimand and at worst marital breakdown [28]. Women's extramarital sexuality is criticised as immoral, disapproved of and repressed as a reflection of gender inequality [29]. As a result, couples resort to contraception only in rare cases, or in specific circumstances where one of the partners has a reported sexually transmitted infection [30], or shortly after childbirth, thus circumventing the taboo of postpartum abstinence during the breastfeeding period and maintaining the desired length of the inter-genital interval [31].

A major barrier to condom use is the nature of the relationship between partners. In many households, there is a strong gender asymmetry in the couple's contraceptive decision-making process [28]. Men want to have control over reproductive decisions by choosing the number and timing of births. Despite generally positive attitudes towards condoms, they may resist them for fear of losing authority over their wives or partners [32]. In the case of wives, even if they have a significant level of knowledge about how to protect themselves, fear of reprisals forces them to take no action, even if their partner is known to be HIV-positive [15]. As a result, the sexual and/or physical violence they may experience from their partner increases their risk of contracting HIV by 50% [33].

Gender culture and the tradition of polygamy in sub-Saharan Africa favour and even encourage multiple sexual partnerships among men. As a result, men's extramarital relationships are more common and socially accepted as an extension of this culture of polygamy. This sexual permissiveness on the part of men, synonymous with masculinity or virility, is pushed to the point of risk-taking through the inconsistent use of adequate protection [34]. Increasingly, extramarital relationships are taking on the appearance of the 'sugar daddy', 'mistress' or 'second office' phenomenon, or its female counterpart (Tchiza), characterised by a fairly strong asymmetry in age and financial capacity between the man and the woman. Today it takes on the symbolism of ostentation, with the primacy of sexual pleasure in extramarital affairs. These are circumstantial relationships, more compatible with modernity, based mainly on the exchange of material goods in return for favours. These relationships are generally not intended to lead to any kind of stability or legal marriage. Moreover, the weight of age and material resources is all the more unbalanced because it overwhelms the partner's ability to negotiate. This makes it virtually impossible for her to impose her will on the terms of the relationship [35]. For some men, it's about giving themselves a certain status and prestige by taking responsibility for someone else's expenses. They see it more as a continuation of their paternal role, which they believe they are fulfilling for someone who is looking for a livelihood [29].

Table 11: Comparison of the predicted probabilities of risky sexual status of the man and woman of the couple.

				Paired	Differences		
		Average by partner	Correlation between partner	Difference Average	CI of difference		Difference signification
Pair 1	Couple	0.128	0.372	0.062	0.059	0.063	0.000
	Female	0.067					
Pair 2	Couple	0.128	0.811	0.058	0.056	0.059	0.000
	Male	0.070					
Pair 3	Male	0.070	0.190	0.004	0.0006	0.0010	0.002
	Female	0.067					

In some circumstances, a rational choice is made based solely on a subjective assessment of how dangerous sexual relations with a particular partner are. Depending on their perception of the risk of contamination, partners decide whether or not to protect themselves. This assessment is based on a simple assumption of sero-negativity, trust, length of partnership, degree of intimacy, and economic or marital prospects [36]. The decision may also be based on a personal self-assessment of serology status for HIV and any other sexual infection [37,38].

The desire to have children is also a reason for not using condoms. High fertility is still an overriding desire. This is reflected in the large number of non-numerical answers given on the ideal or desired number of offspring. This approach follows both an economic rationale of guaranteeing 'life insurance' through offspring, and a cultural dimension of promoting later social status. Women are therefore encouraged to prove their fertility as soon as possible. As a result, some young girls begin their sexuality with the deliberate aim of proving their fertility [39]. This leads to a quasi-permanent cohabitation in which the first pregnancy is a prerequisite for progress towards a recognised marriage. The contraceptive aspect of condoms then became incompatible with the matrimonial approach. Contraception was only introduced to regulate births once a satisfactory number of children had been born, to ensure the desired social status and to reassure the suitor. As a result, the inconsistent or non-existent use of condoms reflects a desire to signal an intention to deepen relationships beyond sexual partnership. In reality, there has been a shift over time from a motivation for use based on prevention and protection to one based on prevention alone. This shift is reflected in condom use being restricted to periods when there is a risk of pregnancy. However, this is rarely preceded by serological testing to determine the status of each partner. This inconsistency is sometimes justified by infrequent and circumstantial sexual activity, leading to spontaneous intercourse without any particular precautions [40]. Asking for a condom may also mean that one partner is planning to postpone fertility, which is a potential source of tension, especially if the other partner is expecting other children [29].

Refusal to use protection is strongly linked to perceptions of the means used. In many cases, even when the need for prevention is recognised, it is not always clear that condoms are being used correctly. One of the reasons given for this is the reduced pleasure associated with safer sex [41]. Despite research efforts to make products more attractive, while ensuring robustness, comfort and attractiveness, this does not reduce the sometimes purely psychological reluctance. Criticisms of the product range from inappropriate size, the onset of genital pain, tearing during intercourse, the persistent smell of latex and the accumulation of lubricant [40]. Accessibility is also an important factor, particularly in terms of physical accessibility (lack of knowledge about the method, source of supply, distance from the source, availability), psychological accessibility (embarrassment about buying or keeping the method, the imposition of use, the guilt of committing a religious and cultural sin) and financial and social costs (pressure from the family and the marital environment), all of which hinder widespread use [42].

It's not always easy for partners to start a dialogue. When they do, communication between spouses rarely covers all areas of concern; this is particularly difficult when it comes to issues of sexuality. Nevertheless, some women are involved in decisions about sexual relations and are even in a position to refuse sex if their partner has an STI. For these women, the pretext of the partner's STI helps them to refuse sex or to impose condoms [43]. However, advocating condom use in certain couples can sometimes create tension. Suggesting condom use is tantamount to accusing the partner of sexual misconduct. In addition to this suspicion of infidelity, the request may imply that extramarital relationships are maintained with partners of poor character and are risky and comparable to debauchery. In addition, the meaning of the request can lead to a reversal of the accusation, where the partner who has been singled out can turn around and accuse the other of being unfaithful [29]. This could be interpreted by the other partner as an admission of infidelity or lack of trust [44]. To avoid this suspicion, which is a potential source of conflict, couples tend to use strict contraceptive methods rather than methods to prevent disease [36]. On the other hand, the rate of use increases significantly in the case of temporary and especially commercial relationships [37]. In this context, use increases significantly with the number of sexual partners [45,46]. The choice of prevention depends on the nature of the relationship between the partners. The nature of the relationship in question justifies whether or not protection should be used. If the relationship is a socially recognised marital union, condom use is generally significantly lower.

Conclusion

Although the HIV/AIDS prevalence is declining worldwide, it remains a chronic and incurable disease, despite significant medical advances that have prolonged survival and improved the quality of life of those infected. Its social and economic consequences remain devastating for individuals, communities and society as a whole. Risky sexual behaviour due to non-use of condoms in occasional or unstable relationships remains a reality in Burkina Faso. Within couples, 7.1% of men and 6.6% of women engage in risky sex outside the home. This means that more than one in eight couples (12.8%) have at least one member who engages in risky behaviour. The likelihood of the couple being at risk is significantly linked to the behaviour of the man and to a lesser extent to that of the woman. However, this places responsibility of the couple health on each partner. The woman is no longer just the one

who suffers the consequences of her husband's immoral behaviour, but can also be a protagonist. To this end, measures to reduce risk should necessarily take into account her own characteristics and expectations, as well as her interactions with her partner. Her autonomy status, ethnicity, religion, age, level of education and exposure to the media must then be taken into account in interventions aimed at her benefit. The important role that men continue to play in the household means that specific measures must also be taken to address their personal profile, including their young age, polygamous status, animist religion, Lobi/Dagara ethnicity and level of alcohol consumption. The age and occupational differences between the two partners must also be taken into account. These findings therefore suggest that the approach of targeting individuals at the workplace, leisure venues or targeted events needs to be combined with interventions at the household level. In this way, spouses would be reached to convey messages of collective responsibility in the area of infection prevention and the risks that a possible HIV/AIDS infection poses to the life and household stability and to the offspring's future.

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