AIDS-Related Knowledge and Risks and Contraceptive Practices in Ghana: The Early 1990s

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ABSTRACT

HIV/AIDS in Africa is transmitted primarily through heterosexual contact. This mode of disease transmission places sexually active childbearing women at high risk of contracting the disease. In this study, data from the 1993/94 Ghana Demographic Health Survey were used to explore the relationship between AIDS-related knowledge and family planning practices, specifically the use of contraceptives and condoms. While the study finds high levels of AIDS-related knowledge among Ghanaian women, this knowledge is yet to translate into increased condom use. It is suggested that the use of rational choice models in AIDS prevention programs may not be adequate to change people's sexual behaviour, especially in societies where the prevailing cultural practices and norms encourage large families and discourage the use of contraceptives of any type. In such settings, there is the need to find appropriate mechanisms that could help increase the use of all types of contraceptives. As contraceptive use increases, it is likely that the use of condoms for AIDS prevention and also for family planning purpose would increase in sub-Saharan Africa. (*Afr J Reprod Health* 2000; 4[1]:13-27)

RÉSUMÉ

Connaissance et risques relatifs au VIH/Sida et pratiques contraceptives au Ghana: Début des années 1990. En Afrique le virus VIH/Sida est transmis principalement à travers le contact hétérosexuel. Cette manière de transmettre une maladie prédispose les femmes qui sont sexuellement actives et encore en âge d'avoir des enfants à un grand risque de contracter la maladie. Dans cette étude, les données recueillies de l'édition 1993/94 de *Ghana Demographic Health Survey* ont été utilisées pour explorer les rapports entre la connaissance relative au sida et aux pratiques du planning familial, en particulier l'emploi des contraceptifs et des préservatifs. Alors que l'étude a révélé des taux éleves des connaissances relatives au VIH/Sida parmi les femmes ghanéennes, cette connaissance ne s'est pas encore manifestée dans l'emploi augmenté de préservatifs. Il est affirmé que l'emploi des modèles choix rationnel ne suffit pas pour modifier le comportement sexuel des gens, surtout dans les sociétés où les pratiques et les normes culturelles favorisent les familles nombreuses et découragent tout emploi des préservatifs. Dans des situations pareilles, il y a le besoin de trouver des mécanismes convenables qui puissent aider à augmenter l'emploi de toutes formes de contraceptifs. Au fur et a mesure qu'augmente l'emploi des méthodes contraceptives, il est probable que l'emploi des préservatifs pour la prévention du Sida, aussi bien que pour le planning familial, s'augmente dans l'Afrique sub-saharienne. (*Rev. Af Sante Reprod* 2000; 4[1]:13-27)

KEY WORDS: *AIDS, contraceptive practices, Ghana, knowledge, risks*

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Introduction

This paper deals with the association between knowledge of the acquired immune deficiency syndrome (HIV/AIDS) and family planning practices (contraceptive practices) among women aged 20–34 years in Ghana who were married. The impetus for the study derives, in part, from the fact that the AIDS epidemic is exacting an especially heavy toll (e.g., in human suffering, increased mortality and the disruption of social systems and economies) in many sub-Saharan African nations, including Ghana. According to a recent report issued by the United Nations Agency on AIDS (UNAIDS), AIDS has exceeded malaria and other conditions as the leading cause of adult deaths in many of the hard hit African countries.[1] Also, the report notes that majority of all AIDS orphans in the world (about 95%) are from Africa.

While countries in the developed world have a reasonable opportunity to check, or at least reduce the spread of the epidemic, in many parts of sub-Saharan Africa, this is not necessarily the case. This is due partly to the high cost of AIDS medications. Even in the developed world, such as the United States of America, it has been reported in the media that the virus may be showing some signs of resistance against the most powerful protease inhibitors in use at the moment.

As the disease enters its second decade and more people get infected in the sub-Saharan Africa region, there is a need to understand the reaction of some of the key stakeholders, including childbearing women. Empirical studies are needed to assess the possible effects of HIV-related knowledge on preventive strategies in the region. Examination of the relationship between HIV-related knowledge and family planning practices is therefore important as a way to design better programs to stem the increase in infection, and also combat the rapid spread of AIDS in sub-Saharan Africa. The findings reported here are an attempt to explore the implications of HIV/AIDS for family planning services in one West African country, Ghana. The paper defines family planning services broadly to encompass the use of contraceptives, including condoms.

Background

The HIV/AIDS pandemic has hit harder in sub-Saharan Africa than in any other world region. Well into the second decade of the epidemic (and as we enter the next century), sub-Saharan Africa continues to be at the epicenter of the AIDS epidemic. Even though the region represents only 9% of the world's total population, it has been reported that the majority of people (about 40 million) infected with AIDS worldwide are from this region.[1-3]

A key feature of Africa's AIDS epidemic is that it is transmitted primarily through heterosexual contact.[3,4] Because of the mode of transmission, sexually active women, especially married women, are highly vulnerable to contracting the disease. This is especially the case for married women who have sexual relations with husbands (or partners) who have had multiple female sexual partners. It is no surprise then that more women than men have been diagnosed with AIDS [PWA] in Africa.[5,6] Among infected women, report shows that the hardest hit groups are those women in their peak childbearing years, especially women between the ages of 20 and 30 years.[7] Since most childbearing in Africa occur within marital unions (in spite of the reported increase in adolescent and premarital sex), understanding what women who are currently married in this key age cohort are doing in terms of AIDS prevention is necessary to enhance our understanding of the future course of the disease. A systematic identification of the factors that influence the use of preventive strategies in AIDS control could provide information that policy makers can use to target services at those in greatest need.

Despite the magnitude of the problem and the potential policy questions that the AIDS epidemic raises for African societies, relatively little national level research exists on AIDS and its relationship to family planning practices. One major reason for the limited number of studies is the lack of representative data at the national level to monitor responses being made as a result of the disease. Thus, the majority of existing studies have tended to rely primarily on convenience samples and scanty data from the few urban centers in the region. Because such studies are not representative of the general population, knowledge about awareness of HIV/AIDS in the rural areas, where most Africans live, has been limited. Also, because of small sample size, most of these studies have not been appropriate for the use of multivariate analyses.

Why the Focus on Ghana?

At the moment, most of the reported HIV/AIDS cases in Africa have come from the "AIDS Belt" of Central and Eastern Africa.[1,8] However, the West African region is not immune to the ravages of the epidemic, as the disease is also prevalent and spreading rapidly in a number of countries in this region as well. Indeed, the number of reported cases for both HIV-1 and HIV-2 has steadily increased over the years in several cities in Ivory Coast, Mali, Senegal, Nigeria and Ghana.[1,9-12]

In Ghana, which is the focus of this paper, the first cases of HIV/AIDS were reported in March 1986. During this initial period, 63 of the initial 72 cases were found in women, a 7:1 female to male ratio.[13] Since the initial report of the presence of the virus in the country, AIDS has spread quickly into the general population. By mid-1991, about 2,525 AIDS cases had been reported nationwide.[11] This figure rose to 16,690 by December 1995[14] and 29,546 as at August 1999.[15] Because of the fear of stigmatisation, not many people with AIDS (PWA) seek medical care in institutions that report new cases to the Ministry of Health. Thus, it is more likely that the number of actual AIDS cases may be higher than what has been reported so far. Given the increases, and the potential for the future spread of the disease, the focus on Ghana is timely as we explore the reaction of some of the "high-risk" childbearing women to the virus.

In addition, such study is the more needed given that Ghana is one of the few African countries that have had a long history of family planning programming. As part of the country's attempt at checking its population growth, a national policy was established in the late 1960s, which stressed the use of contraceptives for both fertility reduction purposes and also as a method of health promotion. The latter is particularly true about the condom, which can be used as a fertility regulating method and also to prevent the transmission of sexually transmitted diseases. In spite of these efforts over the years, contraceptive use rates in Ghana (measured by either current use rate, for both condom and general contraceptives) are among the lowest in Africa. For instance, among women who were married, only 20% reported any contraceptive use in Ghana.[16]

Another reason for focusing on Ghana is that the country shares common borders and linguistic affinity with Cote D'Ivoire, Burkina Faso and Togo, countries that have some of the highest AIDS cases in the West African region.[1] Because of these two forces — proximity and cultural affinity — people from these countries move freely and often reside in each other's country (some as migrant labour, others as commercial sex workers). Indeed, sizable proportions of Ghanaian migrants are found in these neighbouring nations. It is not surprising to note that some researchers have linked the initial spread of AIDS in Ghana to the activities of Ghanaian commercial sex workers in these countries, especially in the city of Abidjan in Ivory Coast.[17] Indeed, during the early stages of AIDS in Ghana, most of those infected were people who had lived outside the country, and almost all of these people were women.[11,18] Given the history of family planning in Ghana, the rapid spread of the virus in the country, and the high levels of migration from neighboring countries with high prevalence of HIV, understanding what works and what does not work in this country could have tremendous implications elsewhere in the whole West African region.

Conceptual Context

An attempt to explain behaviour related to HIV/AIDS must begin with a basic fact — HIV/AIDS is transmitted primarily through unprotected sexual contacts with infected persons. In Africa, these contacts are most likely to be heterosexual in nature. The sexual mode of transmission is important in a nation as Ghana where there are strong pronatalist pressures in the society. Although the number of children women in Ghana bear continues to decline over the years, the total fertility rate (TFR) of Ghanaian women is still high, about 5.4 children per woman.[16] These pronatalist pressures may in turn act as a barrier to the use of preventive measures and strategies that rely on a method such as the condom, which is both used as a contraceptive device and also as a prophylactic mechanism against sexually transmitted diseases, including HIV/AIDS.

A widely held view in social demographic literature is the notion that African traditional values encourage large family sizes, since children are considered as economic assets. The emphasis placed on procreation, the argument goes, tends to reduce

the motivation for married women to restrict their fertility. As a result, the use of contraceptives, including condoms, is inhibited.[19,20] In this type of discourse, the cultural norms are seen as contributing to both high birth rates and the rapid spread of HIV/AIDS. Recently, it has also been argued that in male-dominated societies, women's behaviour, to a large extent, may be influenced by male preferences and behaviour, which in turn affect women's reproductive choices.[21-24]

In agricultural communities, children may constitute an important source of labour needed to carry out the strenuous tasks involved in farming. Moreover, children are essential for their parents' security when they get old because of the fact that there is very little available institutional care for the elderly. Particularly, in regions where death rates are also high, couples are likely to see it as necessary to produce many children in order to have some of them survive and provide assistance to the parents in their later years.

The forces cited above may pose a serious challenge to AIDS prevention programs, which employ fear, morality and rationality in persuading people to change their sexual behaviour. For example, in most national AIDS prevention programs in Africa, because the epidemic is driven primarily by sexual behaviour, it is believed that individuals will make rational choices that will advance their well being and satisfaction. Thus, those at risk may be more likely to weigh the costs and benefits of the situation and then decide on a course of action that will provide them with the greatest benefits at the least cost.

A specific application of the rational choice theory to matters of health can be found in the health belief model [HBM].[25] This model argues that people will take action to protect their health if they perceive that they are susceptible to a particular health problem, if they perceive that the problem is serious, and if they perceive that the benefits of taking protective measures outweigh the cost of those measures. The assumptions of the HBM appear to have guided the HIV/AIDS prevention programs in numerous African nations, including Ghana. For the most part, these campaigns are based on the assumption that if people perceive themselves as susceptible, know the seriousness of the disease, and realise that the benefits of using condoms outweigh the costs, they will avoid dangerous exposure to HIV/AIDS.[26]

This view of human rationality, however, may be limited to a consideration of health matters only. In fact, there are good reasons to suspect that HIV/AIDS could produce the opposite effect, thereby reducing the use of contraceptives of any kind, both for preventing pregnancies and also to protect against AIDS (depending on the method of contraceptive used). While it is rational for married women to use condoms to protect themselves from HIV/AIDS, their analysis of the costs and benefits of doing so may incline them not to do so. For example, those women who fear they will contract HIV may be afraid that they will die of AIDS before producing children. In such a scenario, those women who think they are at high risk of contracting the disease may be more likely to want to have children than are women who do not perceive themselves to be susceptible. To die childless in a culture that emphasises childbearing as a hallmark of women's status may represent such a cost that the woman may avoid using contraceptives of any type, including condoms, which could help to prevent HIV/AIDS and also reduce unwanted births.

Another cost to the Ghanaian woman might be that in order to persuade her partner or husband to use condoms, she would have to violate strongly held norms about male dominance in decision making.[22,23] Extreme female assertiveness in an area of behaviour that forms a core issue in males' self-concept and social status may represent a cost that the married woman views as excessive. She therefore may rationally decide not to try to convince her husband to use condoms.

Knowledge about HIV/AIDS, on the other hand, could also lead to a complex set of interactions which could motivate African women to change their ambivalent attitude towards the use of contraceptives, especially the condom. For instance, a married woman may want to avoid having children, or additional children, because she is afraid that she may contract HIV/AIDS and not live long enough to raise them to maturity. Another is that she may not want to become pregnant because she realises that if she does contract HIV/AIDS before the child is born, she may pass the disease on to the unborn child. In these situations, it is more likely that these women would want to use contraceptives to prevent getting pregnant. These are speculations, of course, but they

seem reasonable as potential explanations for possible linkages between knowledge about HIV/AIDS and contraceptive use in general. However, if the pronatalist attitudes among women in Ghana discussed above are extremely strong, it is to be expected that there will be no relationship between level of knowledge about HIV/AIDS and the use of contraceptive in general or the use of condoms in particular.

The present study tests two hypotheses that grow out of the "cultural inhibition" view and the health belief model discussed above. The first hypothesis is that the level of knowledge about HIV/AIDS will be positively related to married women's use of contraceptives in general in Ghana. This hypothesis is offered in an atmosphere of exploration, given the lack of firm data upon which to predict a direction for the relationship. Lack of any significant relationship between these variables may suggest that the desire to produce children or additional children is stronger than the fear of HIV/AIDS. A significant positive relationship may indicate that the fear of HIV/AIDS has taken precedence over the high cultural value placed on producing children.

The second hypothesis provides a test of the usual assumptions of rational choice theory as it has typically been applied to the relationship between knowledge about HIV/AIDS and condom use. Specifically, the hypothesis being tested here is that, all other things being equal, the more married women of childbearing age in Ghana know about HIV/AIDS, the more likely they will use condoms in their marital sexual relations. A strong relationship between level of knowledge about HIV/AIDS and use of condoms would suggest that condoms are being used primarily as a disease prevention measure rather than as a contraceptive technique and that fear of HIV/AIDS has thus taken precedence over pronatalist pressures.

Data and Methods

The data for this study were from the most current and available national level data on Ghana, the 1993/94 Ghana Demographic and Health Survey (GDHS).[27] The 1993/94 GDHS is the second in a series of demographic health surveys conducted by the Ghana Statistical Service, with funding from the Demographic Health Surveys and the United States Agency for International Development (USAID). The sample for the survey relied on the 1984 census enumeration areas (EAs). The selection of the sample was done in two stages — a household survey, which was used to identify the individuals to be interviewed, and an individual survey. In all, 4562 women between the ages of 15 and 49 were successfully interviewed in 1993/94.

The respondents were interviewed on a series of questions dealing with their reproductive-related behaviour including contraceptive knowledge and use, attitudes toward family planning, marriage, fertility and family formation histories, and their prenatal care history. In addition to the above questions, a specially developed module called knowledge, attitude, and practice (KAP) was also used to collect information about HIV/AIDS-related knowledge and sexually transmitted diseases from the respondents. It is the questions on HIV/AIDS-related knowledge and contraceptive behaviour that were used in this study. Because the interest in this study was to understand the behaviour of one of the groups at a higher risk of HIV infection in Ghana, the analyses were restricted to currently married women aged 20–34 (N = 1,909).

Focusing on currently married women does not suggest that only married women are sexually active in Ghana. Rather, compared with single and unmarried women, married women are more likely to be sexually active, given their marital status and the expectations associated with such role. Most importantly, prior research indicates that a sizable proportion of Ghana's AIDS (especially women) cases are to be found in this age cohort. Also, while the 1993/94 GDHS provides national-level data on AIDS, we must acknowledge that the questions deal primarily with knowledge, attitude and practice (KAP) measures and therefore have certain limitations. For instance, respondents were not asked to indicate their own perceived risk of contacting the disease. It is therefore necessary to use proxy indicators to measure the respondent's own perceived risk of HIV/AIDS infection. Most importantly, since males use condoms, information about husbands' use of condoms could have yielded more reliable results about condom use. For the most part, this information is lacking in the present study. In spite of these inherent limitations, the GDHS is one of the few national data sets containing information on knowledge about

HIV/AIDS and which provides an adequate sample size for a reliable assessment of the HIV/AIDS situation in Ghana.

Measurement of Variables

The main dependent variables employed in the study deal with contraceptive practices. Contraceptive practices were measured in four different ways: (a) current contraceptive use, (b) future contraceptive use, (c) current use of condoms, and (d) the intent to use condoms in the future. Each of the variables was coded as "1" when use was present and "0" when absent. We acknowledge the lack of a clear theoretical link between general contraceptive use and HIV/AIDS, especially in a study of behavioural changes associated with the disease. However, in Ghana, overall contraceptive use (of any methods) is quite low. Moreover, for the most part condoms have been promoted more as a family planning method than as a method to prevent STDs. The focus on both general contraceptive, as well as the condom, we believe, could provide policy makers with some information as to whether condom use, if framed in terms of family planning practices, could lead to behavioural changes.

Another methodological problem with the dependent variables is the intention measures. Indeed, there is an ongoing debate in demographic literature as to whether in Africa women's intentions necessarily translate into behaviour. While it is known that intentions are subject to change, it has been reported in demographic literature that individual intentions about future fertility-related issues are important predictors of future behaviour.[28-30] Moreover, the inclusion of measures dealing with family planning use intentions (contraceptives and condom) allows us to assess future needs for family planning services in Ghana. Finally, the data do not allow us to address an important issue regarding contraceptive use, in particular the condoms, either for family planning or preventive purposes.

The key independent variables deal with various dimensions of AIDS-related knowledge. They include awareness of AIDS, knowledge about the mode of transmission (sexual), knowledge about perinatal transmission, i.e., transmission to one's unborn children, knowledge that a healthy looking person could be infected with the AIDS virus, and, knowledge about the role of condoms in AIDS prevention. Each of these issues was measured in a dichotomous (yes-no) fashion. The yes responses were coded as "1" and "0" was used for all other responses (including those who gave "don't know" answers).

Previous researchers have identified a number of factors that influence decisions about contraceptive use in general.[19-21,23,31] Some of these variables are included in the present analysis. They include age, place of residence (rural or urban), education, religious identity, ethnicity, parity, fertility (family size) preferences, and spousal attitudes and discussion regarding family planning (used as a proxy indicator of gender and power relations). To test for the possibility of a cohort effect on the use of general contraceptives and condoms, age was coded into five-year intervals of 20–24, 25–29, and 30–34. Place of residence was coded as a dummy variable represented by rural (coded as 0) and urban (coded as 1) residence.

Education had the following categories: no schooling (coded as 0), elementary only (coded as 1), and secondary (high school) or post-secondary (coded as 2). Religious identity was coded as "1" for Catholic, "2" for Protestant, "3" for Moslem, and "4" for other/no religious identity/transitional. Ethnicity was coded as "1" for Akans, and "0" for non-Akans, i.e., Ewe, Ga/Adangbe, Mole/Dagbani, and others. Parity measured the number of children ever born. Fertility preferences were coded as "1" for those respondents who wanted more children, "2" for those who did not want more children, and "3" for those who were undecided. Attitudes towards family planning were measured by a series of yes/no responses. The first taps whether the respondent's spouse (husband) approves of family planning. The second considered the respondent's (wife) own attitude towards family planning, and the final measure looked at the discussion of family planning issues. The latter was coded as "1" if they did discuss this issue together and "0" if they did not.

Analytical Strategy

The analysis is organised as follows: first, descriptive statistics were reported for all the variables used in the study. Second, multiple logistic regression analyses were estimated to assess the effects of HIV/AIDS-related knowledge on the family planning measures, that is, the use of contraceptives and condoms.

Results

Table 1 presents summary characteristics of the women studied. In all, about 29% of the women sampled were between the ages of 20 and 24, 37% were between the ages of 25 and 29 and the remaining 34% were in the 30 to 34 age cohort.

Table 1 **Summary Characteristics of the Study Population: Women Aged 20–34 years, Ghana**

	%	N
Age group		
20–24	**28.81**	550
25–29	36.67	700
30–34	34.52	659
Residence		
Urban	32.11	613
Rural	67.89	1,296
Educational level		
None	37.87	723
Elementary	54.74	1,045
Secondary (high school)+	7.39	141
Religious identity		
Catholic	15.61	298
Protestant	52.44	1,001
Moslem	12.62	241
Other (no religion/Traditional)	19.22	367
Ethnicity		
Akan	47.46	906
Non-Akan	52.54	1,003
Parity (children ever born)		
None	6.18	118
One	19.59	378
2 or more	74.23	1,417
Fertility preferences		
Want more children	70.93	1,354
Want no more	23.57	450
Undecided	4.87	93
Missing	0.63	12
Attitude towards family planning		
Spouses (husband approves of family planning)		
Yes	62.86	1,200
No	37.14	709
Respondent (wife) approves family planning		
Yes	87.74	1,675
No	12.26	234
Both discuss family planning		
Yes	19.80	378
No	80.20	1,531
Total	**100.00**	**1,909**

Overall, nearly 68% of the sampled respondents indicated that they were rural residents. Regarding the educational attainment of the women, slightly more than half (55%) reported an elementary school education, 7% had a high school or post-secondary school education, while 38% indicated that they had no formal education. Christians (68%, with Protestants [52.4%] being the single largest Christian category) comprised the single largest religious group studied. Muslims accounted for 13%, and those who indicated that they were traditional believers or had no religion were 19% of the sample. Consistent with their distribution in the general population, Akans accounted for nearly half (47.5%) of the women surveyed. Most of the women sampled had children (93.7%), only 6% indicated that they had no children. Asked about their fertility preferences, about 71% of the women said they still wanted more children, while 24% said they did not want more children. Regarding the question on attitudes to family planning, about 63% of the respondents reported that their husbands approved of the use of family planning. As for the respondents themselves, nearly two-thirds (87.7%) indicated that they themselves approved of the use of family planning. In contrast to the high approval rates by both the respondents and their spouses, only 20% of the women said they discussed family planning issues as a couple (jointly).

Table 2 shows the distribution of HIV-AIDS-related knowledge and contraceptive use measures employed in the study. In general, HIV/AIDS-related knowledge is quite high among women aged 20–34 years in Ghana. Almost all the women sampled (94%) indicated that they knew about the disease called HIV/AIDS.

Table 2 **Summary Characteristics of AIDS and Contraceptive Measures: Women Aged 20–34 Years, Ghana (N = 1,909)**

	%	N
AIDS-related knowledge		
Knowledge/awareness about AIDS	94.10	1,796
Knowledge about sexual transmission	84.60	1,615
Know that mother can transmit to unborn child	78.00	1,489
Know that one can get AIDS without using condoms	79.20	1,511
Know that a healthy looking person can have AIDS	65.70	1,255
Contraceptive use behavior		
Currently using contraceptives		
Yes	19.70	376
No	80.30	1,533
Contraceptive use intentions		
Yes, intend to use	74.59	1,424
No intention to use	25.41	485
Currently using condoms		45
Yes	2.36	1,864
No	97.46	1,909
Condom use intentions		
Yes, intend to use	2.04	39
No intention to use	97.96	1,870
Total	**100.00**	**1,909**

Similarly, the proportion of women who knew they could contact HIV/AIDS through sexual contact or by not using condoms was very high (85%). This figure is consistent with what has been reported nationally among women aged 15–49 years.[27] As to whether the respondents knew that a healthy looking person could be HIV-infected, about 66% responded in the affirmative. Moreover, 79% of the women were aware that one's chances of contacting the AIDS virus was high if the person did not use a condom during sex.

In contrast to the high levels of AIDS-related knowledge, only 19.7% of those sampled said they were using any form of contraception. Regarding the use of condoms, the numbers are quite disappointing as only 2.4% of the women indicated that they were using condoms in their encounters. Because of the low use of contraceptives and condoms, we asked the respondents to indicate their intentions about future use. On the intention questions, it was observed that about 74.5% of the women indicated their intention to use some form of contraception in the future. When asked specifically about the use of condom in the future, we did not find any significant change between the current users and those intending to use in the future.

How does HIV/AIDS-related knowledge influence decisions about family planning services in Ghana? To get a clearer picture of the effects of AIDS-related knowledge measures on contraceptive practices, a series of logistic regression equations were estimated. The first models considered the direct effect of AIDS on contraceptive practices alone (Table 3). The next two tables, i.e., Tables 4 and 5, show the assessment of the impact of HIV/AIDS-related measures and appropriate controls on contraceptive practices. For both models, because of the high inter-correlation between the variable called knowledge about AIDS and the other AIDS measures, the former was excluded from the equations.

Table 3 **Logistic Regression Estimates of General Contraceptive Use, and Condom Use by AIDS-Related Knowledge: Women Aged 20–34 Years in Ghana**

	Model I			Model II			Model III			Model IV		
Variable	**b**	**SE**	**Exp. (B)**	**b**	**SE**	**Exp. (B)**	**b**	**SE**	**Exp. (B)**	**b**	**SE**	**Exp. (B)**
AIDS-related knowledge												
Sexual transmissibility	0.82	0.90	2.28	–1.15	0.83	0.32	–3.33	14.56	0.04	-3.22	14.74	0.04
Can contact AIDS without condom	1.01*	0.24	2.75	0.43*	0.15	1.54	0.95	0.75	2.59	1.14	0.76	3.12
Healthy looking person can have AIDS	0.32*	0.15	1.38	0.29*	0.13	1.33	1.35*	0.55	3.84	0.30	0.43	1.36
Mother to child transmission	0.54*	0.21	1.71	0.34*	0.15	1.41	–0.14	0.50	0.87	–0.02	0.51	0.98
Constant	–2.94			0.38			–5.51			–5.04		
N	1909			1909			1909				1909	

** $P < 0.05$*

Model I: Current contraceptive use
Model II: Intention to use contraceptive
Model III: Current condom use
Model IV: Intention to use condoms

Table 4 **Logistic Regression Estimates of Contraceptive Use Behaviour by AIDS-Related Knowledge and Maternal Characteristics: Women Aged 20–34 Years in Ghana**

Variable	Model I b	SE	Exp. (B)	Model II b	SE	Exp. (B)
AIDS-related knowledge						
Sexual transmissibility	0.50	0.29	1.65	0.46*	0.18	1.58
Can get AIDS without condom	0.54*	0.25	1.72	0.10	0.18	1.58
Healthy looking person can have aids	0.05	0.16	1.05	0.12	0.15	1.13
Mother to child transmission	0.19	0.22	1.21	0.26	0.17	1.29
Age group						
20–24	-0.04	0.20	0.96	0.62*	0.19	1.87
25–29	0.11	0.16	1.12	0.49*	0.16	1.64
(Ref. Category is age 30+)						
Education						
Elementary	0.92*	0.18	2.51	0.30*	0.15	1.36
Secondary (high school)	1.53*	0.25	4.62	0.74*	0.30	2.09
(Ref. Category is no education)						
Urban residence	0.40*	0.14	1.49	–0.02	0.14	0.98
Akan origin	–0.15	0.14	0.86	–0.10	0.14	0.91
Religious identity						
Catholic	0.12	0.25	1.13	0.13	0.21	1.36
Protestant	0.29	0.21	1.34	–0.02	0.18	0.98
Muslim	–0.26	0.29	0.77	0.02	0.21	1.02
(Ref. Category is others)						
Parity (children ever born)	0.12*	0.05	1.12	0.24*	0.05	1.27
Fertility preferences						
Want more children	0.14	0.15	1.15	–0.43*	0.17	0.65
Undecided	–0.79	0.38	0.45	–0.76*	0.29	0.47
(Ref. Category is no more)						
Attitude towards family planning						
Husband approves family planning	0.73*	0.16	2.08	0.83	0.13	2.29
Wife approves family planning	1.24*	0.36	3.47	1.71	0.17	5.51
Both discuss family planning	j0.02	0.15	0.98	0.23	0.17	1.26
Constant	–5.59			-2.40		
N	1,909			1,909		

*$p < 0.005$

Table 5 **Logistic Regression Estimates of Condom Use by AIDS-Related Knowledge and Maternal Characteristics: Women Aged 20–34 Years in Ghana**

Variable	Model I b	SE	Exp. (B)	Model II b	SE	Exp. (B)
AIDS-related knowledge						
Sexual transmissibility	0.13	0.78	1.14	–0.16	0.68	0.85
Can get AIDS without condom	0.71	0.79	2.03	1.32	0.84	3.74
Healthy looking person can have aids	1.18	0.57	3.26	0.18	0.46	1.20
Mother to child transmission	–0.48	0.53	0.62	–0.18	0.57	0.84
Age group						
20–24	0.58	0.51	1.78	j0.24	0.56	0.79
25–29	0.49	0.43	1.63	0.46	0.46	1.59
(Ref. Category is age 30+)						
Education						
Elementary	0.82	0.49	2.27	0.50	0.44	0.60
Secondary (high school) (Ref. Category is no education)	0.74	0.66	2.09	0.43	0.56	1.54
Urban residence	0.81*	0.34	2.24	0.25	0.38	1.28
Akan origin	0 19	0.33	0.83	–0.14	0.37	0.87
Religious identity						
Catholic	0.24	0.73	1.27	1.09	0.73	0.34
Protestant	0.44	0.64	1.55	0.14	0.50	0.87
Muslim	0.82	0.73	2.27	1.22	0.82	0.29
(Ref. Category is others)						
Parity (children ever born)	0.05	0.13	1.05	0.36*	0.15	0.70
Fertility preferences						
Want more children	0.19	0.40	1.21	0.05	0.44	0.95
Undecided	0.57	1.06	0.57	0.52	0.82	1.69
(Ref. Category is no more)						
Attitude towards family planning						
Husband approves family planning	0.93*	0.46	2.54	0.31	0.41	1.36
Wife approves family planning	0.84	1.04	2.33	1.29	1.04	3.63
Both discuss family planning	0.33	0.34	1.39	0.49	0.36	1.63
Constant	9.55			5.24		
N	1,909		1,909			

*$p < 0.005$

From Table 3, AIDS-related knowledge has a significant effect on overall contraceptive use ($p < 0.05$), whether measured as current contraceptive use or the intention to use it in the future. With the exception of the variable dealing with sexual transmission, all the other variables in Models I and II were significant. For example, in the absence of any control variables, we found that women who realised that a healthy-looking person could have AIDS were more likely to use contraceptives than those who felt a healthy looking person could not have AIDS. Similarly, women who knew that engaging in sexual intercourse without the use of a condom, and those who thought they could transmit the virus to their unborn children were more likely to indicate their intention to use some form of contraception in the future. The question that is not clear at this point is whether the observed relationship is spurious or not, given that we did not control for the effects of other variables. In contrast to general contraceptive use, the only significant predictor of condom use of any type is the knowledge that a healthy-looking person could have AIDS (Model III). As the case with the bivariate relationships, it appears that few women want to use contraceptives in their sexual encounters.

Findings regarding the effects of AIDS and respondents' socio-demographic characteristics on outcome measures are presented in Tables 4 and 5. Table 4 shows the effects of AIDS and appropriate controls on general contraceptive use.

In general, the findings in Table 4 regarding the influence of the HIV/AIDS measures and respondents' characteristics on contraceptive use is not consistent with the findings reported in Table 3. For the most part, we found that only a few of the AIDS measures were significant in our models. In contrast, maternal education, urban residence (Model 1), parity, and the approval of family planning (Model I) were found to be linked to contraceptive use. This is especially true about current contraceptive use. The findings that education and also the approval of family planning (especially from the husband) increase the odds of contraceptive use is consistent with what has been reported in literature in recent years.[21,23] Our finding is that the more children a woman already had (parity) raises the question of timing and spacing with regard to contraception in Ghana. It appears women still operate within a society that cherishes childbearing. Such a scenario suggests a possible link between contraceptive use and factors that may be unrelated to the AIDS virus. Indeed, such an observation is not new. In a study of some West African societies, Bledsoe et al[32] observed that women used contraceptives primarily to space births, wean a child, or protect the health of the mother and not as a means to reducing family size. The same interpretation may be applied to the findings regarding intended future use of contraceptives in the present study. In this regard, programs aimed at HIV/AIDS prevention would have to consider those issues that affect overall childbearing in Ghanaian society.

Table 5 presents the results of the effect of HIV/AIDS-related knowledge, maternal characteristics, fertility preferences, and other relevant characteristics on condom use.

While some AIDS measures were significant predictors of current and intended contraceptive use (see Table 4), the same cannot be said about the use of condoms (Table 5). In general, except for the knowledge that one can contact HIV/AIDS by having sexual intercourse without using a condom (Model I), which remains a significant predictor of current condom use, none of the AIDS variables was significant. As the case is in Table 4, it appears that condom use is related more to place of residence (Model I), parity (Model II) and the approval of the husband to the use of family planning (Model I).

Summary and Conclusions

There is an urgent need to find ways to address some of the health needs facing countries in the sub-Saharan African region. In this regard, policies aimed at reducing the spread of the AIDS virus are needed to help improve health outcomes and increase life expectancy in this region of the world. In this paper, data from Ghana were used to explore the association between HIV/AIDS-related knowledge and family planning services during the early part of the 1990s. Separate analyses were performed to test the possible influence of AIDS on general contraceptive use, and also on the use of condoms. The main finding in this study is that it appears that HIV/AIDS education messages have been effective in increasing awareness of the dis-

ease among some segments of women in the society. This is evident by the high levels of HIV/AIDS-related knowledge reported among the married women studied in the early 1990s.

In spite of the reported high levels of AIDS-related knowledge, there were no appreciable changes in preventive strategies, as very few women reported using condoms (a major AIDS preventive method) in their sexual encounters. Moreover, the proportion of women who indicated their intention to use condoms in the future was minimal. Even though there are indications to suggest that the women studied indicated their intention to use some form of contraceptives in future, it must be emphasised that intentions are not static and could change over time. Overall, our analyses suggest that the effect of AIDS on contraceptive practices in Ghana generally is weak.

From the point of view of reproductive health programs, the non-use of condoms by a sizable proportion of women at a time when HIV/AIDS is spreading in Ghana raises a number of policy questions that have to be addressed. First, why is it that in the face of AIDS women in Ghana are still unwilling to use a method such as the condom in their sexual encounters? Second, what is the best way to change people's risky behaviours in societies that are by nature pronatalist? If health care providers and also policy makers in Ghana (and for that matter West Africa) are to make headway in their AIDS prevention efforts, appropriate means may have to be found to increase the use of condoms in the region. This may mean that the overall approach to the dissemination of AIDS information may have to change. Rather than framing AIDS prevention campaigns in terms of rationality, fear and morality, it may be important to recast the whole approach to HIV prevention as part of a larger framework of reproductive health. This is especially the case among married women who are more likely to contract AIDS from their partners. As contraceptive use increases, it is more likely that there would be a higher chance that some women (and their partners) would choose to use condoms.

What are the policy implications of the findings in terms of (a) HIV/AIDS prevention and (b) family planning programs? First, lack of a direct effect of HIV/AIDS-related measures on condom use in general raises the question of whether individual women in Ghana and most of sub-Saharan Africa have the necessary power to translate their intentions (if any) into actual use. As a number of recent studies have shown, the actions of husbands and other male partners may exert a tremendous impact on decisions about the use or non-use of contraceptives within a household.[21,23,24] In a society such as Ghana where women are not likely to be able to force their partners to use condoms, there is need to consider appropriate strategies that can get men actively involved in the HIV/AIDS prevention programs underway in this country. Unless unequal power relations between spouses are considered, it may be difficult for health planners to increase contraceptive use rates (including condoms) whether as a means for reducing birth rates or for preventing the spread of HIV/AIDS. Understanding women's behaviour pertaining to contraceptive use (whether condom or not) may require appropriate modeling of female and male preferences, the latter of which are absent in our analysis. In that way, it may be possible to link women's stated preferences to those of their male partners.

Second, there is the need for qualitative research that can unravel the reasons why Ghanaian men and their partners do not use the condom. An in-depth analysis of the social context behind condom use needs to be further investigated if policy makers want to make a dent in reducing the spread of AIDS in Ghana (especially in the absence of complete abstinence). This is important if a major goal of HIV/AIDS prevention is to increase condom use.

Third, increased coordination between HIV/AIDS prevention efforts and population/family planning programs may be needed for purposes of prevention and population control activities in Africa. For instance, since the condom is used for family planning and prevention (dual-method use) in Africa, our program administrators need to find ways to integrate the two uses in their interventions. If women realise that the condom is used just for prevention, it may be linked to poor health primarily, which could in turn affect use rates. The findings reported here highlight the challenges facing policy makers attempting to increase condom use as a means for containing the HIV/AIDS epidemic in Africa.

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