

# MASS MEDIA EXPOSURE AND ITS IMPACT ON FAMILY PLANNING IN BANGLADESH

M. MAZHARUL ISLAM\* AND A. H. M. SAIDUL HASAN†

*\*Department of Statistics, University of Dhaka and †Dhaka Commerce College, Dhaka, Bangladesh*

**Summary.** This paper analyses mass media exposure and its effect on family planning in Bangladesh using data from the Bangladesh Demographic and Health Survey (BDHS) 1993–94. The findings indicate that radio and television are two important mass media for disseminating family planning information in Bangladesh. However, access to them and exposure to family planning through them are still limited. Slightly more than 40% (42.1%) of respondents reported that they had heard family planning messages via radio, while 17.2% said television, 8.4% said poster and 5.4% said billboard. Respondent's place of residence, education, economic status, geographical region and number of living children appeared to be the most important variable determining mass media exposure to family planning. Multivariate analysis shows that both radio and TV exposure to family planning messages and ownership of a radio and TV have a significant effect on current use of family planning methods. These factors remain significant determinants of contraceptive use, even after controlling socioeconomic and demographic factors. The study reveals that both socioeconomic development policies and family planning programmes with a special emphasis on mass media, especially radio, may have a significant effect on contraceptive use in Bangladesh. The principal policy challenge is to design communications strategies that will reach the less privileged, rural and illiterate people who are by far the majority in Bangladesh.

## Introduction

Results of the recently completed Demographic and Health Surveys (DHSs) throughout the developing world demonstrate that, despite widespread knowledge about family planning among married women of reproductive age, there is still a substantial proportion of women with an unmet need for family planning (Mauldin, 1991). Many women want no more children, but are exposed to the risk of pregnancy and are not practising family planning. This leads to the conclusion that mere knowledge of family planning is not enough, and that there is a need for strong motivation and

effective knowledge about family planning methods (such as source of supply, correct use, side-effects etc.). It is thought that the most suited intervention for transforming these high levels of need into effective demand is an intensive information, education and communication (IEC) programme (Rogers, 1973; Jagdeo, 1996).

For the last few decades, IEC has been considered as an essential means of promoting family planning in the developing world (Rogers, 1973). The objective of the IEC programme is to create public awareness of the need for family planning and the legitimacy of contraception, increase public knowledge about contraceptive methods, including where to get contraceptive methods and how to use them effectively, and to motivate eligible couples to start and continue to practise family planning.

Mass media and interpersonal communications are two important components of IEC that are conventionally utilized to promote family planning programmes. The mass media utilizes radio, television, posters, billboards, movies etc., while interpersonal communication utilizes individual patient education and counselling, group meetings, home visits etc. to promote family planning programmes. This study is concerned with the mass media only.

In the area of family planning research, the potential of mass media was emphasized in the late 1960s and early 1970s (e.g. Berelson, 1967; Bogue, 1967a, b; Schramm, 1971; Ross *et al.*, 1972; Rogers, 1973; Wilder, 1973). Social learning theory, as outlined by Bandura (1986) and others, suggests that mass media may have far greater capabilities than the acknowledged role of creating public awareness or spreading specific information. Moreover, the role of mass media may not be limited to the diffusion of attitude and knowledge of family limitation, but it can include the change in the world view or the value system which indirectly affects fertility behaviour as a whole (Kojima, 1994; Gerard, 1984).

The family planning programme in Bangladesh has been considered to be an example of a successful programme in a country without a high level of socio-economic development, often considered as a necessary precursor to successful family planning (Koenig *et al.*, 1987; Duza & Nag, 1993). The contraceptive prevalence rate (CPR) has increased almost sixfold from 8.0% in 1975 to 45.0% in 1993–94 and the corresponding fertility rate has declined from 6.4 births per woman in 1975 to 3.4 births per woman in 1994 (Mitra *et al.*, 1994). This achievement demonstrates that family planning cannot only be successful in the short term, but can achieve high, sustained levels of contraception. Because of the close association between contraceptive use and fertility rates, a good number of studies have attempted to identify factors related to contraceptive use in Bangladesh and other countries (Davanzo *et al.*, 1988; Islam *et al.*, 1998; Mitra, Islam & Amanullah, 1996). Most of these studies examined the relationship between contraceptive use and socioeconomic, demographic and behavioural factors. Although the importance of IEC to family planning is often acknowledged, there has been relatively little evaluation of the IEC programme in Bangladesh. One of the main reasons for this is the difficulty of measuring the impact of such programmes.

This study is therefore designed to examine the levels and determinants of access to mass media and mass media exposure to family planning, and to investigate the effect of mass media exposure on contraception in Bangladesh.

### Data

The study utilizes data extracted from the 1993–94 Bangladesh Demographic and Health Survey (BDHS). Details of the survey may be seen elsewhere (Mitra *et al.*, 1994). The 1993–94 BDHS employed a nationally representative sample.

The survey considered ever-married women aged 10–49 as eligible for interview. Ultimately 9640 women were interviewed successfully and these constitute the study population. The fieldwork commenced on 17 November 1993 and was completed in March 1994. There were two main survey instruments: the household questionnaire and the individual questionnaire. The household questionnaire elicited information on the age, sex, marital status and education of each member, in addition to indicators of socioeconomic status such as the characteristics of the dwelling, the existence of modern amenities, and the possession of modern appliances. The individual questionnaire collected information about women's mass media (radio, television, newspaper and billboard) exposure to family planning, in addition to a retrospective fertility history, and information on contraceptive use, fertility preferences, marriage and the respondent's and her husband's general background.

### Results

#### *Mass media exposure to family planning*

In order to assess the extent of mass media exposure to family planning, respondents in the BDHS were asked whether they had heard of or seen a message about family planning in the media (radio, television, billboard or poster) in the month before the survey. In response slightly less than half of the ever-married women (47.0%) reported that they had heard or seen a family planning message in one or more of the four media. The results indicate that two in five women (42.1%) had heard a family planning message on the radio in the month before the interview, compared with less than one in five (17.2%) on television. A total of 5.4% and 8.4% reported seeing a family planning message on a billboard and poster respectively.

Among all means of mass media, radio shows a greater exposure than television, billboards or posters (Table 1). This is expected in a country like Bangladesh where there is limited electronic coverage and low female literacy. Only 28.2% of the respondents were reported to own a radio and only 8.6% reported owning a television (Table 2).

Table 2 presents the differential access of respondents to radio and television and their exposure to family planning. The result indicates that, of the 38.7% respondents having access to radio (listen weekly), 23.3% of them have access through ownership of a radio and a quite substantial proportion of the remaining 15.4% do not own a radio but listen elsewhere. Among those who have access to radio, a total of 59.2% had heard family planning messages over the radio. Table 2 also shows that only 17.8% of the respondents have access to television (TV). Among them, 8.1% own and watch TV and 9.7% do not own but watch TV elsewhere. Again, a total of 53.0% of those who have access to TV listen to family planning messages over TV. All these results indicate that exposure to mass media family planning messages is highly associated with access to the mass media.

**Table 1.** Percentage of ever-married women who have heard or seen about family planning in the one month preceding the interview by type of mass media, Bangladesh, 1993–94

Source	Percentage
At least one mass media	46.5
Radio	42.1
Television	17.2
Billboard	5.4
Poster	8.4
Number of cases	9640

**Table 2.** Access to radio and television and exposure to family planning (FP) messages among ever-married women, Bangladesh, 1993–94

Source	Percentage	Number of cases
<b>Radio</b>		
Owns a radio	28.2	2719
Owns a radio and listens weekly	23.3	2248
Does not own but can listen elsewhere	15.4	1478
Does not own or listen	61.3	5913
Among those with access, % that has heard a FP message	59.2	2205
<b>Television</b>		
Owns a TV	8.6	834
Owns a TV and watches weekly	8.1	777
Does not own but can watch elsewhere	9.7	936
Does not own or watch	82.2	7926
Among those with access, % that has seen a FP message	53.1	909

### *Correlates of mass media exposure to family planning*

There are a variety of socioeconomic, demographic and cultural factors that may influence mass media exposure to family planning. To examine the differential effect of these factors on mass media exposure to family planning, the well known Multiple Classification Analysis (MCA) (Yates, 1934; Anderson & Bancroft, 1952) is employed. This analysis helps identify subgroups within the population with lower exposure to family planning messages than others, as well as to identify the most important correlates of mass media exposure to family planning. The subgroups of the population with lower exposure could logically be the target population for future IEC efforts.

**Table 3.** Socioeconomic and demographic determinants of exposure to family planning messages via the mass media, Bangladesh, 1993–94

Explanatory variables	Number of women	Exposure score for mass media		Correlation		Odds ratio
		Unadjusted mean	Adjusted mean	$\eta$	$\beta$	
Grand mean=0.73						
Place of residence				0.28	0.20	
Dhaka/Chittagong	542	1.62	1.32			1.00
Small city/town	688	1.17	1.08			0.75**
Village	6292	0.62	0.65			0.50**
Socioeconomic status				0.27	0.16	
Poor	5467	0.57	0.63			0.38**
Middle	2248	0.86	0.82			0.63**
Upper	807	1.46	1.13			1.00
Respondent's education				0.26	0.12	
Illiterate	5020	0.59	0.66			0.75**
Primary	2308	0.75	0.75			0.80
Secondary	1040	1.18	0.91			0.82*
College/university	155	2.00	1.36			1.00
Region of residence (division)				0.09	0.07	
Barisal	586	0.68	0.70			0.94
Chittagong	2214	0.72	0.77			1.13
Dhaka	2655	0.86	0.80			1.21**
Khulna	1070	0.66	0.64			0.86*
Rajshani	1996	0.63	0.66			1.00
Currently use contraceptive				0.08	0.04	
No	4639	0.66	0.69			1.00
Yes	3883	0.82	0.78			0.84**
Number of living children				0.04	0.03	
0–1	1923	0.73	0.75			1.17
2–3	3523	0.75	0.73			1.11
4–5	1963	0.72	0.75			1.24*
6+	1113	0.63	0.66			1.00
Age				0.03	0.01	
<20	712	0.65	0.69			1.05
20–29	3727	0.75	0.73			1.02
30–49	4083	0.72	0.74			1.00
Religion				0.02	0.01	
Muslim	7461	0.72	0.72			0.89
Hindu/Other	1061	0.79	0.77			1.00
Marital status				0.02	0.01	
Married	7951	0.74	0.73			1.00
Widowed	380	0.64	0.70			0.90
Divorced/separated	192	0.67	0.70			1.00
Work status				0.00	0.02	
No work	7120	0.73	0.72			0.92
Work	1402	0.73	0.68			1.00

Multiple  $R^2=0.141$ ; multiple  $R=0.376$ .

\* $p<0.05$ ; \*\* $p<0.01$ .

**Table 4.** Cumulative scale of media exposure among currently married women, Bangladesh, 1993–94

Score	Media exposure	Percentage	Number of women
0	No message	57.5	5165
1	Radio only	26.2	2351
2	Radio and TV	8.9	801
3	Radio, TV and print	4.9	442
5	TV only	2.5	221
Total		100.0	8980

**Table 5.** Exposure to media messages on family planning by contraceptive knowledge and use, Bangladesh, 1993–94

Contraceptive status	Media message				Total
	No messages (0)	Radio only (1)	Radio and TV (2)	Radio, TV and print (3)	
Don't know method	0.4	0.0	0.0	0.0	0.3
Know method, never used, do not intend to use	16.5	11.7	8.4	4.8	14.0
Never used, intend to use	20.6	21.3	17.8	12.4	20.1
Used in past, do not intend to use	4.5	4.7	4.7	2.1	4.4
Used in past, intend to use	15.4	17.9	19.2	21.6	16.7
Currently using	42.7	44.4	49.9	59.2	44.6
Percentage total	100.0	100.0	100.0	100.0	100.0
Number of women	5386	2351	801	442	8980

For this analysis, an exposure score has been created, which represents the number of channels through which the respondents had received family planning messages. The channels include radio, TV, billboard and poster. One point is given for each of the four mass media, thus the exposure score has a possible range of 0 to 4. In MCA, these scores – a measure of mass media exposure – are used as the dependent variable and socioeconomic, demographic and cultural variables are used as explanatory or predictor variables.

The results of MCA are presented in Table 3. The last column of Table 3 also presents the relative odds for each category of predicted variable obtained from the fitted logistic regression model. The logistic regression model is fitted by considering mass media exposure as the dependent variable, which is dichotomized by assigning the value 1 if the respondents have exposure to family planning through at least one channel of mass media and 0 otherwise.

**Table 6.** Effects of exposure to family planning media messages on selected indicators of contraceptive behaviour, Bangladesh, 1993–94

Contraceptive status	Media message				All
	No messages (0)	Radio only (1)	Radio and TV (2)	Radio, TV and print (3)	
Ever use of contraception					
% Ever used any method	62.5	67.0	73.9	82.8	65.7
% Used modern among users	63.8	60.5	60.7	52.5	61.9
Current use of contraception					
% Currently using any method	42.7	44.4	49.9	59.2	44.6
% Using modern among users	80.9	81.5	83.0	80.4	81.2
Intention to use in future					
% Intend to use in future	62.8	70.5	73.9	83.2	66.4

The results indicate that, of all the variables considered, place of residence is the most important determinant of mass media exposure to family planning. Place of residence has the strongest association ( $\eta=0.28$ ) with mass media exposure to family planning, and this also remains high ( $\beta=0.20$ ) after adjusting for the effect of all other predictors in the model. Both MCA and the logistic regression model show that women living in the two big cities of Bangladesh, namely Dhaka and Chittagong, have a two times higher exposure to family planning messages than their rural counterparts. Women living in small cities or towns also have a higher exposure to family planning messages via mass media than women living in the rural areas.

As indicated by the unadjusted and adjusted correlation ratios and the relative odds ratios, respondent's socioeconomic status (a variable created using household possessions and which is categorized into three categories: poor, middle and upper class) is the second most significant predictor of mass media exposure to family planning ( $\eta=0.27$ ,  $\beta=0.16$ ). Respondent's socioeconomic status shows a significant positive effect on mass media exposure to family planning. Women of poor socioeconomic status are at least 60% less likely to be exposed to family planning via the mass media.

Respondent's education also has a positive and significant effect on mass media exposure to family planning ( $\eta=0.27$ ,  $\beta=0.12$ ). Illiterate women have a lower exposure to family planning than their literate counterparts.

The other moderate significant factors of exposure to family planning are region of residence ( $\eta=0.09$ ,  $\beta=0.07$ ) and current contraceptive use ( $\eta=0.08$ ,  $\beta=0.04$ ). Among the geographic regions, Dhaka division shows the highest prevalence of mass media exposure to family planning messages and Khulna division the lowest. The effect of these two divisions is significantly different from other divisions. Next to Dhaka division, Chittagong shows a higher level of exposure than Khulna, Barisal and Rajshahi.

**Table 7.** Multinomial logistic regression estimates of relative odds of using modern and traditional methods of contraception by mass media and socioeconomic and demographic variables, Bangladesh, 1993–94

Independent variables	Relative odds of modern vs no methods		Relative odds of traditional vs no methods	
	Model 1	Model 2	Model 1	Model 2
Radio exposure	1.13*	1.14**	1.05	1.05
TV exposure	1.26**	1.20*	1.22	1.20
Billboard exposure	1.09	1.03	1.03	0.99
Poster exposure	1.37**	1.35**	1.80***	1.77***
Radio ownership	1.09	0.98	1.21*	0.98
TV ownership	1.18*	0.87	0.87	0.65*
Economic condition				
Poor		0.76*		0.73
Middle		0.81		0.88
High (r)		1.00		1.00
Place of residence				
Urban		1.13		0.99
Rural (r)		1.00		1.00
No. of living children				
0 (r)		1.00		1.00
1–2		1.90***		1.39*
3–4		2.20***		1.29
5+		1.82***		1.30
Age <sup>2</sup>		1.02*		1.05**
Work status		1.35***		1.09
Level of education				
No education (r)		1.00		1.00
Primary		1.11*		1.28**
Secondary+		1.36***		1.50**

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

(r)=reference category.

Number of observations=8983.  $\chi^2(34) = 316.73$ . Prob. $>\chi^2 = 0.0000$ . Log likelihood= -7900.6069. Pseudo  $R^2 = 0.0197$ .

Those who are currently using any contraceptive method show a higher exposure to family planning than their non-user counterparts. It is to be noted that work status of women, religion and respondent's marital status show the least effect on mass media exposure to family planning.

#### *Effect of mass media on contraception*

It has been observed that there is a strong cumulative association between having heard messages about family planning via different mass media, since women who



report having seen television messages are very likely to report having seen messages in the print media (billboard and posters), and to have heard family planning messages on the radio. So, following Guttman (1950), a cumulative scale of media exposure has been created where one point is scored for having heard a message on radio, one for TV and one for print. Finally, a media scale has been created where 1 is scored for radio only, 2 for radio and TV, 3 for radio, TV and print media, and 5 for TV only. Table 4 presents the distribution of this media scale. The details of the methodology of creating a cumulative scale of media exposure may be seen elsewhere (Guttman, 1950; Westoff & Rodriguez, 1993).

It is clear from Table 4 that exposure to family planning messages through radio only is larger than exposure via a combination of different media messages. More than 50% (57.5%) of the respondents do not have any mass media exposure to family planning, 26.2% have exposure to family planning messages through radio only while 2.5% are exposed through TV only.

The association between media scale and contraceptive characteristics, and how the contraceptive variable changes with media score, are now explored. The contraceptive variable can be conceived as a continuum ranging from women who have never heard of any method to those currently using some method, with intermediate gradations in terms of intentions to use and use in the past (Westoff & Rodriguez, 1993; Bertrand *et al.*, 1982). The relationship between the media scale and a more or less ordered progression of contraceptive practice is shown in Table 5. The results indicate that knowledge of family planning methods, intentions to use contraception and history of contraceptive practice are all related to media exposure in the expected directions. The proportion of women who have used a method in the past and who intend to use in the future increases monotonically on moving up the media scale. The proportion of current use also increases monotonically with the increase of media scale (Table 5).

Table 6 presents the results of the effects of exposure to family planning media messages on selected indicators of contraceptive behaviour: ever use, current use and intention to use in the future. It may be seen that the proportion of women who have ever used a method increases monotonically on moving up the media scale, from having heard no messages to having heard messages on the radio only, on TV and radio, and on TV, print and radio. The same is, however, not true of method choice.

Table 6 shows the results for current use of contraception, which also has three categories of use status: not using, using traditional methods and using modern methods. The contraceptive prevalence rate increases from 43.0% among women who have not heard messages to 59.0% of those who have heard messages on all three media. Unlike the case of ever use, exposure to radio and TV appears to have an effect on the choice of method among current users.

Table 6 also indicates a strong association between exposure to family planning messages and declaring an intention to use contraception in the future. The proportion of women who have an intention to use a method in the future increases monotonically on moving up the media scale, from having heard no messages to having heard messages on the radio only, on TV and radio, and on TV, print and radio.

*Mass media as determinant of contraceptive use: multivariate analysis*

From the foregoing analysis it appears that mass media exposure to family planning messages increases knowledge about family planning methods and their sources, contraceptive use and future intention to use. However, this relationship may be spurious unless other sources of variations are controlled, especially socioeconomic and demographic factors. The non-spurious relationship is usually obtained through multivariate analysis. Thus to test the independent significant effect of mass media exposure on contraceptive use the multivariate logistic regression technique is applied, considering current contraceptive use as the dependent variable and media exposure and socioeconomic and demographic variables as the independent variables. Since the main aim of any mass media family planning programme campaign is to increase the use of modern contraceptive methods, the dependent variable is categorized into three categories, viz. modern, traditional and never use. Thus a multinomial logistic model is fitted. A multinomial logistic regression model with a trichotomous dependent variable produces two sets of coefficients: the first one is for the odds of first choice against the third, and the second one is for the odds of the second choice against the third (Retherford & Choe, 1993). To examine the relative importance of the mass media exposure variables on current contraceptive use two models are fitted: Model 1 considers only the mass media variables as independent factors and Model 2 considers mass media variables in the presence of socioeconomic and demographic factors as independent variables. The results are presented in Table 7.

The results in Table 7 indicate that, except billboard exposure and radio ownership, all other mass media related variables have positive and significant effects on the odds of current use of modern contraceptive methods relative to never use of contraception. It may be seen that the women who are exposed to family planning radio messages have a 13.0% higher chance of being current users of modern contraceptive methods compared with those who have no exposure to family planning radio messages. Again, the probability of being a current user of modern contraceptive methods is increased by 26.0% if women are exposed to family planning TV messages and by 37.0% if women are exposed to family planning poster messages, compared with those who are unexposed to family planning TV messages and poster messages respectively. Also, women possessing a TV in their household have a 18.0% higher chance of being a current user of modern contraceptive methods compared with those possessing no TV in their household.

On the other hand, among the mass media related variables, only poster exposure and radio ownership have positive and significant effects on the odds of current use of traditional contraceptive methods relative to never use of contraception. The results indicate that the women who are exposed to family planning poster messages have an 80.0% higher chance of being current users of traditional contraceptive methods than those who are unexposed to family planning poster messages. Again, the probability of being a current user of traditional contraceptive methods is increased by 21.0% if women have a radio in their household.

The net effect of radio, TV and poster exposure on current use of modern methods also remains significant when the effect of other socioeconomic and demographic variables are simultaneously taken into account (Model 2). However, the net effect of TV ownership on current use of modern methods disappears when the effects of

socioeconomic and demographic factors are taken into account. In the case of traditional method use, poster exposure and TV ownership appear to be significant factors when other socioeconomic and demographic factors are taken into account simultaneously. However, TV ownership affects use of traditional methods negatively.

Among the socioeconomic and demographic factors, other than 0 parity, women's working conditions, level of education and age have a significant effect on current use of modern methods. The results indicate that the use of modern methods increases with increasing parity and education. Age of the respondents has a curvilinear relationship with the current use of modern methods. However, for traditional methods, level of education, age of the respondents and parity of 1-2 have a significant effect on current use of traditional methods.

### **Discussion and conclusion**

This study demonstrates that radio and television are two important mass media for disseminating information about family planning in Bangladesh. However, access to them and exposure to family planning through them are still limited, particularly for television. Slightly more than one-fourth (28.0%) of the respondents reported that their household possessed a working radio and only 8.6% reported that they had a working television.

The findings indicate that more than 50% (53.5%) of the respondents do not have any mass media exposure to family planning, while slightly more than one-fourth (26.2%) are exposed to family planning messages through radio only and 2.5% are exposed through TV only.

The differential analysis of mass media exposure to family planning indicates that exposure is lower among the rural, illiterate and poor class of people in terms of household possessions. Among the geographical regions, Khulna and Barisal divisions show a lower level of exposure to family planning messages than Dhaka and other divisions. Regional variation may be attributed to differences in cultural and socioeconomic factors. However, exposure shows little variation with age, work status, religion and marital status. All subgroups of the population with lower exposure need special attention for future IEC efforts.

The multiple classification and logistic regression analysis identify respondent's place of residence, socioeconomic status, level of education, geographical region and current contraceptive use status as significant factors in determining exposure to family planning through the mass media.

One important objective of this study was to assess the effect of mass media exposure on contraception. The results indicate that knowledge of family planning methods, intentions to use contraceptives and history of contraceptive practice are all related to media exposure in the expected directions. The proportion of women who have used a method in the past and who intend to use in the future increases monotonically on moving up the media scale. This is also true for current use and intention to use contraception in the future.

The results of multinomial logistic regression analysis indicate that exposure to family planning via the mass media has a positive and significant effect on using modern or traditional methods rather than being non-users of any method. Again,

ownership of a radio and woman's exposure to family planning radio messages independently encourage woman to use modern or traditional methods instead of not using any method. It is apparent that rural respondents commonly have access to a radio, most likely by listening at retail trade centres, a neighbour/friend's house or at community centres. Further, some may have battery-powered radios, and others may have access to radios through their movement between rural and urban areas.

It has been observed that radio, TV and poster exposure to family planning have a positive and significant effect on the current use of family planning methods. Even when socioeconomic and demographic factors are controlled these associations are seen to persist. However, there is a nagging problem of selectivity inherent in this kind of cross-sectional study, namely the direction of causation. It is very difficult to say with certainty that mass media exposure leads to increased use of contraceptive methods; the direction could be positive that women who are already using contraception would simply be more sensitized to any exposure to media messages on the subject of family planning. The internal cross-analysis fails to support this concern; a perfect 'case-control' study design is the best option to resolve the issue. However, the persistent strong relationship between mass media exposure and contraceptive use as observed in Bangladesh and elsewhere suggests that the mass media can have an important effect on contraceptive use and reproductive behaviour.

This study suggests that both socioeconomic development policies and family planning programmes with a special emphasis on mass media, especially radio and TV, may have a significant effect on fertility control in Bangladesh. The findings point to two strategies that could enhance the relationship between family planning information, education and communication and the media. The first is to develop IEC programmes that maximize exposure to family planning information within the current media system and its present level of access. The second is to expand and improve the media that work best for IEC programmes in order to increase frequency of access, thereby maximizing exposure to family planning messages. Obviously, both strategies are necessary, with the first geared towards short- and medium-term goals, and the second directed at longer term objectives. The second strategy is perhaps more difficult to implement, because media expansion and information acquisition are parts of the process of development.

The principal policy challenge is to design communications strategies that will reach the less privileged, rural and illiterate people who are by far the majority in Bangladesh. Rural women need the special attention of planners and policymakers for several reasons. Their literacy level is very low, television has very limited access and print media are virtually unknown in rural areas. Radio is the only mass medium that is accessible to them. Whereas improvement of the literacy level is a long-term goal, more widespread and effective radio coverage and an improved programme of contacts by family planning personnel are important short-term objectives.

### References

- ANDERSON, R. L. & BANCROFT, T. A. (1952) *Statistical Theory in Research*. McGraw Hill, New York.
- BANDURA, A. (1986) *Social Foundations of Thought and Action*. Prentice-Hall, Englewood Cliffs.

- BERELSON, B. (1967) On family planning communication. In: *Mass Communication and Motivation for Birth Control*, pp. 42–57. Edited by Donald J. Bogue. Community and Family Study Center, University of Chicago.
- BERTRAND, J. T., ROBERTO, S. G., CISNEROS, R. J., MASCARIN, F. & MORRIS, L. (1982) Family planning communications and contraceptive use in Guatemala, El Salvador, and Panama. *Stud. Fam. Plann.* **13**(6/7), 190–199.
- BOGUE, D. J. (1967a) How family planning can make better use of communication channels. In: *Mass Communication and Motivation for Birth Control*, pp. 154–156. Edited by D. J. Bogue. Community and Family Study Centre, University of Chicago, Chicago.
- BOGUE, D. J. (1967b) Recommendations for use of communication in education and motivation for family planning. In: *Mass Communication and Motivation for Birth Control*, pp. 157–167. Edited by D. J. Bogue. Community and Family Study Centre, University of Chicago, Chicago.
- DAVANZO, J., PETERSON, C., ROBOUSSIN, D. & STARBIRD, E. (1988) *What Accounts for the Increase in Contraceptive Use in Peninsular Malaysia, 1956–75? Development vs. Family Planning Programme Effort*. Presented at the Annual Meeting of the Population Association of America, New Orleans.
- DUZA, M. B. & NAG, M. (1993) High contraceptive prevalence in Matab, Bangladesh: Underlying process and implications. In: *The Revolution in Asian Fertility Dimensions, Causes and Implications*. Edited by R. Leete & I. Alam. Clarendon Press, Oxford.
- GERARD, H. (1984) Types of intervention available to a demographic policy: a theoretical approach. *Popul. Bull. United Nations* **16**, 16–25.
- GUTTMAN, L. (1950) The basis for scalogram. In: *Measurement and Prediction*. Edited by S. A. Stouffer *et al.* Princeton University Press, Princeton.
- ISLAM, M., MAZHARUL, M. A. A. & BAIRAGI, R. (1998) Fertility and its proximate determinants in Bangladesh: evidence from the 1993/94 Demographic and Health Survey. *Asia Pacific Popul. J.* **13**, 3–22.
- JAGDEO, T. P. (1996) Diffusion of innovative behaviour and information education and communication activities. In: *Family Planning Health and Family Well-Being*. United Nations Publication, Sales No. E.96.XIII.12 (ST/ESA/SER.R/131), United Nations, New York.
- KOENING, M. A., PHILLIPS, J. F., SIMMONS, R. S. & KHAN, M. A. (1987) Trends in family size preference and contraceptive use in Matlab, Bangladesh. *Stud. Fam. Plann.* **18**(3), 117–127.
- KOJIMA, H. (1994) Effects of mass media on contraception and fertility in African countries. In: *Fertility in the Developing Countries*, pp. 133–151. Edited by S. Kono & Y. Hayase. Statistical Data Series No. 66. IDE, Tokyo.
- MAULDIN, P. W. (1991) Contraceptive use in the year 2000. In: *Demographic and Health Surveys World Conference Proceedings*, August 5–7, 1991, Washington DC, Vol. II. IRD/Macro International, Inc., Columbia, Maryland.
- MITRA, S. N., ALI, M. N., ISLAM, S., CROSS, A. R. & SAHA, T. (1994) *Bangladesh Demographic and Health Survey 1993/94*. National Institute of Population Research and Training and Mitra and Associates, Dhaka.
- MITRA, S. N., ISLAM, S. & AMANULLAH, A. S. M. (1996) *Exposure to Different Media of IEC Activities on FP–MCH Programmes*. PDEU, IMED, Ministry of Planning, Government of the People's Republic of Bangladesh, Dhaka.
- RETFERFORD, R. D. & CHOE, M. K. (1993) *Statistical Models for Causal Analysis*. John Wiley and Sons, New York.
- ROGERS, E. (1973) *Communication Strategies for Family Planning*, pp. 34. Free Press, New York.
- ROSS, J. A., GERMAIN, A., FORREST, J. E. & VAN GINNEKEN, J. (1972) Findings from family planning research. *Rep. Popul. Fam. Plann.* **12**, 1–47.

- SCHRAMM, W. (1971) Communication in family planning. *Rep. Popul. Fam. Plann.* 7.
- WESTOFF, C. F. & RODRIGUEZ, G. (1993) *The Mass Media and Family Planning in Kenya*. DHS Working Paper No. 4. Macro International Inc., Maryland.
- WILDER, F. (1973) IEC through the mass media. In: *Information, Education and Communication in Population and Family planning: A Guide for National Action*, pp. 52–64. Edited by W. B. Johnson *et al.* Community and Family Study Center, University of Chicago, Chicago.
- YATES, F. (1934) The analysis of variance with unequal numbers in the different classes. *J. Am. statist. Ass.* 29, 51–66.