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2

# Mass Media and Reproductive Behavior in Africa

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# Mass Media and Reproductive Behavior in Africa

CHARLES F. WESTOFF
AKINRINOLA BANKOLE

Macro International Inc.
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Charles F. Westoff is Professor of Demography and Sociology, Office of Population Research, Princeton University; Akinrinola Bankole is Research Staff, Office of Population Research, Princeton University.

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# Preface

One of the most significant contributions of the DHS program is the creation of an internationally comparable body of data on the demographic and health characteristics of populations in developing countries. The *DHS Analytical Reports* series and the *DHS Comparative Studies* series examine these data across countries in a comparative framework, focusing on specific topics.

The overall objectives of DHS comparative research are: to describe similarities and differences between countries and regions, to highlight subgroups with specific needs, to provide information for policy formulation at the international level, and to examine individual country results in an international context. While *Comparative Studies* are primarily descriptive, *Analytical Reports* utilize a more analytical approach.

The comparative analysis of DHS data is carried out primarily by staff at the DHS headquarters in Calverton, Maryland. The topics covered are selected by staff in conjunction with the DHS Scientific Advisory Committee and USAID.

The *Analytical Reports* series is comprised of in-depth, focused studies on a variety of substantive topics. The studies employ a range of methodologies, including multivariate statistical techniques, and are based on a variable number of data sets depending on the topic under study.

It is anticipated that the *Analytical Reports* will enhance the understanding of significant issues in the fields of international population and health for analysts and policymakers.

Martin Vaessen
Project Director

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# Executive Summary

An important missing link in theories of the fertility transition is the role of ideas communicated by the mass media that compete with traditional notions of early childbearing and large families. For example, these modern ideas can take the indirect form of encouraging consumer values that may conflict with early marriage and high fertility, or they may be more direct in the form of explicit messages about family planning. Other themes related to the status and roles of women or to secular values may have similar effects. Such ideas can be communicated in soap operas, advertising, music, news, and many other forms. With the rapidly increasing exposure to the mass media in developing countries, the potential impact of the transmission of modern ideas that can influence reproductive behavior, even without other radical social and economic changes, is considerable. This analysis strongly suggests that exposure to the mass media has such effects.

The research in this report is based upon surveys conducted by the Demographic and Health Surveys (DHS) program in the first half of the 1990s in six sub-Saharan African countries—Burkina Faso, Ghana, Kenya, Madagascar, Namibia and Zambia—and in Morocco, where a panel study was conducted during the same time period. The focus of this study is on the behavior of currently married women and single women separately. In Ghana and Kenya where surveys of men were included, married and unmarried men and married couples were also studied. The measures of media exposure are derived from questions about how regularly the respondents listened to the radio, watched television, read newspapers or magazines, and whether they had heard explicit family planning messages on the radio. Different measures of reproductive behavior which include age at marriage, age at first sexual experience, knowledge and use of contraception, intention to use a method, the number of children considered ideal, and the desire for additional children were then explored for their connections with media exposure.

People who are more educated and those living in cities are more likely both to be exposed to the mass media and to be more oriented toward fertility regulation. Therefore, these covariates were controlled in the statistical analyses, along with numerous other related variables such as age, number of children, region of residence, religion, ethnicity, whether the household has electricity, and additional socioeconomic controls, all of which were included in an attempt to isolate the effects of the media. Even with all of these controls, however, there is concern with the possibility of self-selection that can obscure the causal connections between media exposure and reproductive behavior—namely, that women and men who might be oriented toward fertility regulation might also be the same people who would be attracted to the media. Thus, the associations observed between the two variables may reflect more this process of self-selection than direct cause and effect. Although such concerns can only be satisfied with an experimental research design, the panel study in Morocco in which a large sample of women initially interviewed in 1992 were reinterviewed in 1995, at least affords control of the time sequences between media exposure and subsequent family planning.

The general conclusion of this research is that there is a persistent and frequently strong association between exposure to the mass media and reproductive behavior in Africa in the expected direction; such exposure is directly related to greater knowledge and use of contraception, intention to use contraception in the future, preferences for fewer children, and intention to stop childbearing. In addition, there is evidence that media exposure is also associated with later age at marriage. These conclusions are generalizable to women and men, both married and single.

Radio exposure in general, as well as explicit family planning messages on the radio, is most consistently related to reproductive behavior, followed by the print media and television (still in its infancy in many countries of this region). The various contraceptive measures and age at marriage show the strongest associations with media exposure.

# 1 Introduction

One of the most glaring gaps in our knowledge of the demographic transition in developing countries is the lack of evidence to explain the causes of the recent and incipient declines of fertility. The conventional litany of theories includes economic development, improvements in the status of women, education, the reduction of child mortality, and the promotion of organized family planning programs. All of these are plausible, yet the evidence is not impressive. When evaluated as a whole, much of the decline of fertility remains unexplained.

One promising theoretical direction, labelled the "ideational hypothesis," asserts that Western or modern ideas about life play a major role in influencing reproductive attitudes and behavior in developing countries (Cleland and Wilson, 1987). Moreover, these ideas can penetrate and operate without structural economic transformations, without increases in per capita income, and even without changes in the status of women. This new "black box" can include a variety of modern ideas about consumption, control over one's life, women's roles in both the household and the economy in general, the costs and economic value of children, and other notions such as the costs and value of education that can undermine traditional attitudes toward early marriage and childbearing and contribute to the development of a norm of small families. Such exposure may communicate the modern idea that fertility can be regulated and that its control can be regarded as an instrumental means to other ends, such as the health of mothers and children, socioeconomic goals, or considerations of the quality of life for children.

Radio, television, newspapers and magazines are obvious potential vehicles for the communication of such ideas. Research that the authors and others have recently completed (Bankole et al., 1996; Bertrand et al., 1982; Piotrow et al., 1990; Westoff and Rodriguez, 1995) indicates that deliberate media messages about the advantages of family planning and smaller families can increase contraceptive adoption and influence reproductive preferences. The primary focus here, however, is not on such explicit efforts—although they are included in most of the analyses—but rather on the indirect effects of the mass media in general, as they can function to open windows on modern ideas that can alter reproductive behavior (Kojima, 1994). The assumption is that general programming such as music, drama, news, documentaries, and advertising can legitimize attitudes and values derived from modern cultures. In most African countries, news programs are reported to be the most popular television programming (Bourgault, 1995).

## 1.1 RESEARCH PLAN

The plan is to analyze a large body of survey data from Africa to evaluate the importance of the mass media in the early stages of the fertility transition. The particular data to be used from the Demographic and Health Surveys (DHS) are the responses to questions about whether women regularly listen to the radio, watch television, or read newspapers or magazines. The operating assumption is that whatever content is relevant for reproductive behavior, its importance will be associated with the amount of exposure. The survey data are analyzed for the following countries: Burkina Faso (1992-93), Ghana (1993), Kenya (1993), Madagascar (1992), Namibia (1992), Zambia (1992), and the panel survey for Morocco (1995).

Earlier analyses have been undertaken in Nigeria (Bankole et al., 1996), and this report provides comparable tabulations across six other sub-Saharan African countries. In Nigeria in 1990, 50 percent of women regularly listened to the radio and 20 percent watched television. Among women who were regularly exposed to both media, 69 percent knew about contraception compared with only 19 percent who were not exposed to either radio or television. A similar pattern was obtained with both approval of contraception and with actual use of a method. The proportions of women giving nonnumeric responses to the question on number of children desired such as "It's up to God" varied widely by media exposure. Most of these associations persist with the imposition of numerous controls.

Initially, strong associations are evident in Figure 1.1 which shows the cross-tabulation of media exposure with the proportions of married women currently using contraception in six sub-Saharan African countries. Such strong relationships could obviously be caused by covariates of media exposure and contraceptive practice such as urban residence and education. However, the association, although attenuated, seems to persist significantly among rural women (Figure 1.2), and among women with no education (Figure 1.3) where only radio and television are examined. A similar pattern is observed between the number of children

Figure 1.1 Percentage of married women currently using contraception by regular exposure to radio, television, or print media, Demographic and Health Surveys, 1992-1993

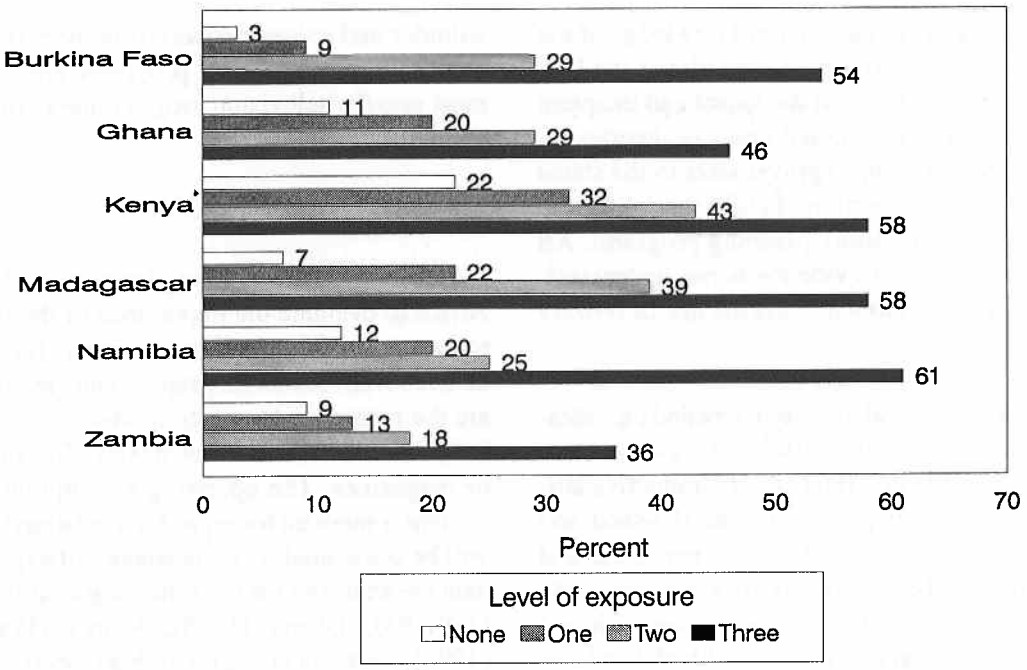
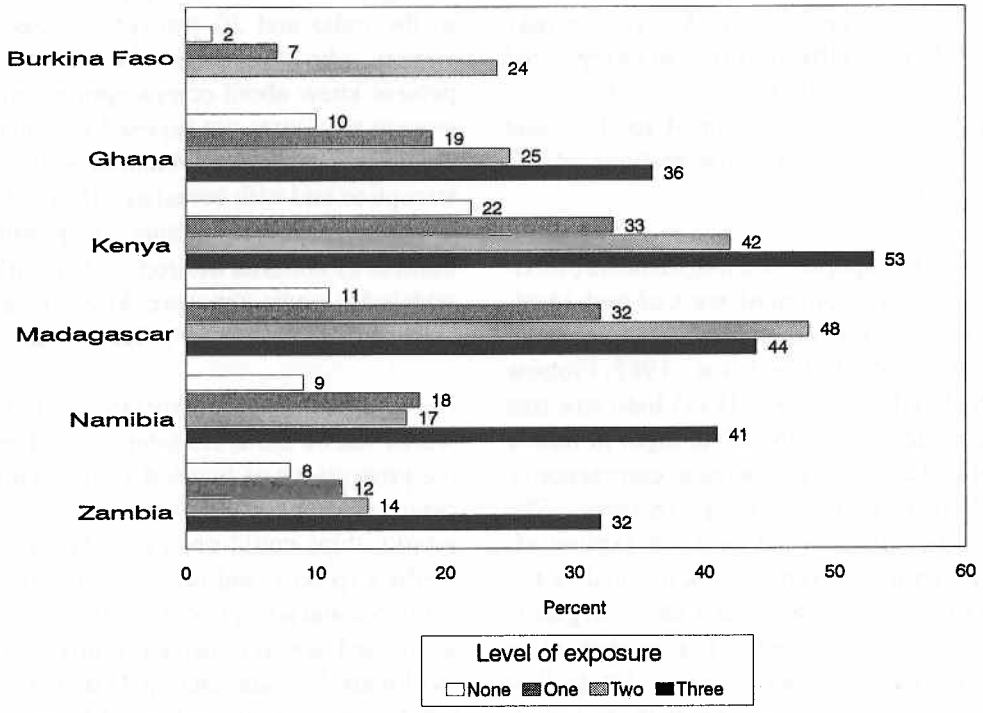
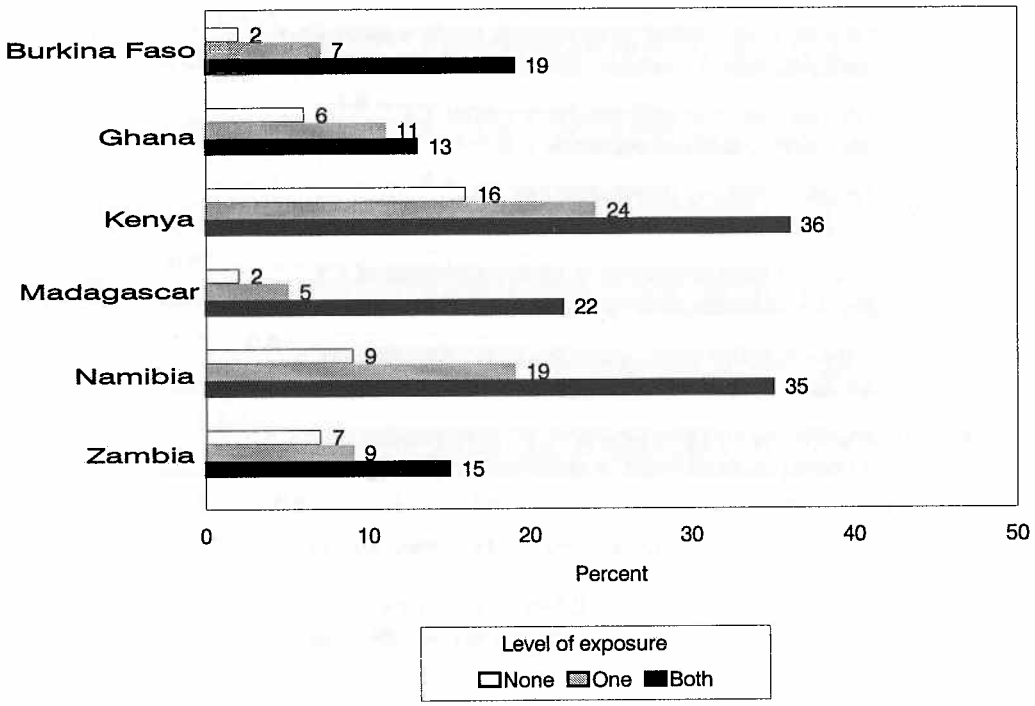



Figure 1.2 Percentage of rural married women currently using contraception by regular exposure to radio, television, or print media, Demographic and Health Surveys, 1992-1993




Note: Exposure to all three media for Burkina Faso is not shown since the number of cases is under 20.

Figure 1.3 Percentage of married women with no education who are currently using contraception by regular exposure to radio or television, Demographic and Health Surveys, 1992-1993




desired and media exposure (Figure 1.4), and again the association persists for rural women (Figure 1.5) and for women with no education (Figure 1.6). Little is known about the determinants of reproductive preferences; however, exposure to the mass media may add significantly to what is known about this important policy topic.

A chronic problem with the interpretation of such associations in cross-sectional data is the admixture of causal and self-selection mechanisms. It is assumed that the diffusion of modern ideas through the mass media affects reproductive attitudes and behavior. However plausible this may be, and it is certainly consistent with the strong associations displayed in Figures 1.1-1.6, an alternative interpretation cannot be ruled out, i.e., that sub-populations with low fertility (where contraceptive prevalence rates are higher and smaller families more normative) might be more likely to be media consumers because they have earlier internalized modern ideas derived from other unobserved sources. Disentangling these two mechanisms seems impossible with any kind of research design, short of a full-fledged experimental design, which would include a "before" and "after" measurement focused on a new media intervention and an experimental and control population. Such a study is currently nearing completion in Tanzania (Rogers et al., 1996), but it is limited to the evaluation of a single soap opera on radio specifically designed to influence reproductive behavior. The primary interest here is in the more general exposure to modern ideas that filters through all media and which is not focused explicitly on reproductive behavior. It is difficult to imagine any research design that could disentangle all of these direct and indirect influences. What can be achieved is to determine how much of a media "effect" remains after numerous life-cycle and socioeconomic covariates of both exposure and reproductive behavior are controlled in multivariate analyses. There are also data from a longitudinal study in Morocco in which half of the women initially interviewed in the 1992 DHS were reinterviewed. Such a design at least permits some control of the time sequences involved, but obviously does not resolve the major complexities of causal inference.

Figure 1.4 Mean number of children desired by all women by regular exposure to radio, television, or print media, Demographic and Health Surveys, 1992-1993

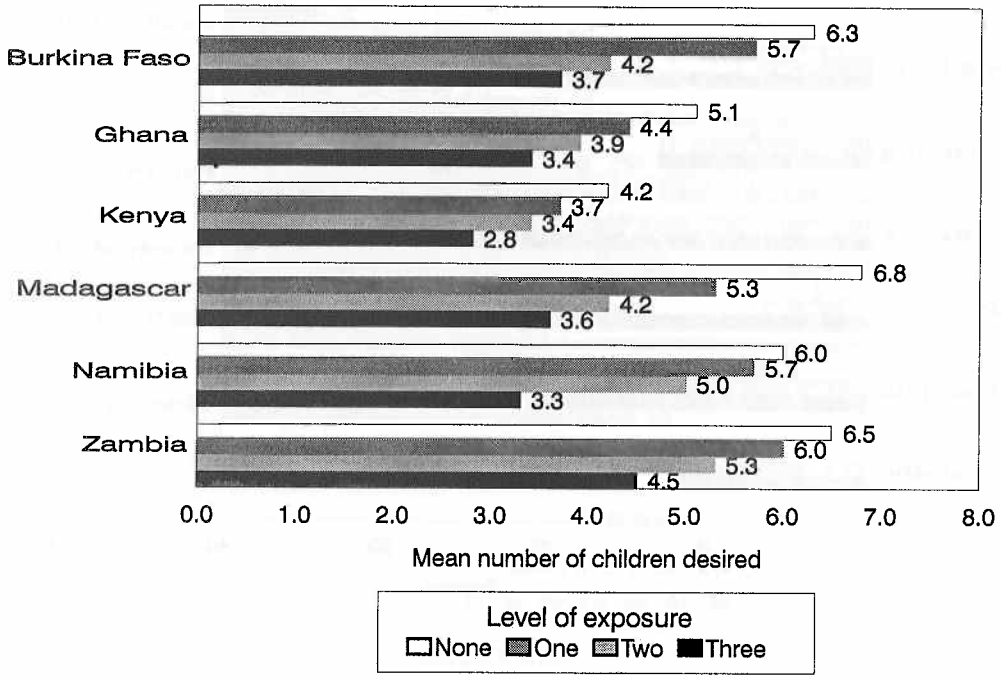
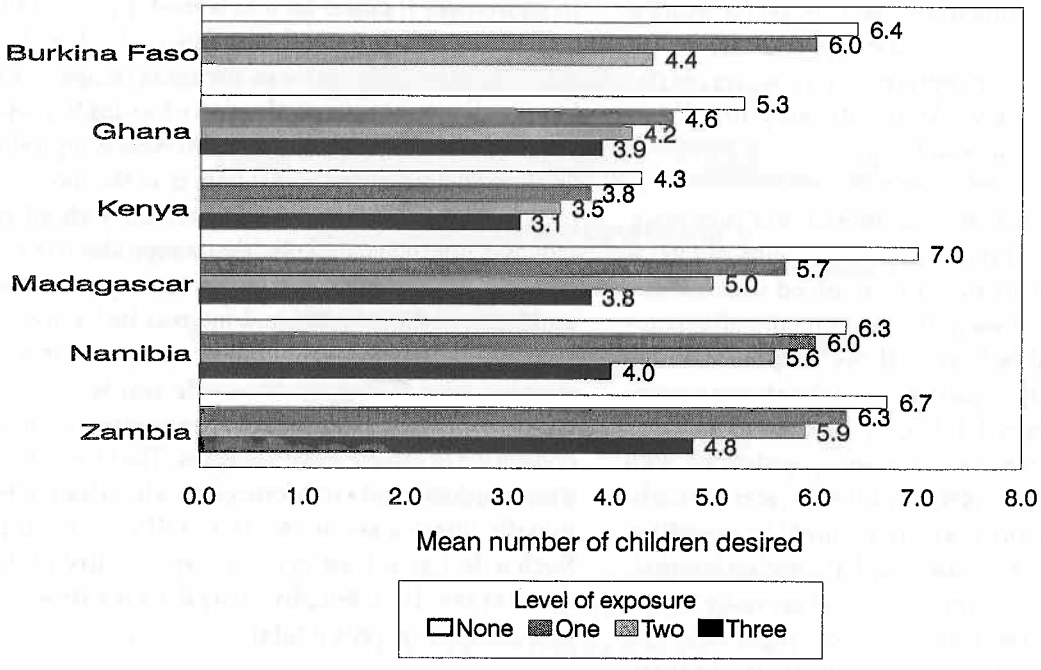
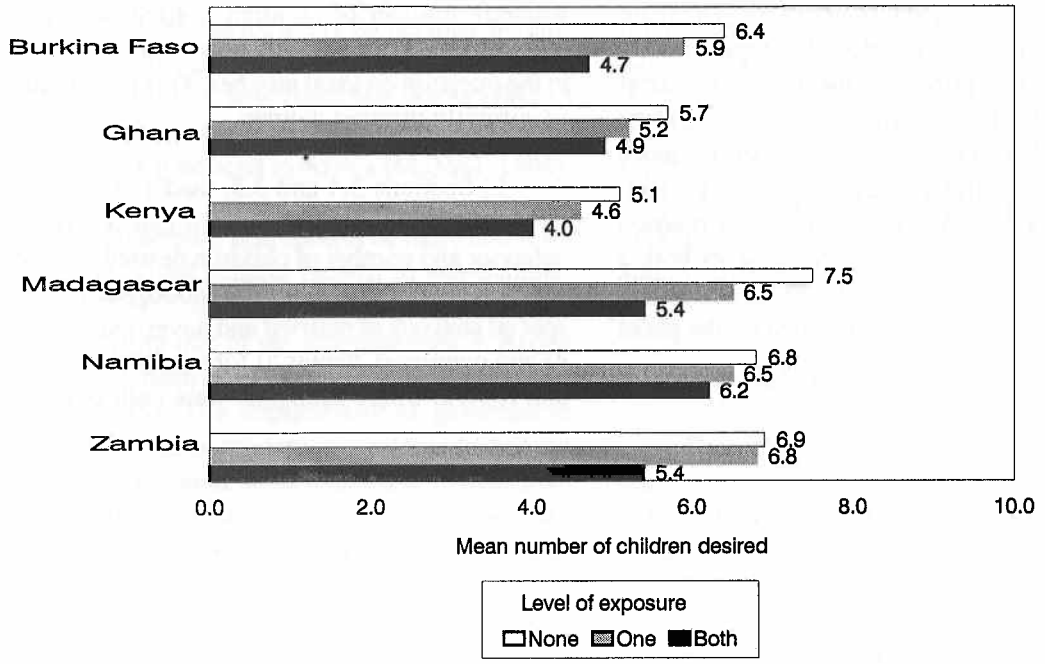



Figure 1.5 Mean number of children desired by rural women by regular exposure to radio, television, or print media, Demographic and Health Surveys, 1992-1993




Note: Exposure to all three media for Burkina Faso is not shown since the number of cases is under 20.

Figure 1.6 Mean number of children desired by women with no education by regular exposure to radio or television, Demographic and Health Surveys, 1992-1993




Another mechanism that cannot be evaluated with the DHS data is the social network interactions that are stimulated by the media which, in turn, may increase media exposure and impact. These networks undoubtedly can communicate, popularize, and reinforce ideas derived from the media.

The objective of the research presented here is to explore these connections in greater depth with more controls, to extend the analysis to other dependent variables such as age at marriage, to examine the impact of media on the sexual behavior and contraceptive knowledge and practice of unmarried adolescents, and on a more limited basis, to evaluate the impact of media on the reproductive behavior and attitudes of men and of married couples. The media variable is disaggregated in order to evaluate the relative importance of radio, television, and newspapers and magazines.

If it can be demonstrated that exposure to the mass media significantly affects reproductive attitudes and behavior in a number of African countries, and that this effect is not reducible to residential, educational, or economic explanations, then an important part of the fertility transition may be explained and an important policy instrument may have been isolated.

## 1.2 STRATEGY OF THE ANALYSIS

With the exception of Morocco, for which longitudinal data are available, the analysis focuses exclusively on sub-Saharan Africa. This part of the world is of particular interest because the penetration of media is still developing, unlike more developed countries in Asia and Latin America where radio and even television exposure is becoming universal. Africa is also of interest because of the high rates of population growth and the beginnings of fertility decline in a few countries. The countries analyzed in this study represent different cultural and regional settings, varying levels of development, and different stages in the fertility transition in Africa. National sample surveys under the auspices of the DHS program were conducted in these countries between 1992 and 1993.

The analysis first describes the amount of exposure of married women of reproductive age (15-49) to the different media in the six sub-Saharan countries (Chapter 2). The

next step is to examine the covariates of such exposure, including a variety of life cycle and social variables (Section 2.1). Exposure is measured for each of the media as a dummy variable with a value of 1 if a woman reported having heard messages on the medium, and 0 otherwise. The main part of the analysis is then to determine the impact on the reproductive variables (described in the following paragraph) of exposure to the different media (Section 3.1) first individually, then together, and subsequently in the presence of all of the covariates. A similar analysis is added for illiterate women in Section 3.2. The final section (for married women) focuses on the Morocco data and presents both a cross-sectional view of the associations and a view which exploits the before and after features provided by the panel design (Section 3.3).

The dependent variables include: knowledge of modern methods of contraception, current use of any method of contraception, intention to use a method (for current nonusers), reproductive intentions (whether more children are wanted), number of children desired or considered ideal, and whether a nonnumeric or numeric response was given to the question on ideal number. This presentation is limited to currently married women.

In Sections 3.4 and 3.5, media effects on age at first sex and age at marriage for all women, and on contraceptive behavior and number of children desired among never-married women are explored. The monograph concludes with a special analysis of married and never-married men (Chapter 4) and couples (Chapter 5) for two of the countries (Ghana and Kenya) where such data were collected.

# 2 Exposure to Mass Media

According to an estimate by the British Broadcasting Corporation, the number of television sets in Africa as of 1992 was 16.2 million, or one for every 29 persons, and increasing rapidly. Radios, also on the increase, outnumber television sets four to one. A new radio that can be cranked up and is not dependent on batteries which are expensive to use is now being mass produced in Africa (McNeil, 1996).

Government ownership and control of radio and television broadcasting is the general pattern in sub-Saharan Africa (Carver, 1995). Namibia is an exception and "has earned respect for being one of the few countries in Africa where the media have been allowed to operate with genuine freedom" (Lush, 1995). The implications of government control for the penetration of modern or western ideas is not completely clear but it would seem likely that it would reduce the impact. The reported exposure to radio and television as well as to newspapers and magazines is shown in Table 2.1 for the six sub-Saharan countries. The measures are very crude and reflect answers to questions about whether women listen to radio, watch television, or read newspapers or magazines at least once a week. As noted at the outset, there is no information collected regarding the content of such exposure, which could include music, drama, news, political messages, advertising, and so on. The origins may be indigenous or western. The premise is simply that "modern" ideas communicated through the media, such as an emphasis on consumerism, for example, may weaken traditional notions about reproduction and that their significance will increase with the amount of exposure. There is, of course, the possibility that some media content will be pronatalist in effect; the assumption here is that the net effect will be the opposite.

The estimates in Table 2.1 indicate that media exposure in these African countries is greatest in Namibia for all three media; only 14 percent are not exposed at all while 22 percent are exposed to all three. The least exposure is evident in Burkina Faso and Madagascar where close to three out of five women report no exposure to any of the three media. Exposure to radio is highest in Namibia while women in Morocco report the most television viewing. Newspapers and magazines are more frequently read in Namibia and in Zambia.

## 2.1 COVARIATES OF MEDIA EXPOSURE

The associations of different background characteristics with media exposure are shown in Tables 2.2-2.4 for radio, television and the print media, respectively. The results are presented in terms of odds ratios from multivariate logit regressions in which all of the covariates are examined simultaneously. The focus is on the six sub-Saharan African countries; analysis of the Moroccan panel study is presented at the end of the section. For each country, region of residence and ethnic group identity are included among the covariates and in the following multivariate analyses; however, these variables are not shown in the tables because of their country specificity.

Education shows a convincing correlation with exposure both to radio and television. The variable was excluded from the analysis of print media because illiterate women have no education and do not read newspapers or magazines, thus artificially dominating the results. For radio and television, women with some secondary education are particularly more likely to be exposed in all six countries.

Table 2.1 Percent exposed to mass media: married women

Percent of currently married women exposed to mass media at least once a week, Demographic and Health Surveys, 1992-1993

| Media exposure variable | Burkina Faso | Ghana | Kenya | Madagascar | Namibia | Zambia |
|---|---|---|---|---|---|---|
| Radio | 41.0 | 51.9 | 63.5 | 38.5 | 81.5 | 55.1 |
| Television | 8.9 | 34.1 | 11.3 | 9.5 | 26.2 | 16.8 |
| Print | 5.3 | 11.6 | 26.3 | 14.2 | 48.9 | 37.2 |
| No exposure to any | 57.5 | 38.9 | 32.6 | 57.8 | 14.4 | 36.0 |
| Exposed to one | 32.7 | 32.3 | 41.4 | 27.6 | 36.6 | 30.5 |
| Exposed to two | 6.9 | 20.9 | 18.4 | 9.4 | 27.1 | 22.1 |
| Exposed to all three | 2.9 | 7.9 | 7.6 | 5.3 | 21.9 | 11.5 |
| Number of women | 5,326 | 3,204 | 4,629 | 3,736 | 2,259 | 4,457 |

Table 2.2 Odds ratio: radio exposure

Odds ratio of socioeconomic and demographic covariates of exposure of married women to radio, Demographic and Health Surveys, 1992-1993

| Explanatory variable | Odds ratio | | | | | |
|---|---|---|---|---|---|---|
| | Burkina Faso | Ghana | Kenya | Madagascar | Namibia | Zambia |
| **Age** | | | | | | |
| 15-19 | 0.78 | 0.59** | 0.66** | 0.48*** | 0.93 | 0.89 |
| 20-29 | 1.00 | 0.73** | 0.71*** | 0.56*** | 1.56** | 1.29** |
| 30-39 | 1.04 | 0.93 | 0.77*** | 0.83 | 0.95 | 1.24* |
| 40+ | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Education** | | | | | | |
| None | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Primary | 2.29*** | 1.55*** | 1.89*** | 1.50*** | 1.55*** | 1.95*** |
| Secondary+ | 4.77*** | 2.24*** | 3.60*** | 3.54*** | 2.87*** | 3.35*** |
| **Residence** | | | | | | |
| Urban | 2.38*** | 1.25* | 1.33* | 1.70*** | 1.32 | 2.09*** |
| Rural | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Number of living children** | | | | | | |
| 0 | 1.48*** | 1.61*** | 1.31* | 1.98*** | 1.48 | 1.22 |
| 1-2 | 1.20 | 1.13 | 1.24** | 1.58*** | 0.94 | 1.18 |
| 3-4 | 1.22** | 1.11 | 1.22** | 1.36*** | 0.84 | 1.14 |
| 5+ | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Number of husband's other wives** | | | | | | |
| None | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| One | 0.97 | 0.86 | 1.19 | 1.51** | 0.82 | 0.90 |
| Two or more | 1.06 | 0.90 | 1.17 | a | 1.17 | 0.92 |
| **Husband's occupation** | | | | | | |
| Never worked | 1.29 | 0.92 | 1.16 | 3.53*** | 0.77 | 1.44* |
| Prof./Tech./Manag. | 2.29*** | 1.77*** | 2.44*** | 4.58*** | 1.98** | 2.25*** |
| Sales | 1.95*** | 1.39* | 1.52*** | 2.62*** | a | 1.73*** |
| Agriculture | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Services | 2.47*** | 1.74*** | 1.95*** | 6.14*** | 1.01 | 1.69*** |
| Skilled manual | 2.87*** | 1.49*** | 2.01*** | 2.52*** | 1.20 | 1.39*** |
| Unskilled manual | 2.08*** | 1.01 | 1.16 | 1.28 | 0.95 | 1.44*** |
| **Electricity** | | | | | | |
| Yes | 1.64** | 1.36** | 3.86*** | 2.22*** | 1.02 | 2.31*** |
| No | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Refrigerator** | | | | | | |
| Yes | 1.19 | 1.22 | 0.86 | 0.86 | 1.81** | 1.76** |
| No | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Car** | | | | | | |
| Yes | 1.17 | 2.75*** | U | 1.13 | 2.55*** | 2.09*** |
| No | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| **Motorcycle/Bicycle** | | | | | | |
| Yes | 1.76*** | 2.14*** | 2.12*** | 2.92*** | 1.63*** | 2.84*** |
| No | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Religion** | | | | | | |
| Catholic | a | 1.03 | 0.96 | 0.95 | 0.80* | 1.07 |
| Protestant | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Muslim | 1.04 | 0.79 | 0.73 | 1.17 | a | a |
| Traditional/Other | 0.53*** | 0.49*** | 0.38*** | 0.59*** | 0.18*** | 0.57*** |
| Chi² | 1,483.9 | 632.3 | 778.3 | 1,121.3 | 339.8 | 1,397.4 |
| (degrees of freedom) | (37) | (43) | (39) | (29) | (27) | (31) |
| Number of women | 5,326 | 3,204 | 4,629 | 3,736 | 2,259 | 4,457 |

*** ($p < 0.01$); ** ($p < 0.05$); * ($p < 0.10$)
U = Unknown (variable not available)
[a] Category not available

Table 2.3 Odds ratio: television exposure

Odds ratio of socioeconomic and demographic covariates of exposure of married women to television, Demographic and Health Surveys, 1992-1993

| | Odds ratio | | | | | |
|---|---|---|---|---|---|---|
| Explanatory variable | Burkina Faso | Ghana | Kenya | Madagascar | Namibia | Zambia |
| **Age** | | | | | | |
| 15-19 | 2.02* | 1.80** | 0.82 | 0.94 | 1.15 | 3.16*** |
| 20-29 | 1.67* | 1.18 | 0.67* | 1.00 | 0.97 | 2.67*** |
| 30-39 | 1.46 | 1.05 | 0.93 | 1.43 | 1.27 | 1.99*** |
| 40+ | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Education** | | | | | | |
| None | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Primary | 1.45** | 2.24*** | 2.51*** | 1.03 | 2.94*** | 1.60** |
| Secondary+ | 2.53*** | 3.00*** | 5.87*** | 2.19** | 5.40*** | 2.46*** |
| **Residence** | | | | | | |
| Urban | 11.32*** | 2.38*** | 1.98*** | 5.89*** | 1.97** | 4.75*** |
| Rural | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Number of living children** | | | | | | |
| 0 | 1.32 | 1.95*** | 1.49 | 1.59 | 1.95** | 1.26 |
| 1-2 | 1.08 | 1.46** | 1.20 | 1.14 | 1.81*** | 0.95 |
| 3-4 | 0.95 | 1.26 | 1.38* | 1.08 | 1.47* | 1.14 |
| 5+ | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Number of husband's other wives** | | | | | | |
| None | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| One | 1.20 | 1.09 | 0.62* | 0.69 | 1.12 | 1.15 |
| Two or more | 0.79 | 0.98 | 0.89 | a | 0.63 | 1.25 |
| **Husband's occupation** | | | | | | |
| Never worked | 2.90** | 0.92 | 0.98 | 2.41 | 1.18 | 3.23*** |
| Prof./Tech./Manag. | 1.62 | 1.67*** | 1.59*** | 2.66*** | 1.49 | 2.00*** |
| Sales | 1.83*** | 1.72*** | 1.16 | 1.41 | a | 1.97*** |
| Agriculture | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Services | 1.79** | 1.96*** | 1.47 | 5.28*** | 1.30 | 1.51 |
| Skilled manual | 2.73*** | 1.38** | 1.31 | 3.09*** | 1.04 | 1.47* |
| Unskilled manual | 2.36*** | 1.53** | 0.59* | 2.43*** | 0.93 | 1.21 |
| **Electricity** | | | | | | |
| Yes | 5.36*** | 3.38*** | 8.29*** | 5.79*** | 4.20*** | 3.04*** |
| No | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Refrigerator** | | | | | | |
| Yes | 1.84* | 2.13*** | 5.00*** | 3.05*** | 2.47*** | 5.17*** |
| No | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Car** | | | | | | |
| Yes | 1.58 | 1.62* | U | 3.67*** | 2.26*** | 3.35*** |
| No | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| **Motorcycle/Bicycle** | | | | | | |
| Yes | 1.72** | 1.37** | 1.61*** | 1.37 | 0.94 | 1.02 |
| No | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Religion** | | | | | | |
| Catholic | a | 1.13 | 0.90 | 1.02 | 1.01 | 1.04 |
| Protestant | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Muslim | 1.24 | 1.67*** | 1.63 | 1.21 | a | a |
| Traditional/Other | 0.56 | 0.92 | 0.59 | 0.39** | 0.43 | 0.65 |
| Chi² | 1,699.0 | 1,298.2 | 1,149.7 | 1,202.4 | 1,351.7 | 1,522.9 |
| (degrees of freedom) | (36) | (43) | (39) | (29) | (27) | (31) |
| Number of women | 5,326 | 3,204 | 4,629 | 3,736 | 2,259 | 4,457 |

*** (p <0.01); ** (p <0.05); * (p <0.10)
U = Unknown (variable not available)
[a] Category not available

Table 2.4 Odds ratio: print media exposure

Odds ratio of socioeconomic and demographic covariates of exposure of married women to print media, Demographic and Health Surveys, 1992-1993

| Explanatory variable | Odds ratio | | | | | |
|---|---|---|---|---|---|---|
| | Burkina Faso | Ghana | Kenya | Madagascar | Namibia | Zambia |
| **Age** | | | | | | |
| 15-19 | 1.27 | 0.31*** | 1.37 | 0.81 | 1.72* | 1.01 |
| 20-29 | 1.40 | 0.62** | 2.23*** | 0.85 | 1.14 | 1.52*** |
| 30-39 | 2.11** | 1.25 | 1.70*** | 1.04 | 1.10 | 1.69*** |
| 40+ | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Residence** | | | | | | |
| Urban | 2.40*** | 1.64*** | 1.88*** | 2.26*** | 1.89*** | 1.74*** |
| Rural | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Number of living children** | | | | | | |
| 0 | 1.70 | 4.14*** | 1.61*** | 1.50* | 1.51* | 1.20 |
| 1-2 | 1.80** | 2.05*** | 1.33** | 1.61*** | 1.55*** | 1.22* |
| 3-4 | 1.18 | 2.00*** | 1.17 | 1.42** | 0.97 | 1.19 |
| 5+ | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Number of husband's other wives** | | | | | | |
| None | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| One | 0.62** | 1.00 | 1.52** | 1.75** | 0.82 | 0.97 |
| Two or more | 0.34*** | 1.03 | 1.26 | a | 0.68* | 0.95 |
| **Husband's occupation** | | | | | | |
| Never worked | 8.96*** | 3.50*** | 0.90 | 1.54 | 1.45** | 2.51*** |
| Prof./Tech./Manag. | 22.26*** | 5.76*** | 3.64*** | 3.86*** | 4.22*** | 3.96*** |
| Sales | 3.50*** | 3.72*** | 1.63*** | 1.77** | a | 1.93*** |
| Agriculture | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Services | 5.51*** | 2.60*** | 1.52*** | 3.77*** | 2.79*** | 1.50*** |
| Skilled manual | 6.23*** | 2.14*** | 1.81*** | 2.08*** | 2.21*** | 1.64*** |
| Unskilled manual | 3.48*** | 1.91** | 0.89 | 1.75** | 1.95*** | 1.29* |
| **Electricity** | | | | | | |
| Yes | 2.04*** | 1.73*** | 4.70*** | 2.17*** | 1.20 | 1.72*** |
| No | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Refrigerator** | | | | | | |
| Yes | 1.73* | 1.57*** | 3.87*** | 2.04** | 4.50*** | 1.95*** |
| No | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Car** | | | | | | |
| Yes | 1.87** | 2.51*** | U | 3.32*** | 2.13*** | 2.03*** |
| No | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| **Motorcycle/Bicycle** | | | | | | |
| Yes | 1.89** | 1.02 | 1.42*** | 0.80 | 1.16 | 1.53*** |
| No | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Religion** | | | | | | |
| Catholic | a | 1.20 | 0.91 | 1.04 | 0.86 | 0.82** |
| Protestant | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Muslim | 0.47*** | 0.45*** | 0.87 | 0.38* | a | a |
| Traditional/Other | 0.04*** | 0.31*** | 0.27*** | 0.21*** | 0.22*** | 0.48*** |
| $Chi^2$ | 936.8 | 631.1 | 1,000.2 | 685.6 | 789.3 | 1,116.9 |
| (degrees of freedom) | (35) | (41) | (37) | (27) | (25) | (29) |
| Number of women | 5,326 | 3,204 | 4,629 | 3,736 | 2,259 | 4,457 |

*** ($p < 0.01$); ** ($p < 0.05$); * ($p < 0.10$)
U = Unknown (variable not available)
[a] Category not available

Women who live in cities are also more likely to listen to the radio or watch television or read newspapers or magazines. Younger women tend to be less exposed to radio and more exposed to television in these countries, while childless women are more exposed to both media compared to women with children. There is more of a mixed picture with regard to age and reading newspapers and magazines, since women with more children tend to read less. The effect of husband's occupation is more difficult to summarize but, in general, media exposure is directly associated with professional, sales, service and skilled occupational status relative to those in agriculture.

The remaining variables in the tables show no interesting effects of religion, but rather strong and consistent associations with having electricity in the home (particularly for television for obvious reasons). Other measures of socioeconomic status such as owning a refrigerator, a car, or a motorcycle or bicycle indicate a direct association with media exposure although they are not consistently significant for all countries.

# 3 Mass Media and Female Reproductive Behavior

## 3.1 ANALYSIS OF MARRIED WOMEN

The following four models are presented: Model 1 shows the odds ratios of recognizing a modern method if women regularly listen to the radio, watch television or read newspapers or magazines, or report having heard family planning messages on the radio. The rationale for including this last variable is to try to sort out the general "effects" of media exposure from the specific effect of targeted messages. Model 1 includes each of the media variables independently without regard to the other media variables and does not include any control variables. Model 2 examines the four media variables simultaneously so that the "effects" of each type of exposure is estimated net of the other types of exposure. Model 3 adds to Model 2 all of the controls shown in Tables 2.2-2.4 including region and ethnicity. The odds ratios will normally be somewhat attenuated in the presence of the controls. Model 4 is the same full multivariate analysis as Model 3 but the media variables are cumulated into exposure to one, two, or all three of the general media with exposure to none of the three as the reference category. Whether the woman has heard family planning messages on the radio is also included in this model with the reference category of not having heard such messages. In the tables of results for the individual media (Tables 3.1-3.3), the reference category, with the odds ratio of 1, is not shown. It represents women who were not exposed to messages on the media (radio, television, or print) or not exposed to specific family planning messages on radio.

### 3.1.1 Knowledge of Modern Contraception

The first measure of reproductive behavior examined is knowledge, or more precisely, recognition of modern contraceptive methods. The measure is limited to modern methods mainly because of the high proportion of women who recognize some method (even restricting the measure to modern methods still shows recognition in excess of 90 percent for four of the six countries; Kenya is excluded here because only 3 percent reported no knowledge of a modern method). The covariates included are the same set analyzed earlier in connection with general media exposure, and the same multivariate logit regression procedure is employed.

Viewed separately (Model 1), the different types of media exposure show highly significant associations with knowledge of a modern method of contraception (Table 3.1). The impact of television is consistently greater than that of radio; women who watch television regularly are two to three times more likely to know a modern method than women who listen to the radio regularly. Having heard radio messages on family planning shows strong associations with knowledge of contraception, but there is undoubtedly some redundancy involved since women who do not recognize any method are very unlikely to report hearing about methods on the radio.

Table 3.1 Odds ratio on knowledge of modern methods: married women

Odds ratio of the effects of exposure of married women to the mass media, on knowledge of modern contraceptive methods, Demographic and Health Surveys, 1992-1993

| Country[1] and exposure variable | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Burkina Faso (N=5326) | | | |
| Radio | 4.78*** | 2.93*** | 2.42*** |
| Television | 17.15*** | 6.24*** | 1.73* |
| Newspaper | 125.20*** | 31.73*** | 8.26** |
| Family planning on radio | 11.17*** | 3.36*** | 4.57*** |
| Ghana (N=3204) | | | |
| Radio | 4.36*** | 2.08*** | 1.49** |
| Television | 8.57*** | 4.84*** | 2.50*** |
| Newspaper | 21.58*** | 6.39*** | 1.82 |
| Family planning on radio | 6.47*** | 3.55*** | 3.45*** |
| Madagascar (N=3736) | | | |
| Radio | 4.72*** | 3.07*** | 1.85*** |
| Television | 15.51*** | 5.77*** | 1.66 |
| Newspaper | 5.03*** | 2.19*** | 1.40** |
| Family planning on radio | 6.61*** | 2.45*** | 2.05*** |
| Namibia (N=2259) | | | |
| Radio | 2.88*** | 1.91*** | 1.31 |
| Television | 7.58*** | 4.52*** | 1.65 |
| Newspaper | 3.48*** | 2.03*** | 1.20 |
| Family planning on radio | U | U | U |
| Zambia (N=4457) | | | |
| Radio | 3.39*** | 2.00*** | 1.57*** |
| Television | 6.33*** | 2.70*** | 1.42 |
| Newspaper | 4.05*** | 2.44*** | 1.52** |
| Family planning on radio | 4.67*** | 2.15*** | 1.56* |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)
[1] Kenya excluded because only 3.1 percent of the women did not know a modern method.

Table 3.2 Odds ratio on current use of contraception: married women

Odds ratio of the effects of exposure of married women to the mass media, on current use of contraception, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Burkina Faso (N=4649) | | | |
| Radio | 2.08*** | 1.76*** | 1.39*** |
| Television | 2.13*** | 1.24* | 1.39** |
| Newspaper | 3.19*** | 2.05*** | 1.29 |
| Family planning on radio | 1.76*** | 1.16 | 1.13 |
| Ghana (N=2847) | | | |
| Radio | 2.65*** | 1.65*** | 1.30** |
| Television | 2.38*** | 1.51*** | 1.19 |
| Newspaper | 3.61*** | 2.18*** | 1.38** |
| Family planning on radio | 2.55*** | 1.69*** | 1.61*** |
| Kenya (N=4097) | | | |
| Radio | 1.95*** | 1.24*** | 1.10 |
| Television | 2.86*** | 2.02*** | 1.45*** |
| Newspaper | 2.17*** | 1.51*** | 1.36*** |
| Family planning on radio | 2.00*** | 1.56*** | 1.39*** |
| Madagascar (N=3261) | | | |
| Radio | 5.65*** | 3.47*** | 2.26*** |
| Television | 6.89*** | 2.72*** | 1.07 |
| Newspaper | 4.56*** | 1.90*** | 1.22 |
| Family planning on radio | 4.43*** | 1.76*** | 1.39** |
| Namibia (N=1992) | | | |
| Radio | 2.64*** | 1.48*** | 1.15 |
| Television | 5.97*** | 4.47*** | 1.55*** |
| Newspaper | 3.11*** | 1.61*** | 1.07 |
| Family planning on radio | U | U | U |
| Zambia (N=3680) | | | |
| Radio | 2.30*** | 1.54*** | 1.31** |
| Television | 3.21*** | 2.19*** | 1.26 |
| Newspaper | 2.38*** | 1.62*** | 1.13 |
| Family planning on radio | 1.79*** | 1.06 | 0.86 |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)

The associations of the different media variables with knowledge of family planning methods retain their statistical significance even when each type of media exposure is examined net of the influence of the other type (Model 2). The impact of television is consistently greater than that of radio.

Exposure to newspapers and magazines shows a highly significant positive association with knowledge of methods in all six countries, but its "effect" is strongly influenced by the connection with literacy and education. This influence is reflected in the sizeable drop in the value of the odds ratios for the print media when the other covariates, including education, are added as controls (Model 3). In general, the association of the media with contraceptive knowledge is reduced in magnitude with all of the controls added, but except for Namibia, the "effects" tend to remain statistically significant.

Whether the woman reports having heard about family planning on the radio yields a significant effect even in the presence of the general media variables plus all of the controls. The addition of the messages variable, however, does not eliminate the influence of the radio in general; although slightly reduced in magnitude it remains significant (in Namibia, the question about messages was not asked).

Table 3.3 Odds ratio on intention to use contraception: married women

Odds ratio of the effects of exposure of married women to the mass media, on intention to use contraception, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Burkina Faso (N=3994) | | | |
| Radio | 2.71*** | 2.07*** | 1.88*** |
| Television | 3.54*** | 1.92*** | 1.41* |
| Newspaper | 4.53*** | 2.05*** | 1.22 |
| Family planning on radio | 2.84*** | 1.70*** | 1.57*** |
| Ghana (N=2555) | | | |
| Radio | 1.44*** | 1.13 | 1.13 |
| Television | 1.54*** | 1.37*** | 1.36*** |
| Newspaper | 1.27* | 0.89 | 0.93 |
| Family planning on radio | 1.76*** | 1.60*** | 1.67*** |
| Kenya (N=3113) | | | |
| Radio | 1.42*** | 0.97 | 1.12 |
| Television | 1.23 | 0.80 | 1.08 |
| Newspaper | 2.14*** | 0.96*** | 1.74*** |
| Family planning on radio | 1.84*** | 1.68*** | 1.31*** |
| Madagascar (N=3111) | | | |
| Radio | 1.47*** | 1.28*** | 1.32*** |
| Television | 1.50*** | 1.04 | 1.09 |
| Newspaper | 1.73*** | 1.48*** | 1.29* |
| Family planning on radio | 1.97*** | 1.56** | 1.75*** |
| Namibia (N=1606) | | | |
| Radio | 2.65*** | 2.09*** | 1.90*** |
| Television | 2.45*** | 1.79*** | 2.10*** |
| Newspaper | 2.08*** | 1.56*** | 1.44*** |
| Family planning on radio | U | U | U |
| Zambia (N=3780) | | | |
| Radio | 1.62*** | 1.19** | 1.14 |
| Television | 2.08*** | 1.51*** | 1.29* |
| Newspaper | 1.74*** | 1.40*** | 1.09 |
| Family planning on radio | 2.09*** | 1.61*** | 1.45*** |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)

One other model is presented in Table 3.4 for each of the dependent variables with the three general media variables cumulated. This model (Model 4) includes all of the covariates as well as whether radio messages on family planning have been heard. The objective of this cumulative index is to determine how much additional influence the media have when more than one type of exposure is experienced. The "effect" of the media generally increases with the addition of each of the different types of exposure when all of the controls are imposed (Column 1 in Table 3.4).

It is important to reiterate that the process of self-selection may be dominating what is labelled as an "effect" in this cumulative measure of media exposure. It seems clear that different women are more likely to be exposed to all three types of media exposure than to radio only, for example. This phenomenon of self-selection is problematic for any one of the media; it simply appears more transparent in the cumulative case. The multivariate controls are intended to correct for the more obvious forms of self-selection, for example, education and urban residence, but more subtle unobserved forms of selection are probably present.

### 3.1.2 Current Use of Contraception

The influence of the mass media on whether contraception is being used currently is shown in Table 3.2. All three of the media show statistically significant results in Model 1 without any controls. When the controls for other media alone are introduced in Model 2, the association diminishes, although the general media retain a significant effect in all of the countries. In Model 3, with all of the controls, the associations with at least one of the general media retain a significant level in all of the countries. The variable reflecting whether family planning messages were heard on radio shows a significant relationship in Ghana, Kenya, and Madagascar, but not in Burkina Faso or Zambia.

There is a distinct cumulative "effect" (Model 4) on contraceptive use of exposure to more than one of the media (Column 2 in Table 3.4). In Ghana, for example, the odds of using a method if exposed to only one of the media (most likely radio) is 1.3. It increases to 1.5 with exposure to two media (most commonly radio and television) and to 2.3 with exposure to all three media. Independently of these effects, women are also 63 percent more likely to use a method if they have heard family planning messages on the radio. Again, the unknown extent of self-selection must be noted.

Table 3.4 Odds ratio on contraceptive behavior: married women

Odds ratio of the effects of cumulative exposure of married women to the mass media, on contraceptive behavior, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Odds ratio: Model 4 | | |
|---|---|---|---|
| | Knowledge of modern method[1] | Current use of any method | Intention to use a method |
| Burkina Faso | | | |
| Any one | 2.41*** | 1.34*** | 1.93*** |
| Any two | 6.23*** | 1.98*** | 2.50*** |
| All three | 3.96 | 2.70*** | 2.74*** |
| Family planning on radio | 4.57*** | 1.14 | 1.57*** |
| Ghana | | | |
| Any one | 1.45** | 1.30** | 1.17 |
| Any two | 4.30*** | 1.50*** | 1.33* |
| All three | a | 2.30*** | 1.77** |
| Family planning on radio | 3.38*** | 1.63*** | 1.65*** |
| Kenya | | | |
| Any one | | 1.23** | 1.21* |
| Any two | | 1.71*** | 1.82*** |
| All three | | 1.85*** | 2.09*** |
| Family planning on radio | | 1.33*** | 1.26** |
| Madagascar | | | |
| Any one | 1.78*** | 2.05*** | 1.39*** |
| Any two | 2.18*** | 2.40*** | 1.64*** |
| All three | 20.10*** | 3.37*** | 1.61 |
| Family planning on radio | 2.14*** | 1.48*** | 1.74*** |
| Namibia | | | |
| Any one | 1.35 | 1.31 | 1.85*** |
| Any two | 1.63** | 1.25 | 2.73*** |
| All three | 2.54* | 2.08*** | 6.11*** |
| Family planning on radio | U | U | U |
| Zambia | | | |
| Any one | 1.49*** | 1.30* | 1.18* |
| Any two | 2.40*** | 1.30* | 1.31** |
| All three | 3.98** | 2.07*** | 1.51** |
| Family planning on radio | 1.57* | 0.86 | 1.45*** |

*** ($p < 0.01$); ** ($p < 0.05$); * ($p < 0.10$)
U = Unknown (variable not available)
[1] Kenya excluded because only 3.1 percent of the women did not know a modern method.
[a] Cases in the category predict perfectly.

### 3.1.3 Intention to Use Contraception

Women not currently using contraception are classified according to their intentions to use in the future. Non-users include a variety of situations—some are pregnant, others are amenorrheic, some are trying to get pregnant, and others are infecund. Significant proportions of women are also simply not using any method despite not wanting to have any more children at any time (classified in the "unmet need" category).

The variable "intention to use" takes on added importance in the light of recent evidence from the longitudinal study in Morocco that demonstrated the variable's high predictive validity for contraceptive practice during a subsequent three-year period (Curtis and Westoff, 1996).

How much does exposure to mass media influence nonusers' intentions to use a method in the future? The odds ratios in Table 3.3 indicate significant associations in all countries for the uncontrolled equations (Model 1), as well as for the more refined tests in Model 2 with the other media effects controlled. In Model 3 with all of the controls, the "effects" are attenuated but many remain significant. The most consistent picture is evident in Table 3.4 (Column 3), which sums the exposure in the cumulative index and adds the variable for having heard radio family planning messages, showing that the general media "effects" persist. To illustrate this finding, in Burkina Faso, exposure to any one of the three media increases the odds of intending to use a method by 93 percent over that for women with no media exposure. With exposure to two media, the odds increase to 2.5, and with exposure to all three media the odds increase to 2.7 times the likelihood of intending to use contraception compared to the odds for women with no regular exposure. Moreover, in addition to these "effects," women who report hearing radio messages about family planning are 57 percent more likely to intend to use a method than women who do not report hearing such messages.

### 3.1.4 Reproductive Intentions

One of the general hypotheses guiding this research is that exposure to mass media will influence the number of children that women desire. There are two measures of this variable: whether women want more children or not and the ideal or desired number of children. The former measure is examined in Table 3.5. The results here are much more modest than those for intentions to use a method. The most persuasive evidence is in Table 3.6 (Column 1) with exposure to all three media, for all countries except Burkina Faso. The effects are not large however.

### 3.1.5 Desired Number of Children

The analysis of ideal or desired number of children is divided into two parts. The first part (Table 3.7) explores how well media exposure relates to whether a numeric or nonnumeric response (typically "It's up to God") was given to the question. In Burkina Faso, 26.5 percent gave a nonnumeric response; in the other five countries, this percentage ranged from 6.1 to 9.4. The second part (Table 3.8) examines the numeric responses.

Table 3.5 Odds ratio on desire to stop childbearing: married women

Odds ratio of the effects of exposure of married women to the mass media, on desire to stop childbearing, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Burkina Faso (N=5144) | | | |
| Radio | 1.17** | 1.05 | 0.89 |
| Television | 1.34*** | 1.18 | 1.17 |
| Newspaper | 1.39** | 1.16 | 1.00 |
| Family planning on radio | 1.34*** | 1.24** | 1.21 |
| Ghana (N=3085) | | | |
| Radio | 1.23*** | 1.16* | 1.03 |
| Television | 0.99 | 0.84** | 1.13 |
| Newspaper | 1.50*** | 1.46*** | 1.26 |
| Family planning on radio | 1.24*** | 1.14 | 1.16 |
| Kenya (N=4490) | | | |
| Radio | 1.12* | 1.04 | 1.01 |
| Television | 1.28*** | 1.38*** | 1.32* |
| Newspaper | 0.89* | 0.77*** | 1.02 |
| Family planning on radio | 1.19*** | 1.20*** | 1.34*** |
| Madagascar (N=3644) | | | |
| Radio | 1.52*** | 1.29*** | 1.25* |
| Television | 1.74*** | 1.27* | 0.98 |
| Newspaper | 1.62*** | 1.28** | 1.29* |
| Family planning on radio | 1.74*** | 1.34** | 1.46** |
| Namibia (N=2175) | | | |
| Radio | 1.69*** | 1.26* | 1.38** |
| Television | 3.22*** | 3.08*** | 1.65*** |
| Newspaper | 1.65*** | 1.00 | 0.80 |
| Family planning on radio | U | U | U |
| Zambia (N=4302) | | | |
| Radio | 1.14* | 0.98 | 1.11 |
| Television | 1.42*** | 1.28** | 1.16 |
| Newspaper | 1.33*** | 1.24*** | 1.36*** |
| Family planning on radio | 1.20** | 1.06 | 1.04 |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)

Significant associations between the media and giving a nonnumeric response appear for every country especially for radio exposure. The odds ratios for the analysis of this variable indicate the odds of giving a numeric response compared with a value of 1.0 for a nonnumeric response. The cumulative effect of the different media (Column 2 in Table 3.6) is pronounced: in Zambia, for example, the odds

Table 3.6 Odds ratio on reproductive preferences: married women

Odds ratio of the effects of cumulative exposure of married women to the mass media, on reproductive preferences, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Model 4 | | |
|---|---|---|---|
| | Desire to stop childbearing (odds ratio) | Numeric or nonnumeric ideal number of children (odds ratio) | Ideal number of children (coefficient[1]) |
| Burkina Faso | | | |
| Any one | 0.89 | 1.52*** | -0.10 |
| Any two | 0.96 | 2.07*** | -0.31 |
| All three | 1.05 | 3.03** | 0.02 |
| Family planning on radio | 1.20 | 1.44*** | -0.15 |
| Ghana | | | |
| Any one | 1.23 | 1.15 | -0.19** |
| Any two | 1.02 | 1.20 | -0.09 |
| All three | 1.71** | 2.84** | -0.44*** |
| Family planning on radio | 1.15 | 1.29 | -0.15** |
| Kenya | | | |
| Any one | 1.00 | 1.43** | -0.15** |
| Any two | 1.29* | 2.54*** | -0.14 |
| All three | 1.06 | 2.20* | -0.12 |
| Family planning on radio | 1.32*** | 1.33* | -0.24*** |
| Madagascar | | | |
| Any one | 1.40*** | 1.40** | -0.39*** |
| Any two | 1.35 | 3.95*** | -0.33** |
| All three | 1.58* | 4.26** | -0.30 |
| Family planning on radio | 1.45** | 1.55 | -0.23 |
| Namibia | | | |
| Any one | 1.20 | 1.46* | -0.03 |
| Any two | 1.15 | 1.92*** | -0.26 |
| All three | 1.84** | 2.54** | -0.69*** |
| Family planning on radio | U | U | U |
| Zambia | | | |
| Any one | 1.30** | 1.24 | -0.09 |
| Any two | 1.46** | 2.26*** | -0.32*** |
| All three | 1.79*** | 2.68** | -0.52*** |
| Family planning on radio | 1.02 | 1.60** | -0.17* |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)
[1] Ordinary least squares regression coefficients

Table 3.7 Odds ratio on ideal number of children: married women

Odds ratio of the effects of exposure of married women to the mass media, on giving a numeric versus a nonnumeric response to the question on ideal number of children, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Burkina Faso (N=5326) | | | |
| Radio | 2.34*** | 1.83*** | 1.53*** |
| Television | 3.63*** | 1.89*** | 1.35 |
| Newspaper | 7.37*** | 3.57*** | 1.39 |
| Family planning on radio | 2.40*** | 1.46*** | 1.44*** |
| Ghana (N=3204) | | | |
| Radio | 2.04*** | 1.64*** | 1.42** |
| Television | 1.65*** | 1.17 | 0.79 |
| Newspaper | 3.58*** | 2.53*** | 1.77 |
| Family planning on radio | 1.69*** | 1.20 | 1.23 |
| Kenya (N=4629) | | | |
| Radio | 2.57*** | 1.65*** | 1.44** |
| Television | 1.64** | 0.88 | 1.22 |
| Newspaper | 2.42*** | 1.72*** | 1.56** |
| Family planning on radio | 2.84*** | 1.98*** | 1.36* |
| Madagascar (N=3736) | | | |
| Radio | 1.86*** | 1.38** | 1.45** |
| Television | 3.53*** | 1.87* | 1.20 |
| Newspaper | 3.89*** | 2.74*** | 2.43*** |
| Family planning on radio | 2.20*** | 1.37 | 1.56 |
| Namibia (N=2259) | | | |
| Radio | 2.48*** | 1.93*** | 1.48** |
| Television | 3.79*** | 2.96*** | 1.57 |
| Newspaper | 1.94*** | 1.20 | 1.22 |
| Family planning on radio | U | U | U |
| Zambia (N=4457) | | | |
| Radio | 1.88*** | 1.31** | 1.35** |
| Television | 2.75*** | 1.74** | 1.51 |
| Newspaper | 2.27*** | 1.72*** | 1.49** |
| Family planning on radio | 2.29*** | 1.52* | 1.60** |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)

Table 3.8 Regression coefficients on ideal number of children: married women

Regression coefficients of exposure of married women to the mass media, on ideal number of children, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Regression coefficient | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Burkina Faso (N=3917) | | | |
| Radio | -0.87*** | -0.40*** | -0.08 |
| Television | -1.97*** | -1.32*** | -0.21 |
| Newspaper | -2.10*** | -1.12*** | 0.09 |
| Family planning on radio | -0.94*** | -0.35*** | -0.17 |
| Ghana (N=2940) | | | |
| Radio | -0.73*** | -0.36*** | -0.08 |
| Television | -1.00*** | -0.73*** | -0.09 |
| Newspaper | -1.08*** | -0.58*** | -0.17 |
| Family planning on radio | -0.51*** | -0.09 | -0.15** |
| Kenya (N=4348) | | | |
| Radio | -0.68*** | -0.30*** | -0.12* |
| Television | -0.70*** | -0.32*** | 0.14 |
| Newspaper | -0.70*** | -0.41*** | -0.08 |
| Family planning on radio | -0.69*** | -0.43*** | -0.24*** |
| Madagascar (N=3435) | | | |
| Radio | -1.63*** | -1.11*** | -0.26*** |
| Television | -2.25*** | -1.17*** | -0.07 |
| Newspaper | -1.73*** | -0.75*** | -0.13 |
| Family planning on radio | -1.56*** | -0.46*** | -0.24 |
| Namibia (N=2046) | | | |
| Radio | -1.31*** | -0.45** | -0.12 |
| Television | -2.84*** | -2.46*** | -0.64*** |
| Newspaper | -1.68*** | -0.62*** | -0.05 |
| Family planning on radio | U | U | U |
| Zambia (N=4159) | | | |
| Radio | -0.99*** | -0.47*** | -0.15* |
| Television | -1.41*** | -0.83*** | -0.17 |
| Newspaper | -1.13*** | -0.69*** | -0.19** |
| Family planning on radio | -0.92*** | -0.29*** | -0.17* |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)

ratio for exposure to one of the three media is 1.2, but increases to 2.3 for two media, and to 2.7 for all three media. In other words, the likelihood of giving a numeric response to the question on ideal number of children is tripled with exposure to all three media even with all of the control variables present in Model 4. Similar patterns are visible in the other five countries.

The association of media exposure and the number of children desired (for the women who responded numerically) is presented in Table 3.8. Unlike the logit regression procedure followed in the earlier analyses where the dependent variables were dichotomized, the number of children desired is in continuous form and is analyzed with the standard ordinary least squares regression procedure. The regression coefficients are shown in Table 3.8.

In the equations, even with all of the media variables simultaneously considered, each of the four types of media exposure shows a significant negative effect on the number of children desired in every one of the six countries. (The only exception among the 23 coefficients is for radio family planning messages in Ghana.) However, when all of the additional control variables are included, the associations are considerably attenuated. When the cumulative effects are considered (Column 3 in Table 3.6), the picture is somewhat improved with each country other than Burkina Faso showing some significant media effect.

## 3.2 MEDIA EFFECTS AMONG ILLITERATE WOMEN

The potential influence of radio and television on the reproductive behavior of women who cannot read or write is of particular interest. It not only represents a viable medium of communication of new ideas, but the analysis for illiterate women also removes an important covariate of media exposure, i.e., formal education, thereby eliminating that complication in the analysis and interpretation.

The analysis undertaken here examines the association of radio and television exposure among currently married illiterate women with knowledge and current use of contraception, with intention to use a method, and with reproductive intentions and the number of children desired.

The proportion of married women classified as illiterate in these six countries ranges from a low of 23 percent in Namibia to a high of 90 percent in Burkina Faso. Ghana also has a high illiteracy rate of 56 percent. The other countries are considerably lower: Zambia with 37 percent, Kenya with 28 percent, and Madagascar with 30 percent illiterate.

Exposure to the media is significantly lower among illiterate women than among all women in general. The average exposure to radio among illiterate women in these six countries is 40 percent compared with 55 percent who listen to the radio regularly among all (married) women. The corresponding averages for television exposure are 6

percent among illiterate women and 18 percent among all women. These estimates represent several years ago, and have no doubt increased since then.

A summary of the effects on various measures of reproductive behavior of exposure to radio and television is shown for illiterate women in Table 3.9. This table shows radio and television exposure separately along with whether family planning radio messages have been heard (excluding Namibia where such information is not available). The odds ratios presented are with all of the standard background variables controlled (the same as Model 3 in the earlier analyses).

The associations appear to be somewhat sensitive to the extent of illiteracy in the population with evidence of the greatest effects in Burkina Faso and the least effects in Namibia. The variable most consistently related to media exposure is knowledge of a modern method of contraception. It is significantly associated with radio exposure in

Table 3.9 Odds ratio of media exposure among illiterate women

Odds ratio of the effects of exposure to the mass media among illiterate women based on the model with all controls (Model 3), Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Odds ratio of effects on dependent variables: Knowledge of modern method | Current use of a method | Intention to use a method | Desire to stop childbearing | Numeric or nonnumeric ideal number of children | Ideal number of children[1] |
|---|---|---|---|---|---|---|
| Burkina Faso | | | | | | |
| Radio | 2.4*** | 1.4*** | 1.8*** | 0.8 | 1.5*** | -0.0 |
| Television | 1.8* | 1.5* | 1.5* | 1.0 | 1.4 | -0.3 |
| Family planning on radio | 4.3*** | 1.1 | 1.5*** | 1.4* | 1.5*** | -0.2 |
| Number of women | 4,778 | 4,158 | 3,677 | 4,607 | 4,778 | 3,413 |
| Ghana | | | | | | |
| Radio | 1.4* | 1.4* | 1.2 | 1.0 | 1.2 | -0.1 |
| Television | 3.0*** | 1.2 | 1.1 | 1.0 | 0.7 | -0.1 |
| Family planning on radio | 3.3*** | 1.9*** | 1.9*** | 1.3* | 1.5* | -0.4*** |
| Number of women | 1,805 | 1,590 | 1,595 | 1,733 | 1,805 | 1,595 |
| Kenya | | | | | | |
| Radio | 1.5[a] | 1.2 | 1.2 | 1.0 | 1.5* | -0.2 |
| Television | | 1.4 | 2.0 | 2.5* | 1.5 | 0.2 |
| Family planning on radio | 3.5** | 1.2 | 1.1 | 1.2 | 1.2 | -0.4** |
| Number of women | 1,293 | 1,142 | 1,050 | 1,211 | 1,293 | 1,128 |
| Madagascar | | | | | | |
| Radio | 3.0*** | 3.4*** | 1.8*** | 1.9*** | 1.9* | -0.3 |
| Television | 0.9 | 4.9* | 2.0 | 0.3 | 1.4 | -1.4 |
| Family planning on radio | 2.2 | 2.3 | 3.0* | 1.3 | 1.6 | -0.1 |
| Number of women | 1,123 | 985 | 1,081 | 1,066 | 1,123 | 1,009 |
| Namibia | | | | | | |
| Radio | 1.4 | 1.3 | 1.6 | 1.4 | 1.6[a] | -0.1 |
| Television | 1.7 | 1.4 | 1.0 | 0.5 | | -0.3 |
| Family planning on radio | U | U | U | U | U | U |
| Number of women | 510 | 449 | 432 | 485 | 510 | 452 |
| Zambia | | | | | | |
| Radio | 1.7*** | 1.3 | 1.2 | 1.3 | 1.1 | -0.0 |
| Television | 1.7 | 0.8 | 1.8** | 1.8 | 2.1 | -0.2 |
| Family planning on radio | 1.4 | 1.1 | 1.4 | 1.2 | 1.4 | -0.1 |
| Number of women | 1,661 | 1,374 | 1,512 | 1,591 | 1,661 | 1,474 |

*** ($p < 0.01$); ** ($p < 0.05$); * ($p < 0.10$)
U = Unknown (variable not available)
[1] Figures are ordinary least squares regression coefficients.
[a] Refers to exposure to either radio or television

all countries except Namibia and Kenya. Current use and intention to use contraception also show relationships with media exposure in Burkina Faso, Ghana and Madagascar. Reproductive intentions and ideal number of children show considerably less association with media exposure than do the family planning variables. Overall, the pattern of associations between media exposure and the reproductive variables among illiterate women are quite similar to those for the general population.

## 3.3 MOROCCO LONGITUDINAL DATA

All of the associations of the reproductive variables with mass media exposure previously described are cross-sectional and do not permit fixing the time sequences of the inferred connections. Thus, the self-selection of women who may be predisposed, for example, to watch television or read newspapers or magazines as well as to use contraception cannot be ruled out. "Modern" women may constitute such a group. In the cross-sectional design, it is not known whether media exposure predated contraceptive behavior and fertility. Some rudimentary control over this time sequence is afforded by the panel study conducted in Morocco where a large sample of the women interviewed in the 1992 DHS were reinterviewed in 1995 (Ayad et al., 1996). Therefore, media exposure as reported in 1992 can be related to contraceptive behavior and fertility during the ensuing three years 1992-1995. This does not completely rule out the possible self-selection bias since it may have operated to promote the association prior to 1992 and simply carried over into the following period. It should also be reiterated that causal inferences, although moderately strengthened by this study design, could only be made definitively with an experimental study which would be difficult to design for this purpose. Nonetheless, the longitudinal design is an improvement over the cross-sectional approach.

Since the focus is now on the association of media exposure in 1992 with reproductive behavior in the following three years, the analysis is limited to contraceptive practice and fertility during the 1992-1995 period. The association of media exposure assessed in 1992 can also be explored with the desired number of children in 1995.

The statistical analyses are essentially the same as presented earlier for the sub-Saharan African cross-sectional surveys. Most of the same dependent variables are examined and the same structure of analysis is followed in fitting four models: Model 1 includes only the media variables separately, Model 2 examines the media variables simultaneously, Model 3 adds to Model 2 all of the covariates, and Model 4 examines the cumulative "effects" of the media.

The first panel in the table on current use of contraception (Table 3.10) reproduces the cross-sectional results for the 1992 DHS which is exactly comparable with the analysis of the sub-Saharan African countries in the first part of this report. The second panel repeats this 1992 analysis for the women who were reinterviewed in 1995. This is desirable for several reasons. The panel sample design called for reinterviewing only half of the women (in randomly selected clusters) originally interviewed and there were some biases evident in who was included and who was missed. There was a significant loss of urban, more educated women who are more likely to have changed residence in the three-year interval. Also, there was a small

Table 3.10 Odds ratio on current use of contraception between two Moroccan surveys

Odds ratio of the effects of exposure to the mass media, on current use of contraception, Morocco DHS, 1992 and 1995

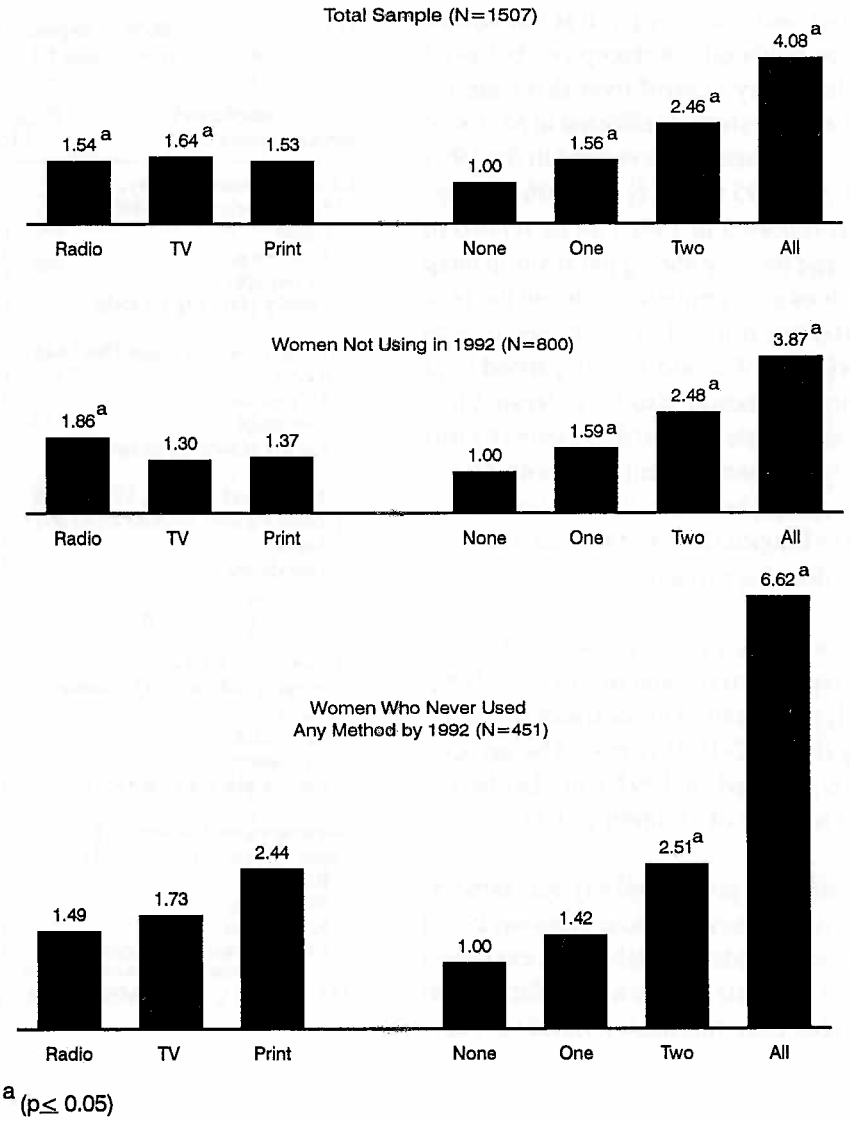
| Survey sample and media exposure | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| **Cross-sectional survey, 1992** | | | |
| Married women (N=4490) | | | |
| Radio | 1.70*** | 0.99 | 1.06 |
| Television | 2.98*** | 2.49*** | 1.88*** |
| Newspaper | 3.70*** | 2.46*** | 1.68*** |
| Family planning on radio | 1.97*** | 1.49*** | 1.63*** |
| Reinterviewed women (N=1446) | | | |
| Radio | 1.96*** | 1.07 | 1.14 |
| Television | 3.44*** | 2.72*** | 2.35*** |
| Newspaper | 4.24*** | 2.75*** | 2.55*** |
| Family planning on radio | 2.15*** | 1.45** | 1.71*** |
| **Longitudinal survey, 1992-1995** | | | |
| Reinterviewed women (N=1507) | | | |
| Radio | 2.21*** | 1.47*** | 1.54*** |
| Television | 2.61*** | 1.99*** | 1.64*** |
| Newspaper | 2.82*** | 1.88*** | 1.53 |
| Family planning on radio | 1.79*** | 1.26 | 1.48** |
| Reinterviewed women not using contraception in 1992 (N=800) | | | |
| Radio | 2.04*** | 1.69*** | 1.86*** |
| Television | 1.78*** | 1.38*** | 1.30 |
| Newspaper | 2.34*** | 1.76** | 1.37 |
| Family planning on radio | 1.49 | 1.14 | 1.54 |
| Reinterviewed women who never used contraception (N=451) | | | |
| Radio | 1.78*** | 1.52* | 1.49 |
| Television | 1.60** | 1.27 | 1.73 |
| Newspaper | 2.62** | 1.94 | 2.44 |
| Family planning on radio | 1.45 | 1.11 | 1.35 |

*** (p <0.01); ** (p<0.05); * (p <0.10)

number of reinterviewed women who were possibly mismatched with the original respondent and were excluded. The study group here is also confined to women who were married to the same man at both survey dates. In the final analysis, 77.5 percent of the married women eligible for reinterview were reinterviewed, and of these, 90.8 percent were married to the same person and were considered correctly matched. This yielded a total of 1,664 women. In the second panel of this table, the cross-sectional analysis originally conducted for the 1992 sample of 4,490 currently married women is replicated for the reinterviewed women. The third panel of the table presents the analyses for the longitudinal design in which media exposure is measured as of 1992 and is correlated with reproductive events occurring subsequently.

For the two variables—contraceptive use as of 1995 and any use in the interval 1992-1995—two subgroups of special interest have been delineated. The first of these is restricted to women who were not using any method as of the 1992 interview which is an attempt to remove a further source of possible self-selection. The last panel provides the strongest test of the media effect by further limiting the analysis to women who had *never* used any method as of 1992. The question then becomes whether media exposure in 1992 among women who have never used contraception is associated with subsequent practice. The results for the longitudinal analysis based on the different subsamples are also presented in Figure 3.1.

Figure 3.1 Odds ratios of the effects of exposure of women to mass media in 1992 on current use of contraception in 1995, based on Models 3 and 4 with all controls, Morocco DHS, 1992 and 1995




a ($p \leq 0.05$)

### 3.3.1 Use of Contraception

The first set of results (Table 3.10) focuses on current use of contraception in relation to exposure to the four media variables examined individually. The strong results shown for the cross-sectional analyses (the top two panels) persist for the longitudinal study. In Model 3 with all of the controls imposed, listening to the radio as measured in 1992 increases the odds of using contraception in 1995 by over 50 percent, while having heard radio family planning messages has a similar independent association. Watching television also has an independent effect increasing the likelihood of using a method three years later by 64 percent.

Restricting the analysis to women who were not using any method in 1992 shows the same effect for the radio (listeners are 86 percent more likely to use), but no other medium shows a significant effect with all of the controls imposed. The last panel of the table confines the analysis to women who as of 1992 had *never* used any method and focuses on whether media exposure can be connected with use in 1995. Without any controls, all three media show significant effects but these drop slightly below the minimal significance level with the controls added.

In Table 3.11 (Column 1), the cumulative influence of the three media on current use is examined. In the unrefined longitudinal analysis, women who were exposed to all three media were over four times more likely to be using contraception currently than women not exposed to any media (this is for Model 4 with all of the covariates included). Even more impressive is the result for the strongest test in which women who had never used any method as of 1992, with all of the controls imposed, were 6.6 times as likely to use in 1995 if exposed to all three media compared with women with no exposure to any of the media.

The next set of observations (Table 3.12 and Column 2 of Table 3.11) examines the association with media exposure and whether a method was used at any time during the 1992-1995 period regardless of current use. The results are broadly similar to those for current use.

Table 3.11 Odds ratio on use of contraception and desire to stop childbearing between two Moroccan surveys

Odds ratio of the effects of cumulative exposure to the mass media, on use of contraception and desire to stop childbearing, Morocco DHS, 1992 and 1995

| Survey sample and media exposure | Model 4: Odds ratio | | |
|---|---|---|---|
| | Current use of any method | Use of any method between 1992 and 1995 | Desire to stop child-bearing |
| **Cross-sectional survey, 1992** | | | |
| Married women | | | |
| Any one | 1.21* | | 1.12 |
| Any two | 1.81*** | | 1.27* |
| All three | 3.34*** | | 1.61** |
| Family planning on radio | 1.59*** | | 1.56*** |
| Reinterviewed women | | | |
| Any one | 1.21 | | 1.05 |
| Any two | 2.25*** | | 1.41 |
| All three | 6.68*** | | 2.40** |
| Family planning on radio | 1.68*** | | 1.51** |
| **Longitudinal survey, 1992-1995** | | | |
| Reinterviewed women | | | |
| Any one | 1.56*** | 1.33 | 1.38 |
| Any two | 2.46*** | 2.11*** | 1.89*** |
| All three | 4.08*** | 3.11*** | 2.58*** |
| Family planning on radio | 1.48** | 1.50* | 2.25*** |
| Reinterviewed women not using contraception in 1992 | | | |
| Any one | 1.59** | 1.38 | |
| Any two | 2.48*** | 1.79** | |
| All three | 3.87*** | 3.11** | |
| Family planning on radio | 1.54 | 1.09 | |
| Reinterviewed women who never used a method in 1992 | | | |
| Any one | 1.42 | 1.13 | |
| Any two | 2.51** | 1.52 | |
| All three | 6.62** | 2.48 | |
| Family planning on radio | 1.35 | 1.19 | |
| Reinterviewed women who wanted more children in 1992 | | | |
| Any one | | | 1.22 |
| Any two | | | 1.83** |
| All three | | | 4.22*** |
| Family planning on radio | | | 2.30*** |

*** (p <0.01); ** (p<0.05); * (p <0.10)

Table 3.12 Odds ratio on use of contraception between two Moroccan surveys

Odds ratio of the effects of exposure to the mass media, on use of contraception between 1992 and 1995, Morocco DHS, 1992 and 1995

| Survey sample and media exposure | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| **Longitudinal survey, 1992-1995** | | | |
| Reinterviewed women (N=1664) | | | |
| Radio | 2.10*** | 1.30** | 1.41** |
| Television | 2.97*** | 2.32*** | 1.58*** |
| Newspaper | 3.52*** | 2.20*** | 1.15 |
| Family planning on radio | 1.83*** | 1.25 | 1.51* |
| Reinterviewed women not using contraception in 1992 (N=903) | | | |
| Radio | 1.68*** | 1.36** | 1.50** |
| Television | 1.83*** | 1.52*** | 1.22 |
| Newspaper | 2.45*** | 1.87** | 1.27 |
| Family planning on radio | 1.20 | 0.95 | 1.10 |
| Reinterviewed women who never used contraception by 1992 (N=519) | | | |
| Radio | 1.31 | 1.12 | 1.07 |
| Television | 1.43** | 1.26 | 1.50 |
| Newspaper | 2.16* | 1.70 | 1.55 |
| Family planning on radio | 1.52 | 1.29 | 1.19 |

*** (p <0.01); ** (p<0.05); * (p <0.10)

### 3.3.2 Reproductive Intentions

Table 3.13 and Figure 3.2 examine whether the desire to stop childbearing is associated with earlier exposure to the mass media. When the three media are viewed separately, the report of hearing about family planning on the radio is significant as well as television exposure. The cumulative scale (Column 3 of Table 3.11) indicates that women exposed to all three media are 2.6 times as likely to want to terminate childbearing than women not exposed to any of the media. An association of a similar magnitude (an odds ratio of 2.3) is evident for having heard family planning messages on the radio. The association of exposure to the mass media with the desire to terminate childbearing is even stronger when the sample is restricted to women who wanted more children as of 1992.

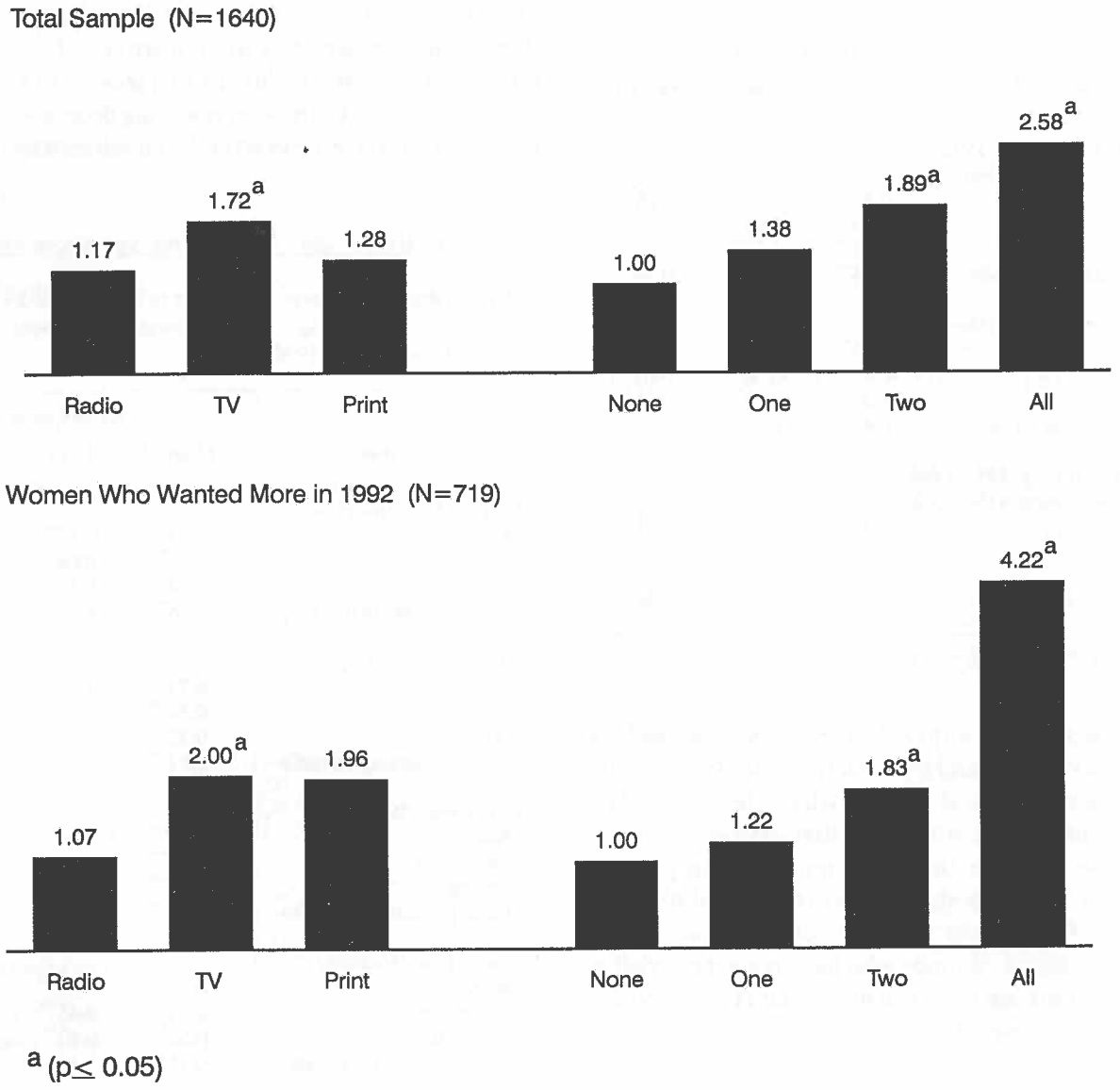
Table 3.13 Odds ratio on desire to stop childbearing between two Moroccan surveys

Odds ratio of the effects of exposure to the mass media, on desire to stop childbearing, Morocco DHS, 1992 and 1995

| Survey sample and media exposure | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| **Cross-sectional survey, 1992** | | | |
| Married women (N=4996) | | | |
| Radio | 1.04 | 0.95 | 1.13 |
| Television | 1.18*** | 1.26*** | 1.16 |
| Newspaper | 0.77*** | 0.66*** | 1.14 |
| Family planning on radio | 1.42*** | 1.49*** | 1.56*** |
| Reinterviewed women (N=1636) | | | |
| Radio | 1.09 | 1.02 | 1.23 |
| Television | 1.11 | 1.09 | 1.24 |
| Newspaper | 0.99 | 0.89 | 1.44 |
| Family planning on radio | 1.36** | 1.37** | 1.51** |
| **Longitudinal survey, 1992-1995** | | | |
| Reinterviewed women (N=1640) | | | |
| Radio | 1.25* | 1.09 | 1.17 |
| Television | 1.30*** | 1.27** | 1.72*** |
| Newspaper | 0.99 | 0.78 | 1.28 |
| Family planning on radio | 1.81*** | 1.80*** | 2.28*** |
| Reinterviewed women who wanted more children in 1992 (N=719) | | | |
| Radio | 1.24 | 1.07 | 1.07 |
| Television | 1.33* | 1.26 | 2.00*** |
| Newspaper | 1.22 | 1.01 | 1.96* |
| Family planning on radio | 1.61** | 1.53* | 2.37*** |

*** (p <0.01); ** (p<0.05); * (p <0.10)

Figure 3.2 Odds ratios of the effects of exposure to mass media in 1992 on desire to stop childbearing in 1995, based on Models 3 and 4 with all controls, Morocco DHS 1992 and 1995




a ($p \leq 0.05$)

The last table in the analysis for married women (Table 3.14) evaluates the impact of the media on the number of children considered ideal. The regression coefficients (in the ordinary least squares model) show significant associations in the longitudinal analysis with all of the controls imposed. Much stronger associations are evident when the cumulative measure of the media is analyzed.

## 3.4 AGE AT FIRST SEX AND AGE AT MARRIAGE

It is plausible to hypothesize that modern ideas transmitted through the mass media could influence young women to postpone marriage to an age later than the traditional norm. The effect of the media on age at first sex is more ambiguous, and plausibly, could indirectly encourage earlier sexual experience. These data are less than ideal to test

Table 3.14 Regression coefficients on ideal number of children between two Moroccan surveys

Regression coefficients of exposure to the mass media, on ideal number of children, Morocco DHS, 1992 and 1995

| Survey sample and media exposure | Regression coefficient | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| **Cross-sectional survey, 1992** | | | |
| Married women (N=4896) | | | |
| Radio | -0.47*** | -0.09 | -0.08 |
| Television | -0.73*** | -0.49*** | -0.09 |
| Newspaper | -1.21*** | -0.96*** | -0.11 |
| Family planning on radio | -0.46*** | -0.19** | -0.24*** |
| Reinterviewed women (N=1588) | | | |
| Radio | -0.53*** | -0.12 | -0.09 |
| Television | -0.81*** | -0.56*** | -0.07 |
| Newspaper | -1.20*** | -0.95*** | 0.05 |
| Family planning on radio | -0.41*** | -0.05 | -0.17 |
| **Longitudinal survey, 1992-1995** | | | |
| Reinterviewed women (N=1613) | | | |
| Radio | -0.73*** | -0.28*** | -0.21** |
| Television | -0.97*** | -0.70*** | -0.30** |
| Newspaper | -1.09*** | -0.72*** | 0.01 |
| Family planning on radio | -0.53*** | -0.17 | -0.24* |

*** (p <0.01); ** (p<0.05); * (p <0.10)

these hypotheses, since unlike the media exposure and the contraceptive variables and reproductive attitudes which are current status measures, the age at which the woman first had sex and the age at which she first married are years earlier for many women. In order to minimize this problem of time synchronization, the analysis is confined to young women (15-24). For both variables, proportional hazards models are estimated. Women who have not yet married or have never had sex are observed up to their current age and then censored in these tables.

Except for Burkina Faso where no significant relationship with age at marriage is evident with all of the covariates controlled, and Ghana where radio exposure is associated with a higher risk of early marriage, women who are exposed to the mass media are less likely to initiate marriage at an early age than women who are not exposed (Table 3.15). This is particularly evident for television and the print media with the other covariates controlled: both media are significant predictors of the timing of marriage in Ghana, Kenya and Zambia. For example, in Kenya the risk of marrying earlier is 35 percent lower for women who regularly watch television and 24 percent lower for women who are regular readers of newspapers and magazines. On the other hand, having heard family planning messages on the radio appears to increase the risk of marriage initiation in Kenya, Madagascar and Zambia. This is probably more of a reflection of the sexual activity accompanying marriage than an inducement to earlier marriage. The cumulative effects of the media (Column 1 of Table 3.16) show a similar pattern—the likelihood of marrying decreases with exposure to the mass media in all of the countries except Burkina Faso.

Table 3.15 Hazard ratio: age at first marriage among women

Hazard ratio of the effects of exposure to the mass media among women age 15-24, on age at first marriage, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Hazard ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Burkina Faso (N=2574) | | | |
| Radio | 0.73*** | 0.87*** | 1.05 |
| Television | 0.52*** | 0.68*** | 1.02 |
| Newspaper | 0.40*** | 0.51*** | 0.89 |
| Family planning on radio | 0.86** | 1.07 | 1.09 |
| Ghana (N=1632) | | | |
| Radio | 0.75*** | 0.97 | 1.16* |
| Television | 0.50*** | 0.58*** | 0.83** |
| Newspaper | 0.32*** | 0.38*** | 0.55*** |
| Family planning on radio | 0.82*** | 1.03 | 1.08 |
| Kenya (N=3392) | | | |
| Radio | 0.67*** | 0.80*** | 0.86** |
| Television | 0.41*** | 0.49*** | 0.65*** |
| Newspaper | 0.58*** | 0.70*** | 0.76*** |
| Family planning on radio | 0.86*** | 1.08 | 1.21*** |
| Madagascar (N=2686) | | | |
| Radio | 0.57*** | 0.70*** | 0.86** |
| Television | 0.35*** | 0.45*** | 0.64*** |
| Newspaper | 0.56*** | 0.80** | 0.96 |
| Family planning on radio | 0.75** | 1.14 | 1.29* |
| Namibia (N=2377) | | | |
| Radio | 1.07 | 1.30** | 1.26 |
| Television | 0.93 | 1.12 | 1.15 |
| Newspaper | 0.55*** | 0.51*** | 0.74*** |
| Family planning on radio | U | U | U |
| Zambia (N=3425) | | | |
| Radio | 0.65*** | 0.89** | 1.05 |
| Television | 0.45*** | 0.55*** | 0.76*** |
| Newspaper | 0.49*** | 0.57*** | 0.69*** |
| Family planning on radio | 0.88** | 1.24*** | 1.25*** |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)

Table 3.16 Hazard ratio: age at first marriage and age at first intercourse among women

Hazard ratio of the effects of cumulative exposure to the mass media among women age 15-24, on age at first marriage and age at first intercourse, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Model 4: Hazard ratio | |
|---|---|---|
| | Age at first marriage | Age at first intercourse |
| Burkina Faso | | |
| Any one | 1.05 | 1.12** |
| Any two | 1.03 | 1.21* |
| All three | 0.97 | 1.11 |
| Family planning on radio | 1.09 | 1.07 |
| Ghana | | |
| Any one | 1.14 | 1.06 |
| Any two | 0.90 | 0.99 |
| All three | 0.55*** | 0.92 |
| Family planning on radio | 1.15* | 1.17** |
| Kenya | | |
| Any one | 0.81*** | 0.93 |
| Any two | 0.63*** | 0.76*** |
| All three | 0.42*** | 0.75*** |
| Family planning on radio | 1.23*** | 1.26*** |
| Madagascar | | |
| Any one | 0.89 | 0.86*** |
| Any two | 0.68*** | 0.74*** |
| All three | 0.60*** | 0.82 |
| Family planning on radio | 1.29* | 1.22* |
| Namibia | | |
| Any one | 1.48** | 1.06 |
| Any two | 1.00 | 1.02 |
| All three | 1.28 | 0.88 |
| Family planning on radio | U | U |
| Zambia | | |
| Any one | 0.90* | 0.93 |
| Any two | 0.73*** | 0.87** |
| All three | 0.55*** | 0.80*** |
| Family planning on radio | 1.30*** | 1.01 |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)

Table 3.17 Hazard ratio: age at first intercourse among women

Hazard ratio of the effects of exposure to the mass media among women age 15-24, on age at first intercourse, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Hazard ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Burkina Faso (N=2518) | | | |
| Radio | 0.88*** | 1.00 | 1.15*** |
| Television | 0.64*** | 0.71*** | 0.97 |
| Newspaper | 0.61*** | 0.72*** | 0.98 |
| Family planning on radio | 0.94 | 1.05 | 1.07 |
| Ghana (N=1627) | | | |
| Radio | 0.99 | 1.09 | 1.06 |
| Television | 0.77*** | 0.79*** | 0.99 |
| Newspaper | 0.65*** | 0.68*** | 0.92 |
| Family planning on radio | 1.00 | 1.07 | 1.17** |
| Kenya (N=3375) | | | |
| Radio | 0.80*** | 0.83*** | 0.89** |
| Television | 0.64*** | 0.69*** | 0.89 |
| Newspaper | 0.80*** | 0.89*** | 0.88*** |
| Family planning on radio | 1.01 | 1.16*** | 1.26*** |
| Madagascar (N=2679) | | | |
| Radio | 0.58*** | 0.66*** | 0.87** |
| Television | 0.51*** | 0.69*** | 0.79** |
| Newspaper | 0.64*** | 0.85** | 0.98 |
| Family planning on radio | 0.77** | 1.11 | 1.23* |
| Namibia (N=2357) | | | |
| Radio | 0.94 | 0.99 | 0.96 |
| Television | 0.95 | 1.01 | 0.89 |
| Newspaper | 0.84*** | 0.84*** | 1.00 |
| Family planning on radio | U | U | U |
| Zambia (N=3418) | | | |
| Radio | 0.82*** | 0.93 | 0.95 |
| Television | 0.77*** | 0.87*** | 0.97 |
| Newspaper | 0.74*** | 0.79*** | 0.88*** |
| Family planning on radio | 0.87*** | 0.99 | 1.00 |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)

The association between the mass media and the woman's age at first sex is not as strong as that described for age at marriage (Table 3.17 and Column 2 of Table 3.16). No general pattern seems evident. In Burkina Faso, for example, women exposed to radio are 15 percent more likely to initiate sex at an earlier age than those who are not so exposed. However, the opposite is the case in Kenya and Madagascar. Only in Kenya and in Zambia does the risk of initiating sex decrease with cumulative exposure. Similar to the result for age at marriage, having heard family planning messages on the radio is associated with earlier sex.

## 3.5 MEDIA EFFECTS AMONG NEVER-MARRIED WOMEN

Following the general theory that exposure to the mass media increases exposure to modern ideas about family size and fertility regulation and to ideas that conflict with traditional attitudes toward marriage and family, one might expect that young single women might be especially receptive to such messages. Single women more exposed to the media would be expected to marry at later ages, to be more sexually active before marriage, to want fewer children, to

be better informed about contraception, and to be more likely to have used contraception than single women with little media exposure. Since this more "modern" behavior will also be associated with residence in urban areas, with more education and with other social and economic characteristics, a multivariate analysis is necessary to determine the independent influence of the media, if any. The same statistical procedures are followed as for the foregoing analyses of currently married women. The population of interest is defined here as never-married women 15-24 years of age. The first subject of interest is the extent of exposure to the different media.

### 3.5.1 Exposure to the Media

As might be expected, never-married women are more exposed to the mass media than married women, who are, of course, considerably older on average. Comparing the estimates of exposure in Table 3.18 with those for married women in Table 2.1, it is evident that although exposure to radio is only slightly greater among never-married women, exposure to television and to the print media is much higher than for married older women. A more refined analysis (not shown) indicates that marital status per se plays a major role. Among younger women (ages 15-24), exposure to the media is considerably greater for never-married women than for women who are currently married.

### 3.5.2 Covariates of Exposure

The characteristics of never-married women who are exposed to the mass media are essentially the same as those for married women. In all of the countries, education shows a consistently strong effect. Residence in urban areas also stands out, especially for television. Other significant variables are the presence of electricity in the household, and the ownership of a refrigerator or a car. Region of residence plays a major part in Kenya.

### 3.5.3 Knowledge of Modern Methods

The percentage of never-married young women who indicate some knowledge of a modern method of contraception ranges from 45.1 percent in Madagascar to 91.2 percent in Kenya. In the absence of the covariates, exposure to each of the media in all six countries shows significant associations with knowledge of modern contraceptives (Table 3.19). With all of the covariates included, however, the association with radio persists in most of the countries. Television and print exposure also remain important in Madagascar and Zambia. The strongest relationships are with the report of having heard radio messages about family planning specifically (an association with some redundancy), although exposure to the radio generally maintains its effects also.

### 3.5.4 Ever Use of Any Method

The relationship of mass media with contraceptive practice among never-married women is analyzed here for those who report having had sex. About half of such women have ever used a method except in Zambia where the percentage falls to 22.8. There is some persistent evidence that media exposure makes a difference in contraceptive use (Table 3.20). In all six countries, the uncontrolled associations are significant for all types of media exposure. The strongest associations are with the cumulative exposure (Column 2 of Table 3.21) to two or three of the media.

Table 3.18 Percent exposed to mass media: never-married women

Percent of never-married women age 15-24 exposed to mass media at least once a week, Demographic and Health Surveys, 1992-1993

| Media exposure variable | Burkina Faso | Ghana | Kenya | Madagascar | Namibia | Zambia |
|---|---|---|---|---|---|---|
| Radio | 48.4 | 54.3 | 70.9 | 46.1 | 80.2 | 63.2 |
| Television | 23.9 | 64.4 | 23.4 | 18.5 | 23.6 | 34.3 |
| Print | 19.1 | 24.6 | 43.7 | 19.4 | 58.0 | 53.1 |
| No exposure to any | 46.0 | 20.9 | 21.6 | 48.5 | 11.8 | 24.2 |
| Exposed to one | 27.3 | 30.7 | 34.4 | 27.5 | 30.7 | 24.0 |
| Exposed to two | 16.1 | 32.6 | 28.4 | 15.7 | 38.6 | 28.8 |
| Exposed to all three | 10.6 | 15.8 | 15.6 | 8.4 | 18.9 | 23.0 |
| Number of women | 837 | 828 | 2,051 | 1,441 | 1,932 | 1,701 |

Table 3.19 Odds ratio on knowledge of modern methods: never-married women

Odds ratio of the effects of exposure to the mass media among never-married women age 15-24. on knowledge of modern contraceptive methods, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Burkina Faso (N=837) | | | |
| Radio | 6.30*** | 3.07*** | 2.04*** |
| Television | 11.40*** | 4.79*** | 1.83 |
| Newspaper | 15.94*** | 6.32*** | 2.00* |
| Family planning on radio | 6.93*** | 3.03*** | 2.52*** |
| Ghana (N=828) | | | |
| Radio | 3.29*** | 1.97*** | 1.73** |
| Television | 2.90*** | 2.00*** | 1.29 |
| Newspaper | 2.80*** | 1.67 | 1.09 |
| Family planning on radio | 4.71*** | 3.05*** | 3.46*** |
| Kenya (N=2051) | | | |
| Radio | 2.75*** | 1.44** | 1.35 |
| Television | 1.67*** | 1.06 | 0.81 |
| Newspaper | 2.18*** | 1.44** | 1.04 |
| Family planning on radio | 7.32*** | 5.91*** | 4.83*** |
| Madagascar (N=1441) | | | |
| Radio | 4.40*** | 2.72*** | 2.09*** |
| Television | 5.81*** | 2.99*** | 1.53** |
| Newspaper | 3.74*** | 1.80*** | 1.31 |
| Family planning on radio | 6.60*** | 3.23*** | 2.88*** |
| Namibia (N=1932) | | | |
| Radio | 2.25*** | 1.58*** | 1.31* |
| Television | 5.48*** | 4.13*** | 1.49 |
| Newspaper | 2.52*** | 1.86*** | 1.47*** |
| Family planning on radio | U | U | U |
| Zambia (N=1701) | | | |
| Radio | 2.75*** | 1.63*** | 1.30* |
| Television | 2.46*** | 1.34* | 0.84 |
| Newspaper | 3.18*** | 2.28*** | 1.61*** |
| Family planning on radio | 5.29*** | 3.31*** | 3.22*** |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)

Table 3.20 Odds ratio on ever use of contraception: never-married women

Odds ratio of the effects of exposure to the mass media among never-married women age 15-24 who are sexually experienced, on ever use of contraception, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Burkina Faso (N=183) | | | |
| Radio | 3.33*** | 2.14** | 1.80 |
| Television | 2.03** | 0.97 | 0.91 |
| Newspaper | 3.60*** | 2.38*** | 1.56 |
| Family planning on radio | 3.22*** | 2.01* | 2.06* |
| Ghana (N=464) | | | |
| Radio | 2.64*** | 1.88*** | 1.52* |
| Television | 2.39*** | 1.70** | 1.60* |
| Newspaper | 3.05*** | 2.29*** | 1.80** |
| Family planning on radio | 1.80*** | 1.17 | 1.33 |
| Kenya (N=936) | | | |
| Radio | 1.94*** | 1.51** | 1.42* |
| Television | 1.54*** | 1.19 | 1.24 |
| Newspaper | 1.69*** | 1.40** | 1.21 |
| Family planning on radio | 1.63*** | 1.29 | 1.09 |
| Madagascar (N=644) | | | |
| Radio | 4.67*** | 2.68*** | 2.11*** |
| Television | 6.18*** | 3.06*** | 1.62 |
| Newspaper | 3.88*** | 1.67** | 1.36 |
| Family planning on radio | 4.49*** | 1.87 | 1.26 |
| Namibia (N=1001) | | | |
| Radio | 2.60*** | 1.82*** | 1.61** |
| Television | 4.22*** | 3.50*** | 1.25 |
| Newspaper | 2.18*** | 1.51*** | 1.11 |
| Family planning on radio | U | U | U |
| Zambia (N=855) | | | |
| Radio | 1.62*** | 1.15 | 1.00 |
| Television | 1.64*** | 1.24 | 1.19 |
| Newspaper | 1.97*** | 1.68*** | 1.46* |
| Family planning on radio | 1.88*** | 1.49* | 1.54* |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)

Table 3.21 Odds ratio on knowledge of modern contraception and ever use of any method: never-married women

Odds ratio of the effects of cumulative exposure to the mass media among never-married women age 15-24 who are sexually experienced, on knowledge of modern contraception and ever use of any method, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Model 4: Odds ratio | |
|---|---|---|
| | Knowledge of modern contraception | Ever use of any method |
| Burkina Faso | | |
| Any one | 2.43*** | 1.71 |
| Any two | 4.02*** | 2.36* |
| All three | 3.55** | 2.71 |
| Family planning on radio | 2.53*** | 2.15* |
| Ghana | | |
| Any one | 1.12 | 1.24 |
| Any two | 1.60 | 2.03** |
| All three | 4.53** | 4.34*** |
| Family planning on radio | 3.61*** | 1.32 |
| Kenya | | |
| Any one | 1.25 | 1.81*** |
| Any two | 1.33 | 1.72** |
| All three | 1.20 | 2.59*** |
| Family planning on radio | 4.94*** | 1.10 |
| Madagascar | | |
| Any one | 2.02*** | 2.02*** |
| Any two | 2.51*** | 1.94** |
| All three | 4.94*** | 7.82*** |
| Family planning on radio | 2.98*** | 1.26 |
| Namibia | | |
| Any one | 1.40* | 1.61 |
| Any two | 2.08*** | 1.95** |
| All three | 2.23** | 2.26** |
| Family planning on radio | U | U |
| Zambia | | |
| Any one | 1.38** | 1.06 |
| Any two | 1.71*** | 1.47 |
| All three | 1.89** | 1.65 |
| Family planning on radio | 3.18*** | 1.52* |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)

### 3.5.5 Desired Number of Children

Nonnumeric responses to the question on the desired or ideal number of children, typically "It's up to God," are less common among young never-married women. With the exception of Burkina Faso, the proportion of women giving nonnumeric responses is around 5 percent. In Burkina Faso, this response accounts for 17 percent of never-married women. The relationship with the mass media is essentially the same as that described for currently married women; in general, media exposure is associated with responding numerically (results not shown).

The results of the analysis of the number of children desired and exposure to the mass media are shown in Table 3.22 in the form of ordinary least squares regression coefficients. The association is uniformly negative: the greater the exposure, the fewer children desired. In the unadjusted analysis, all of the coefficients are statistically significant and some imply large unit changes with increasing exposure. A similar pattern is obtained in Model 2 where the media effects are considered simultaneously. When all of the covariates are included, however, most of the coefficients for the media diminish in value to insignificant levels.

Table 3.22 Regression coefficients on ideal number of children: never-married women

Regression coefficients of exposure to the mass media among never-married women age 15-24, on ideal number of children, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Regression coefficient | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Burkina Faso (N=697) | | | |
| Radio | -1.05*** | -0.45*** | -0.13 |
| Television | -1.45*** | -0.80*** | -0.23 |
| Newspaper | -1.76*** | -1.23*** | -0.58*** |
| Family planning on radio | -0.65*** | -0.08 | -0.21 |
| Ghana (N=780) | | | |
| Radio | -0.43*** | -0.26*** | -0.14 |
| Television | -0.54*** | -0.40*** | -0.21** |
| Newspaper | -0.51*** | -0.33*** | -0.02 |
| Family planning on radio | -0.25*** | -0.03 | -0.01 |
| Kenya (N=1977) | | | |
| Radio | -0.32*** | -0.03 | 0.03 |
| Television | -0.58*** | -0.46*** | -0.10 |
| Newspaper | -0.45*** | -0.29*** | -0.17*** |
| Family planning on radio | -0.31*** | -0.20*** | -0.09 |
| Madagascar (N=1399) | | | |
| Radio | -1.12*** | -0.68*** | -0.15 |
| Television | -1.55*** | -1.08*** | -0.31 |
| Newspaper | -0.98*** | -0.28* | -0.03 |
| Family planning on radio | -1.08*** | -0.34 | -0.23 |
| Namibia (N=1808) | | | |
| Radio | -0.46*** | -0.10 | 0.06 |
| Television | -1.60*** | -1.56*** | -0.12 |
| Newspaper | -0.45*** | -0.07 | 0.24** |
| Family planning on radio | U | U | U |
| Zambia (N=1701) | | | |
| Radio | -0.63*** | -0.35*** | -0.17 |
| Television | -0.73*** | -0.51*** | -0.12 |
| Newspaper | -0.49*** | -0.23** | 0.00 |
| Family planning on radio | -0.39*** | -0.05 | -0.04 |

*** (p <0.01); ** (p<0.05); * (p <0.10)
U = Unknown (variable not available)

# 4 Mass Media and Male Reproductive Behavior

## 4.1 ANALYSIS OF MARRIED MEN

Two of the six countries in this report included samples of men in the surveys. In Ghana, a sample of 1,302 men age 15-59 and in Kenya 2,336 men age 20-54 were interviewed. Since the same questions about exposure to the media were asked of the men as of the women, there is the opportunity to evaluate whether the strong associations of media exposure with contraceptive behavior and reproductive attitudes observed for women also pertain to men.

### 4.1.1 Media Exposure

The exposure of men to the different media in these two countries (Table 4.1) is slightly higher for radio in Kenya, but greater for television in Ghana. Exposure to newspapers and magazines is evidently greater in Kenya than in Ghana. In both countries, higher proportions of men are exposed to the media than are women (Table 2.1). In Ghana, only 17.8 percent of married men report no exposure to any of the three media compared with 38.9 percent of the women. For Kenya, the corresponding percentages are 9.9 for men and 32.6 percent for women. This suggests the possibility that the potential effects of the media may be stronger for men than for women.

A similar pattern of covariates of media exposure is evident (not shown) for men as for women. In general, education, and for men, working in a non-agricultural occupation are the main predictors of exposure. Particular regional and ethnic patterns also appear especially in Kenya. Urban residence is a strong predictor of exposure to television and the print media in Kenya as well. In both countries, electricity and ownership of a refrigerator (a measure of economic status) are also strong covariates of media exposure.

Table 4.1 Percent exposed to mass media: married men

Percent of currently married men exposed to mass media at least once a week, Demographic and Health Surveys, 1992-1993

| Media exposure variable | Ghana | Kenya |
|---|---|---|
| Radio | 78.9 | 87.3 |
| Television | 43.0 | 29.4 |
| Print | 39.1 | 58.3 |
| No exposure to any | 17.8 | 9.9 |
| Exposed to one | 30.0 | 30.0 |
| Exposed to two | 25.6 | 35.2 |
| Exposed to all three | 26.6 | 25.0 |
| Number of men | 749 | 1,664 |

### 4.1.2 Age at Marriage and Age at First Sex

In order to keep the timing of marriage and of first sex within some reasonable distance of the timing of the reported media exposure, this analysis is limited to men currently under the age of 30. Men of all marital statuses are included.

In Ghana, exposure to radio and to the print media are significantly associated with later marriage (Table 4.2) but no relationship is detectable in Kenya. In both countries, the main determinant of age at marriage is education.

Table 4.2 Hazard ratio: age at first marriage and first intercourse among men

Hazard ratio of the effects of exposure to the mass media among men age 15-29, on age at first marriage and age at first intercourse, Demographic and Health Surveys 1992-1993

| Country and exposure variable | Hazard ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| AGE AT FIRST MARRIAGE | | | |
| Ghana (N=605) | | | |
| Radio | 0.71*** | 0.80** | 0.77** |
| Television | 0.87* | 1.00 | 0.97 |
| Newspaper | 0.79*** | 0.88 | 0.78** |
| Family planning on radio | 0.76*** | 0.84** | 0.85* |
| Kenya (N=915) | | | |
| Radio | 0.94 | 1.06 | 1.11 |
| Television | 0.78** | 0.79** | 0.98 |
| Newspaper | 0.87 | 0.92 | 1.20 |
| Family planning on radio | 0.94 | 0.97 | 0.93 |
| AGE AT FIRST INTERCOURSE | | | |
| Ghana (N=606) | | | |
| Radio | 0.96 | 0.97 | 0.95 |
| Television | 1.04 | 1.05 | 0.93 |
| Newspaper | 1.01 | 1.03 | 0.91 |
| Family planning on radio | 0.93 | 0.92 | 0.93 |
| Kenya (N=913) | | | |
| Radio | 1.25 | 1.38 | 1.59** |
| Television | 0.80** | 0.76** | 0.93 |
| Newspaper | 1.02 | 1.06 | 1.29** |
| Family planning on radio | 0.98 | 0.94 | 0.93 |

*** (p <0.01); ** (p<0.05); * (p <0.10)

The age at which men recall first having had sex is unaffected by exposure to the media in Ghana but there is some evidence in Kenya that exposure to radio and the print media is associated with a younger age at the time of first sex (Table 4.3).

Table 4.3 Hazard ratio: cumulative exposure on age at first marriage and age at first intercourse among men

Hazard ratio of the effects of cumulative exposure to the mass media among men age 15-29, on age at first marriage and age at first intercourse, Demographic and Health Surveys 1992-1993

| Country and exposure variable | Model 4: Hazard ratio | |
|---|---|---|
| | Age at first marriage | Age at first intercourse |
| Ghana | | |
| Any one | 0.79* | 0.92 |
| Any two | 0.76* | 0.90 |
| All three | 0.54*** | 0.78 |
| Family planning on radio | 0.86* | 0.94 |
| Kenya | | |
| Any one | 0.95 | 1.64** |
| Any two | 1.17 | 2.05*** |
| All three | 1.15 | 1.97*** |
| Family planning on radio | 0.94 | 0.93 |

*** (p <0.01); ** (p<0.05); * (p <0.10)

### 4.1.3 Current Use of Contraception

Knowledge of contraception exceeds 90 percent among men in both Ghana and Kenya so that the possible influence of the mass media can be focused directly on the use of contraception.

In Ghana, 32.2 percent of married men are currently using some method of contraception; in Kenya, the estimate is 54.4 percent. In both countries, there is a demonstrable effect of media exposure on contraceptive practice (Table 4.4). In Ghana, exposure to the radio or to newspapers and magazines is associated with greater contraceptive use although the radio "effect" is dominated by having heard family planning messages on the radio. In Kenya, both radio in general as well as radio messages focused on family planning are related to the use of a method. In Kenya but not in Ghana, exposure to television has an "effect" similar to that of the radio. Men exposed to all three media are considerably more likely to be using contraception than men with no exposure, even with all of the covariates simultaneously controlled. The odds ratio in Ghana is 2.8. In Kenya, men exposed to all three media are 3.5 times as likely to be using a method as men not exposed to any of the media.

Table 4.4 Odds ratio on current and future contraception use: married men

Odds ratio of the effects of exposure to the mass media among married men, on current use of contraception and intention to use a method, Demographic and Health Surveys 1992-1993

| Country and exposure variable | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| CURRENT USE OF CONTRACEPTION | | | |
| Ghana (N=749) | | | |
| Radio | 4.16*** | 1.94** | 1.48 |
| Television | 2.61*** | 1.37* | 1.30 |
| Newspaper | 4.33*** | 2.90*** | 1.76** |
| Family planning on radio | 2.73*** | 1.68*** | 1.83*** |
| Kenya (N=1664) | | | |
| Radio | 3.53*** | 1.78*** | 1.64*** |
| Television | 2.91*** | 2.02*** | 1.73*** |
| Newspaper | 2.54*** | 1.58*** | 1.15 |
| Family planning on radio | 2.87*** | 2.05*** | 1.68*** |
| INTENTION TO USE CONTRACEPTION | | | |
| Ghana (N=498) | | | |
| Radio | 1.88*** | 1.37 | 1.01 |
| Television | 2.16*** | 1.65** | 1.47 |
| Newspaper | 2.14*** | 1.58** | 1.16 |
| Family planning on radio | 1.43** | 1.07 | 1.18 |
| Kenya (N=758) | | | |
| Radio | 2.33*** | 1.84*** | 1.98*** |
| Television | 1.26 | 0.88 | 0.75 |
| Newspaper | 1.94*** | 1.64*** | 1.26 |
| Family planning on radio | 1.59*** | 1.21 | 0.95 |

*** (p <0.01); ** (p<0.05); * (p <0.10)

### 4.1.4 Intention to Use a Method

In both countries, around half of the men not currently using a method say that they intend to use in the future. In Ghana, exposure to television and the print media, although significantly associated with intention to use without any controls, loses its strength when all of the covariates are imposed (Table 4.5). Only education persists (not shown). In Kenya, radio exposure shows some persistent relationship with intention to use contraception.

### 4.1.5 Reproductive Intentions

Similar proportions of men in both countries say that they want no more children—35.1 percent in Ghana and 38.3 percent in Kenya. Radio exposure in both countries shows a significant relationship with a desire to have no more children, while in Kenya the print media also contribute to increasing the proportion who want no more children (Table 4.6).

Table 4.5 Odds ratio: cumulative exposure on current and future contraceptive use among married men

Odds ratio of the effects of cumulative exposure to the mass media among married men, on current use of contraception and intention to use a method, Demographic and Health Surveys 1992-1993

| Country and exposure variable | Model 4: Odds ratio | |
|---|---|---|
| | Current use of contraception | Intention to use a method |
| Ghana | | |
| Any one | 1.10 | 1.07 |
| Any two | 1.92* | 1.40 |
| All three | 2.76*** | 1.80 |
| Family planning on radio | 1.92*** | 1.16 |
| Kenya | | |
| Any one | 1.73** | 2.18*** |
| Any two | 2.08*** | 2.48*** |
| All three | 3.54*** | 1.99* |
| Family planning on radio | 1.69*** | 0.96 |

*** (p <0.01); ** (p<0.05); * (p <0.10)

Table 4.6 Odds ratio on desire to stop childbearing and ideal number of children: married men

Odds ratio of the effects of exposure to the mass media among married men, on desire to stop childbearing and numeric versus nonnumeric responses on ideal number of children, Demographic and Health Surveys 1992-1993

| Country and exposure variable | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| DESIRE TO STOP CHILDBEARING | | | |
| Ghana (N=749) | | | |
| Radio | 2.47*** | 1.73*** | 2.17** |
| Television | 1.53*** | 0.98 | 1.05 |
| Newspaper | 2.28*** | 1.88*** | 1.34 |
| Family planning on radio | 1.78*** | 1.28 | 1.11 |
| Kenya (N=1664) | | | |
| Radio | 1.73*** | 1.47** | 1.81*** |
| Television | 1.00 | 0.83 | 0.77* |
| Newspaper | 1.30*** | 1.18 | 1.38** |
| Family planning on radio | 1.51*** | 1.37*** | 1.29* |
| NUMERIC VERSUS NONNUMERIC RESPONSES ON IDEAL NUMBER OF CHILDREN | | | |
| Ghana (N=749) | | | |
| Radio | 2.68*** | 1.33 | 1.33 |
| Television | 3.01*** | 2.03** | 3.24*** |
| Newspaper | 2.82*** | 1.47 | 1.68 |
| Family planning on radio | 3.09*** | 2.25** | 2.83*** |
| Kenya (N=1664) | | | |
| Radio | 4.81*** | 2.47*** | 1.64* |
| Television | 2.63*** | 1.27 | 1.28 |
| Newspaper | 3.56*** | 2.14*** | 1.23 |
| Family planning on radio | 3.58*** | 2.15*** | 1.70** |

*** (p <0.01); ** (p<0.05); * (p <0.10)

Table 4.7 Odds ratio: cumulative exposure on desire to stop childbearing and ideal number of children among married men

Odds ratio of the effects of cumulative exposure to the mass media among married men, on desire to stop childbearing and numeric versus nonnumeric responses on ideal number of children, Demographic and Health Surveys 1992-1993

| Country and exposure variable | Model 4: Odds ratio | |
|---|---|---|
| | Desire to stop childbearing | Numeric versus nonnumeric responses on ideal number of children |
| Ghana | | |
| Any one | 2.60*** | 1.97* |
| Any two | 3.33** | 2.44* |
| All three | 3.08** | 11.32*** |
| Family planning on radio | 1.12 | 2.62*** |
| Kenya | | |
| Any one | 2.01*** | 1.52 |
| Any two | 2.97*** | 2.21** |
| All three | 1.97** | 2.37** |
| Family planning on radio | 1.28* | 1.70** |

*** (p <0.01); ** (p<0.05); * (p <0.10)

In both countries, 8.5 percent of married men answered the question on the ideal number of children with nonnumeric responses. Radio exposure in Kenya, and both radio but particularly television exposure in Ghana significantly increase the odds of answering the question with a number rather than with an "Up to God" response (Table 4.6).

When cumulative media exposure is related to the desire to stop childbearing and to the likelihood of responding numerically to the question on the ideal number of children (Table 4.7), the associations are significant and strong.

For both countries, media exposure is negatively associated with the number of children desired (Table 4.8). In Ghana, this relationship is with radio exposure, while in Kenya both the radio and newspapers and magazines play a role.

### 4.1.6 Approval of Contraception

In the surveys in these two countries, men were asked whether they approved or disapproved of couples using a method to avoid pregnancy (87 percent in Ghana and 89 percent in Kenya approved). In Table 4.9, the association of this attitude with media exposure is explored. Radio exposure has some effect in Ghana doubling the odds of approval, but having heard family planning messages on the radio appears to be the most influential factor. In Kenya, exposure to both general radio and print media increases the odds of approval although having heard family planning messages also yields a significant effect.

Table 4.8 Regression coefficients on ideal number of children: married men

Regression coefficients of exposure to the mass media among married men, on ideal number of children, Demographic and Health Surveys 1992-1993

| Country and exposure variable | Regression coefficient | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Ghana (N=688) | | | |
| Radio | -2.10*** | 1.51*** | 0.94*** |
| Television | -1.52*** | -0.62** | -0.21 |
| Newspaper | -1.89*** | -1.35*** | -0.44 |
| Family planning on radio | -0.63** | 0.35 | 0.29 |
| Kenya (N=1522) | | | |
| Radio | -1.44*** | 0.88*** | -0.55*** |
| Television | -0.50*** | 0.04 | 0.21 |
| Newspaper | -1.25*** | -1.05*** | -0.47*** |
| Family planning on radio | -0.73*** | -0.28** | -0.27** |

*** (p <0.01); ** (p<0.05); * (p <0.10)

Table 4.9 Odds ratio on family planning approval and discussion: married men

Odds ratio of the effects of exposure to the mass media among married men, on approval of family planning and discussion of family planning with spouse, Demographic and Health Surveys 1992-1993

| Country and exposure variable | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| APPROVAL OF FAMILY PLANNING | | | |
| Ghana (N=749) | | | |
| Radio | 3.71*** | 2.02*** | 1.50 |
| Television | 2.67*** | 1.41 | 1.82* |
| Newspaper | 3.77*** | 2.14** | 1.38 |
| Family planning on radio | 3.02*** | 1.83** | 1.94** |
| Kenya (N=1664) | | | |
| Radio | 4.71*** | 2.19*** | 2.01*** |
| Television | 2.14*** | 0.86 | 0.83 |
| Newspaper | 4.71*** | 3.20*** | 2.34*** |
| Family planning on radio | 4.23*** | 2.60*** | 2.41*** |
| DISCUSSION OF FAMILY PLANNING WITH SPOUSE | | | |
| Kenya (N=1664) | | | |
| Radio | 4.96*** | 2.21*** | 1.95*** |
| Television | 2.82*** | 1.47** | 1.40* |
| Newspaper | 3.66*** | 2.21*** | 1.45** |
| Family planning on radio | 4.41*** | 2.91*** | 2.55*** |

*** (p <0.01); ** (p<0.05); * (p <0.10)

### 4.1.7 Discussion with Spouse

A question about whether the man has ever talked about family planning with his wife was included in the Kenya survey where 74 percent replied affirmatively. Having had such discussions is significantly related to mass media exposure as is having heard radio messages on the subject of family planning. All three media show some association and the cumulative effect (or the strong self-selection of men exposed to several media) is quite strong (Table 4.10).

Table 4.10 Odds ratio: cumulative exposure on family planning approval and discussion among married men

Odds ratio of the effects of cumulative exposure to the mass media among married men, on approval of family planning and discussion of family planning with spouse, Demographic and Health Surveys 1992-1993

| Country and exposure variable | Model 4: Odds ratio | |
|---|---|---|
| | Approval of family planning | Discussion of family planning with spouse |
| Ghana | | |
| Any one | 1.50 | |
| Any two | 2.25** | |
| All three | 4.54*** | |
| Family planning on radio | 1.92** | |
| Kenya | | |
| Any one | 2.59*** | 2.47*** |
| Any two | 3.81*** | 2.93*** |
| All three | 4.12*** | 4.77*** |
| Family planning on radio | 2.38*** | 2.56*** |

*** (p <0.01); ** (p<0.05); * (p <0.10)

## 4.2 MEDIA EFFECTS AMONG NEVER-MARRIED MEN

The increasing spread of mass media raises the question of whether young men's attitudes in the area of reproductive behavior are being influenced. Similar to women, the never-married men are slightly more exposed to the media than married men (not shown). Exposure to radio is greater in Kenya than in Ghana (Table 4.11), while the reverse applies to television exposure. Newspapers and magazines are read by more never-married men in Kenya than in Ghana.

Table 4.11 Percent exposed to mass media: never-married men

Percent of never-married men exposed to mass media at least once a week, Demographic and Health Surveys, 1992-1993

| Media exposure variable | Ghana | Kenya |
|---|---|---|
| Radio | 70.4 | 88.1 |
| Television | 53.1 | 35.7 |
| Print | 36.9 | 62.7 |
| No exposure to any | 20.1 | 8.3 |
| Exposed to one | 24.4 | 27.2 |
| Exposed to two | 30.5 | 34.3 |
| Exposed to all three | 25.1 | 30.2 |
| Number of men | 463 | 569 |

### 4.2.1 Knowledge of Contraception

Knowledge or acquaintance with some method of contraception among never-married men is universal in Kenya where 99.2 percent report having heard of a method. In Ghana, such information is less widespread where 85.5 percent report such knowledge. Those men exposed to the media are much more likely to be informed about contraception (Table 4.12). Men who regularly listen to the radio are 4.1 times as likely to know of a method than those who do not. Television exposure raises the odds to 2.2 and men who read newspapers or magazines are 3.5 times as likely to be knowledgeable. Radio messages specifically focused on family planning also play a role over and above general media exposure. Knowledge of contraception increased significantly with exposure to more than one media source. In Ghana, the odds ratio for those who were exposed to one medium is 3.2 compared with 9.4 for those who heard messages on two media sources (Table 4.13).

### 4.2.2 Use of Contraception

In Ghana, only family planning messages over the radio seem to have a persistent effect on having ever used contraception (Table 4.12). In Kenya, these radio messages also show a significant association with having used contraception but general exposure to television also shows some association. The effects of cumulative exposure to the mass media follows the expected pattern, but the difference is not statistically significant (Table 4.13).

Table 4.12 Odds ratio on contraceptive knowledge and ever use: never-married men

Odds ratio of the effects of exposure to the mass media among never-married men age 15-29, on knowledge of contraception and ever use of any method, Demographic and Health Surveys, 1992-1993

| Country and exposure variable | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| KNOWLEDGE OF CONTRACEPTION | | | |
| Ghana (N=463) | | | |
| Radio | 7.99*** | 3.51*** | 4.06*** |
| Television | 4.42*** | 2.05** | 2.23* |
| Newspaper | 11.49*** | 4.48*** | 3.55** |
| Family planning on radio | 5.82*** | 2.26** | 2.13* |
| EVER USE OF CONTRACEPTION | | | |
| Ghana (N=276) | | | |
| Radio | 3.88*** | 1.92* | 1.56 |
| Television | 2.39*** | 1.46 | 1.40 |
| Newspaper | 3.72*** | 2.43*** | 1.56 |
| Family planning on radio | 3.09*** | 1.96** | 2.17** |
| Kenya (N=533) | | | |
| Radio | 1.61* | 0.86 | 1.12 |
| Television | 2.39*** | 2.03*** | 1.89*** |
| Newspaper | 2.09*** | 1.65** | 1.30 |
| Family planning on radio | 1.99*** | 1.87*** | 1.76*** |

*** (p <0.01); ** (p<0.05); * (p <0.10)

Table 4.13 Odds ratio: cumulative exposure on contraceptive knowledge and ever use among never-married men

Odds ratio of the effects of cumulative exposure to the mass media among never-married men age 15-29, on knowledge of contraception and ever use of any method, Demographic and Health Surveys 1992-1993

| Country and exposure variable | Model 4: Odds ratio | |
|---|---|---|
| | Knowledge of contraception | Ever use of contraception |
| Ghana | | |
| Any one | 3.24*** | 1.06 |
| Any two | 9.43*** | 2.32 |
| All three | 57.69*** | 2.51 |
| Family planning on radio | 2.25* | 2.32*** |
| Kenya | | |
| Any one | | 0.77 |
| Any two | | 1.45 |
| All three | | 2.16* |
| Family planning on radio | | 1.76*** |

*** (p <0.01); ** (p<0.05); * (p <0.10)

### 4.2.3 Desired Number of Children

A negative relationship between the number of children desired and exposure to television is evident in both Ghana and Kenya, while exposure to the print media also plays a role in Kenya (Table 4.14).

Table 4.14 Regression coefficients on ideal number of children: never-married men

Regression coefficients of exposure to the mass media among never-married men age 15-29, on ideal number of children, Demographic and Health Surveys 1992-1993

| Country and exposure variable | Regression coefficient | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Ghana (N=427) | | | |
| Radio | -0.30* | 0.20 | 0.17 |
| Television | -0.95*** | -0.87*** | -0.35** |
| Newspaper | -0.53*** | -0.25 | 0.25 |
| Family planning on radio | -0.46*** | -0.23 | -0.10 |
| Kenya (N=546) | | | |
| Radio | -0.15 | 0.13 | -0.01 |
| Television | -0.36*** | -0.26** | -0.25** |
| Newspaper | -0.44*** | -0.37*** | -0.22* |
| Family planning on radio | -0.13 | -0.08 | -0.05 |

*** ($p < 0.01$); ** ($p < 0.05$); * ($p < 0.10$)

# 5 Mass Media and Reproductive Behavior of Married Couples

Thus far in this report, analyses have been included for married and single women in the five countries, and for married and single men in Ghana and Kenya where male surveys had been conducted as well. These surveys of men were designed to include large subsamples of husbands of women interviewed in the regular survey. It is therefore possible to explore the associations of exposure to the mass media with reproductive behavior for men and women within marital unions. Is the impact of media greater when both partners are exposed? Is the wife's or the husband's exposure more important?

The analysis is somewhat complicated by polygyny in these two countries. In Ghana, 22 percent of husbands and in Kenya 14 percent have more than one wife. Two analyses conducted were for all married couples including only the ranking wife in polygynous couples, and for the large subset of monogamously married couples. The results were virtually indistinguishable such that the decision was made to include here the larger category of all married couples.

Three media exposure variables were created: one representing reported exposure to at least one of the media by both spouses, and the other two for either the wife's or the husband's reported exposure. In Ghana, 56.9 percent of couples were exposed to at least one of the media, while in Kenya, the corresponding estimate is 64.1 percent. A similar classification was designed for having heard family planning messages on the radio, capturing joint as well as individual spouse's reports.

The reproductive variables included in this analysis are whether the wife and husband both report currently using a method, whether both intend to use a method sometime in the future if they are not currently using, and whether they both wish to avoid having any more children.

## 5.1 CURRENT USE

There is a significant and strong association in both Ghana and Kenya with current use of contraception if both wife and husband report being exposed to at least one of the three media. The "effect" is particularly strong in Ghana where the unadjusted odds ratio is 6.8, while it is 3.1 in Kenya (Table 5.1). With all of the controls imposed and including the variable of whether family planning messages have been heard on the radio, the odds ratio in Ghana remains at a high level of 2.75. The independent "effect" of the radio messages is 1.6. In Kenya, the corresponding estimates indicate that couples are 80 percent more likely to be using contraception if exposed to one or more of the media as well as 50 percent more likely to use if they have both heard family planning radio messages.

Table 5.1 Odds ratio on current current use of contraception: married couples

Odds ratio of the effects of exposure to the mass media among currently married couples, on current use of contraception, Demographic and Health Surveys, 1992-1993

| Country and exposure status | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Ghana (N=476) | | | |
| Husband and wife were exposed to mass media | 6.81*** | 5.73*** | 2.75*** |
| Husband and wife heard family planning messages on radio | 2.83*** | 1.63** | 1.63* |
| Kenya (N=1096) | | | |
| Husband and wife were exposed to mass media | 3.08*** | 2.39*** | 1.85*** |
| Husband and wife heard family planning messages on radio | 2.47*** | 1.78*** | 1.51*** |

*** (p <0.01); ** (p<0.05); * (p <0.10)

Table 5.2 divides the couple's media exposure into that of wife and husband separately in order to evaluate the comparative influence. In Ghana, the media exposure of the husband seems more important. For example, the likelihood of the couple using contraception is 9 times greater if the husband reports some rather than no media exposure, compared with the effect of the wife's exposure which shows an odds ratio of 1.5. In Kenya, however, the reverse tends to be the case since the couple is about 60 percent more likely to be using contraception when the wife reports being exposed to the mass media. The effect of the husband's exposure is positive but not significant. These estimates are calculated with all of the controls. With regard to the effects of wives' and husbands' reports on having heard family planning messages on the radio, the results are not significantly different for the spouses in either country.

Table 5.2 Odds ratio on current current use of contraception: husbands and wives

Odds ratio of the effects of exposure to the mass media of husbands and wives separately among currently married couples, on current use of contraception, Demographic and Health Surveys, 1992-1993

| Country and exposure status | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Ghana (N=476) | | | |
| Husband exposed to mass media | 34.89*** | 13.15*** | 10.00** |
| Wife exposed to mass media | 6.45*** | 2.57*** | 1.51 |
| Husband heard family planning messages on radio | 2.87*** | 1.45 | 1.84* |
| Wife heard family planning messages on radio | 3.01*** | 1.73** | 1.71* |
| Kenya (N=1096) | | | |
| Husband exposed to mass media | 5.25*** | 2.50*** | 1.82 |
| Wife exposed to mass media | 2.77*** | 1.89*** | 1.62** |
| Husband heard family planning messages on radio | 2.71*** | 2.00*** | 1.63*** |
| Wife heard family planning messages on radio | 2.04*** | 1.27 | 1.15 |

*** (p <0.01); ** (p<0.05); * (p <0.10)

## 5.2 INTENTION TO USE CONTRACEPTION

Following the same model of analysis as for current use, the interest here is to explore the impact of media exposure on whether couples who are not using any method currently both report that they intend to use a method sometime in the future. In both countries, the odds of intending to use for couples exposed to the media are about twice as great as for couples with no media exposure (Table 5.3). Radio messages on family planning do not seem to have any effect here. When wives' and husbands' exposure are examined separately in Table 5.4, there is little difference in Ghana while in Kenya the wives' media exposure seems more important.

Table 5.3 Odds ratio on intention to use contraception: married couples

Odds ratio of the effects of exposure to the mass media among currently married couples, on intention to use contraception, Demographic and Health Surveys, 1992-1993

| Country and exposure status | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Ghana (N=369) | | | |
| Husband and wife were exposed to mass media | 2.25*** | 2.31*** | 1.74* |
| Husband and wife heard family planning messages on radio | 1.28 | 0.91 | 1.06 |
| Kenya (N=582) | | | |
| Husband and wife were exposed to mass media | 2.04*** | 2.00*** | 1.97*** |
| Husband and wife heard family planning messages on radio | 1.42* | 1.06 | 0.90 |

*** (p <0.01); ** (p<0.05); * (p <0.10)

Table 5.4 Odds ratio on intention to use contraception: husbands and wives

Odds ratio of the effects of exposure to the mass media of husbands and wives separately among currently married couples, on intention to use contraception, Demographic and Health Surveys, 1992-1993

| Country and exposure status | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Ghana (N=369) | | | |
| Husband exposed to mass media | 2.22*** | 1.64 | 1.34 |
| Wife exposed to mass media | 2.23*** | 1.91** | 1.55 |
| Husband heard family planning messages on radio | 1.18 | 0.80 | 0.97 |
| Wife heard family planning messages on radio | 1.32 | 1.05 | 0.91 |
| Kenya (N=528) | | | |
| Husband exposed to mass media | 1.75** | 1.20 | 1.28 |
| Wife exposed to mass media | 2.14*** | 1.95*** | 1.90*** |
| Husband heard family planning messages on radio | 1.51** | 1.24 | 1.00 |
| Wife heard family planning messages on radio | 1.46** | 0.99 | 1.03 |

*** (p <0.01); ** (p<0.05); * (p <0.10)

## 5.3 REPRODUCTIVE INTENTIONS

The final analysis in this report focuses on whether the couple's exposure to the media is associated with a desire to stop childbearing. The dependent variable is defined here as those couples in which both spouses report an intention to stop childbearing. The results indicate moderate effects. In Ghana, couples exposed to the general media are nearly twice as likely to want no more children as those with no exposure; in Kenya, there is no general media effect but if the couple heard family planning messages on the radio, they were nearly twice as likely to want to stop childbearing (Table 5.5). Both of these results are obtained with all of the controls imposed. In both countries, the husband's media exposure appears more important than the wife's (Table 5.6).

Table 5.5 Odds ratio on desire to stop childbearing: married couples

Odds ratio of the effects of exposure to the mass media among currently married couples, on desire to stop childbearing, Demographic and Health Surveys, 1992-1993

| Country and exposure status | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Ghana (N=536) | | | |
| Husband and wife were exposed to mass media | 2.39*** | 2.15*** | 1.87* |
| Husband and wife heard family planning messages on radio | 1.81*** | 1.34 | 1.31 |
| Kenya (N=1233) | | | |
| Husband and wife were exposed to mass media | 1.16 | 0.93 | 1.06 |
| Husband and wife heard family planning messages on radio | 1.55*** | 1.60*** | 1.84*** |

*** (p <0.01); ** (p<0.05); * (p <0.10)

Table 5.6 Odds ratio on desire to stop childbearing: husbands and wives

Odds ratio of the effects of exposure to the mass media of husbands and wives separately among currently married couples, on desire to stop childbearing, Demographic and Health Surveys, 1992-1993

| Country and exposure status | Odds ratio | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Ghana (N=536) | | | |
| Husband exposed to mass media | 2.48*** | 1.50 | 2.27* |
| Wife exposed to mass media | 2.23*** | 1.56 | 1.16 |
| Husband heard family planning messages on radio | 1.98*** | 1.47* | 1.38 |
| Wife heard family planning messages on radio | 1.64*** | 1.17 | 1.10 |
| Kenya (N=1233) | | | |
| Husband exposed to mass media | 2.29*** | 2.00*** | 2.07** |
| Wife exposed to mass media | 1.07 | 0.74* | 0.90 |
| Husband heard family planning messages on radio | 1.53*** | 1.34** | 1.18 |
| Wife heard family planning messages on radio | 1.45*** | 1.43** | 1.72*** |

*** ($p < 0.01$); ** ($p < 0.05$); * ($p < 0.10$)

# 6 Summary and Conclusions

This comparative analysis focuses principally on the association between general exposure to the mass media—radio, television, and newspapers and magazines—and reproductive behavior and attitudes. The underlying hypothesis is that modern and western ideas communicated in any form (music, advertising, drama, news, documentaries) can play an important role in weakening traditional supports for early marriage and high fertility. These ideas might emphasize consumer values or control over one's life or nonfamilial roles of women. Moreover, the influence of such ideas may be felt in rural areas and in populations with little formal education where economic development is minimal.

The report examines the relationship between general exposure to the mass media and use of contraception, intention to use a method, age at marriage, desire to stop childbearing, and number of children desired. Six sub-Saharan African countries which participated in the DHS program in the early 1990s are the focus of the analysis: Burkina Faso, Ghana, Kenya, Madagascar, Namibia, and Zambia. Data from a panel study in Morocco were also analyzed in order to provide some control over the time sequence of media exposure and reproductive behavior. Even with this methodological refinement, however, the findings are vulnerable to self-selection bias, namely that "modern" couples may be attracted to both the media and fertility regulation rather than the interpretation that media exposure influences reproductive behavior.

The analyses have been conducted for women who are currently married and separately for never-married women. In the two countries of Ghana and Kenya, the inclusion of male surveys permitted the analysis of media "effects" on reproductive behavior for both currently married men and never-married men. For these two countries as well, the married couple is an additional unit of analysis with data collected independently from both spouses.

Because of the strong association of urban residence and education with both media exposure and reproductive behavior, multivariate analyses were routinely conducted which included these as well as many other controls such as region, ethnicity, economic status measures, age, number of children and other variables that might covary with both the independent and dependent variables. In addition, all of the countries but Namibia included a measure of whether the respondent had heard family planning messages on the radio. This variable was also added to the multivariate analyses to determine whether general exposure to the media is associated with reproductive behavior independently of such targeted messages, as well as to see whether such messages had an independent "effect." As previously stated, these controls are essential but are no substitute for an experimental design that would more clearly elucidate the causal connections. The longitudinal design in Morocco is a step forward in providing some control over time sequences but it was not an experimental design.

The main conclusion of this research is that exposure to the media is significantly and often strongly associated with reproductive behavior even with all of the many controls imposed. Several generalizations can be made:

- Radio exposure, in general, as well as targeted family planning radio messages show the most consistent associations with reproductive behavior, followed by the print media and television in that order (television is only beginning to spread in sub-Saharan Africa);

- The reproductive measures most consistently related to media exposure for women are knowledge of methods, current use, intention to use, and age at marriage. Except for giving a numeric response to the question on ideal number of children, the measures of reproductive intentions are not as strongly or consistently associated with media exposure as are the family planning measures;

- A similar pattern prevails for men, with use of contraception being the most consistently associated both with the radio in general as well as with radio family planning messages. The "effects" are more pronounced in Kenya which also shows associations with exposure to the print media.

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