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PREFACE

The Cholera Research Laboratory (CRL) operates under a bilateral project agreement between the governments of Bangladesh and the United States of America. Research activities of CRL center on the interrelationships between diarrheal disease, nutrition, fertility and their environmental determinants. CRL issues two types of papers: scientific reports and working papers which demonstrate the type of research activity currently in progress at CRL. The views expressed in these papers are those of authors and do not necessarily represent views of Cholera Research Laboratory. They should not be quoted without the permission of the authors.

ABSTRACT

This paper attempts to look at the characteristics of the dais (female village workers) in Matlab Contraceptive Distribution Project and how they relate to their level of knowledge about contraceptives, acceptance rates and prevalence of contraceptive use in their areas. Most of the dais were found to be elderly illiterate widows with about 4 living children. The number of living children and the age of the dais seemed to be strongly correlated with their level of contraceptive knowledge which, in turn, was found to be positively related to both prevalence and acceptance rate. Younger dais with more living children were able to assimilate better the instructions concerning contraceptive use. Education was found negatively associated with both acceptance and prevalence indicating that the level of knowledge was not dependent on education but on the motivation to learn.

INTRODUCTION

A common goal of family planning programs is to make safe and effective methods available for the regulation of human fertility. In many national settings, initially, services were provided through specialized family planning clinics or through hospitals and health centers as part of the official health system. More recently, the trend has been towards local and community based distribution programs which more directly involve the community. This strategy aims to reduce distance and availability barriers between potential users and modern methods by utilizing indigenous village workers in the provision of contraceptives. Recognizing that effective supervision of the distribution of contraceptive can be largely delegated to non-physicians, many of these programs depend on field workers who contact eligible women in their homes to provide contraceptive supplies. The role of these field workers therefore, becomes crucial in the success or failure of these programs.

Review of Related Literature

Everett Rogers posited that the success of a field contraception program depends largely on the degree of the field worker - client communication (1). Successful communication, however, depends on both the characteristics of the conveyor of information and those of the receiver. It is the interaction of these two that determines the degree of communication. The more homophilous the information source is to the target, the more successful is the communication. Homophily in this case is defined as the degree of similarity between the scource - receiver pair in terms of attitudes, education, social status, etc. Field workers are then deemed to be more successful if their characteristics match those of the target population. This hypothesis has somehow been reinforced in Indonesia and Taiwan. In Indonesia, Repetto observed that when three program success indicators were calculated-mean number of home visits per field worker per month, means number of referral cards distributed, and mean number of new acceptors per field worker per month, the differences in performance were as predicted by the hypothesis (2). Women invariably did better than men; married workers did better than unmarried; older workers did better than younger; and less educated workers did better than the more educated. Ross, analyzing performance in the Taiwan program, stated that age and marital status showed some

correlation with performance while achievement and education showing very little (3). With the increasing range of responsibilities of field workers, it would be interesting to note how their performance relate to their characteristics.

The Contraceptive Distribution Project

The Contraceptive Distribution Project in Matlab, Bangladesh was initiated in October, 1975 to assess the effectiveness of a simple and intensive household distribution program of pills and condom by female village workers. Roughly half of the 260,000 population under the CRL Field Surveillance Area was included in the contraceptive distribution area. The remaining half served as the control area.

The distribution of contraceptives was carried out by the Female Village Workers (FVWs) commonly known as dais. The dai is a village level worker of the CRL, who lives in her own village and is responsible for reporting births, deaths, marriages, migrations, divorces and cases of diarrhea in her area (population approximately 1,000) detected in course of her daily routine home visit. Although the word "dai" means indigenous birth attendant; in fact, only 15 percent of the FVWs were true birth attendants.

One-hundred-fiftythree dais were trained for working as suppliers and depot-holders of pills and condoms. The dais' responsibilities in her village also included determining acceptance and continuation, correcting use mistakes and counselling those having complaints or side effects.

Training for the dais consisted of one afternoon didactic session dealing with directions for the use of oral contraceptives and condoms. Following the distribution, the dais had two additional training sessions in small groups to discuss the handling of side effects and instructions for correcting the errors of women who used the pills improperly (4).

Findings from this project indicate that while there was an initial rise in the level of acceptance and prevalence, subsequent rates declined (from 24-2% in acceptances over a 17-month period). The declining trend in acceptance as well as continuation was attributed to a number of factors - which include the presence of side effects, the inability of the dais to

handle the side effects, and husbands' as well as in-laws' and kins' objections (5). The role of the dais is then, important in determining program acceptance and continuation.

This paper focuses on the characteristics and level of knowledge of the dais with respect to their success in the household distribution as reflected in the acceptance and prevalence rates in their areas. It was deemed that if dais were given training on contraceptive usage and management of complaints; they could become good motivators and counsellors.

RESULTS

Characteristics of the Dais

Table 1 presents the distribution of the dais according to selected characteristics. The dais were predominantly elderly women who were illiterate. Nearly 3 in 4 dais were either widowed, divorced, or separated. More than a third (34.6%) were beyond the reproductive age group and another third (35.3%) were close to the end of the reproductive span (35-44 years of age). The average number of living children was 4. Most of the dais (70.5%) were illiterate.

Knowledge About Oral Contraceptives

In March 3, 1977, about seventeen months after program initiation, the level of knowledge of the dais was assessed through a questionnaire schedule that dealt with, among other things, identification of the pills, contraindications to use, and management of side effects. In certain areas, the dais exhibited a high level of knowledge, in other areas, a faltering one. To illustrate, about 45% of the dais did not know when pill taking should be initiated in relation to the last menstrual period. Likewise, 82.4% did not know what to advise the woman if she forgets to take the pills five consecutive days. Nearly half (47.1%) could not explain the anticipated side effects of the pills. Among those who could, 86.4% gave an inadequate or partially adequate description. A similar proportion did not know how to manage bleeding problems. (Table 2).

TABLE I

DISTRIBUTION OF SELECTED CHARACTERISTICS OF 153 DAIS IN THE CONTRACEPTIVE DISTRIBUTION PROJECT, MATLAB, BANGLADESH

Characteristics	No.	Percent
Marital Status:		
Married	44	28.7
Widowed/Divorced/Separated	109	71.3
	153	100.0
Age:		
Below 25	20	13.1
25-34	26	17.0
35-44	54	35.3
45+	53	34.6
	153	100.0
Median = 39.3		
No. of Living Children:		
0	14	9.2
1-2	54	35.3
3-4	47	30.7
5+	30	19.6
Unknown	8	5.2
	153	100.0
Mean = 3.5		
Literacy:		
Illiterate	108	70.5
Literate	42	27.5
No information	3	2.0
	153	100.0
Religion:		
Muslims	133	86.9
Hindu	20	13.1
	153	100.0

TABLE 2

PERCENTAGE DISTRIBUTION OF 153 DAIS ACCORDING TO THEIR KNOWLEDGE ABOUT USE OF PILLS AND MANAGEMENT OF SIDE EFFECTS

Items	Correct	Incorrect	Total
1. Identification of pills	100.0		100.0
2. Man/Woman should take pill	100.0		100.0
3. Why one should take pill	100.0		100.0
4. Within how many days following last menstrual bleeding can a woman start taking pill	55.6	44.9	100.0
5. How many pills should a woman take per day	100.0		100.0
6. From which pill on the leaf should a woman start taking	100.0		100.0
7. Sequence of pill taking	98.7	1.3	100.0
8. How to punch pill	97.4	2.6	100.0
9. When to start next use of pill cycle	98.1	1.9	100.0
10. For a regular pill user, serial of tablet on page woman will start menstruating	93.5	6.5	100.0
11. Should a woman take pill during menstruation	92.2	7.8	100.0
12. If a woman forgets to take the pill for a day what should she do?	100.0		100.0
13. If she forgets for 5 consecutive days, what should she do?	17.6	82.4	100.0
14. Can a woman take pill under the following conditions:			
a) 7 months breastfeeding and amenorrheic	82.3	17.6	100.0
b) 3 months postpartum breast-feeding and menses resumed	98.1	1.9	100.0
c) baby aged 4 months who died in previous week	94.8	5.2	100.0
d) 2 months pregnant	98.7	1.3	100.0
e) no pregnancy in the past three years and feels that she is not likely to be pregnant but has regular menses	94.8	5.2	100.0
f) if a husband of a pill user stays away for 7 days	99.3	.7	100.0

TABLE 2 Contd.

Items		Correct	Incorrect	Total
15.	Whether pill causes abortion	83.6	16.4	100.0
16.	Whether disadvantages of pill were explained to new acceptors Yes	52.9	No 47.1	100.0
17.	Text of explanation Adequate	13.6	Inadequate partially adequate 86.4	100.0
18.	Remedies for: bleeding	52.9	47.1	100.0
	dizziness	98.7	1.3	100.0
	burning sensation, weakness	81.7	18.3	100.0

Correlation Analysis

To determine the correlates of the level of contraceptive knowledge of the dais, a composite score was assigned to each on the basis of the number of correct answers she had given to the questions. These composite scores were then related to the characteristics of the dai. This index was obtained from items 4 to 18 of Table 2. A correlation analysis was done examining the relationships among the following variables: cumulative rate of contraceptive acceptance, contraceptive use prevalence rates in the areas covered by each dai, scores, dai's age, number of living children, religion (Hindu-0, Muslim-1), marital status (married-0, widowed/separated-2), education, and age of the youngest child. The correlation matrix is presented in Table 3. Younger field workers seemed to be better educated than their older counterparts as evinced by a correlation of -.476. A positive correlation existed between score and contraceptive use prevalence ($r = .219$) implying that the dai's level of knowledge is important in generating acceptance and better continuation of the contraceptives. Score was weakly correlated ($r = .120$) with education. The younger dais had younger children ($r = .286$). As expected a high positive correlation ($r = .727$) was obtained between acceptance and prevalence rate.

TABLE 3

CORRELATION MATRIX OF SPECIFIED VARIABLES

	Dais Age	Education	Marital Status	Age of Youngest Child	Religion	Living Children	Score	Prev. Rate	Accp. Rate
Dais Age	1.00								
Education	- .476**	1.00							
Marital Status	.319**	- .280**	1.00						
Age of youngest child	.286**	- .096	.216**	1.00					
Religion	.157	- .030	.169*	.193*	1.00				
No. of living children	.052	- .028	- .173*	- .441**	- .166*	1.00			
Score	- .159*	.120	- .159*	- .036	- .138	.115	1.00		
Prevalence Rate	.032	- .015	- .012	.001	- .032	- .040	.219**	1.00	
Acceptance Rate	.041	- .100	- .026	- .037	- .071	.440**	.197*	.727**	1.00

* Significant at 5%
** Significant at 1%

Multiple Regression

The simple relationship between two variables may be inadequate to assess factors accounting for the variations in prevalence and acceptance rates. When there are many independent variables, it is important to identify that specific factor that gives the best linear prediction to contraceptive performance. For this purpose, three regression estimates were obtained using the following as the dependent variables: 1) dais' score, 2) acceptance rate, and 3) prevalence rate. Table 4 presents the regression analysis using the dai's score as the dependent variable. The partial correlation coefficient has been used as a measure of relative importance. The standardized B is the correlation between the dependent variable and a particular independent variable when the other variables are held constant. It can be shown in this analysis that 26% of the variation in dais score is attributable to the six socio-economic variables indicated. Education does not seem to be a crucial factor in determining the level of knowledge of the dais. Rather, the number of living children (b=.138) and the age of the dais (b=.133) were more predictive of the scores. This might indicate that younger dais with a large number of children would be better motivated to learn about the contraceptives as a result of a felt need for these services.

Variation in Acceptance and Prevalence Rates

Tables 5 and 6 show the results of the regression analysis using acceptance and prevalence rates as dependent variables. In both tables score stood out as the variable most predictive of both acceptance and prevalence. The fact that education is negatively associated with both acceptance and prevalence implies that the level of knowledge is not dependent on education but on the motivation to learn. About a fourth (26%) of the variability in acceptance and prevalence is attributable to the variables mentioned in the tables. The remaining 74% was unaccounted for. The presence of side effects and socio-cultural factors might account for some of the residual variability In addition, intervillage variation in demand for family planning might have existed.

TABLE 4

REGRESSION ANALYSIS USING DAIS' SCORE AS DEPENDENT VARIABLE AND SELECTED CHARACTERISTICS AS INDEPENDENT VARIABLES

Independent Variables	Partial r	Standardized B
No. of living children	.122	.1381
Dais' Age	-.110	-.1328
Religion	-.098	-.0986
Age of youngest child	.091	.1051
Marital Status	-.081	-.0863
Education	.039	.0434
Multiple R	.256	
F	1.71	

TABLE 5

REGRESSION ANALYSIS UTILIZING ACCEPTANCE RATE AS DEPENDENT VARIABLE AND SELECTED CHARACTERISTICS AS INDEPENDENT VARIABLES

Independent Variables	Partial r	Standardized B
Score	.204*	.209*
Education	-.103	-.116
Age of youngest child	-.043	-.050
Religion	-.042	-.043
Dais' Age	.040	.049
Marital Status	-.024	-.026
No. of living children	-.017	-.019
Multiple R	.244	
F	1.31	

* Significant at 5%.

TABLE 6

REGRESSION ANALYSIS UTILIZING PREVALENCE RATE AS DEPENDENT VARIABLE

Independent Variables	Partial r	Standardized B
Score	.233*	.241
No. of living children	-.091	-.104
Dais' age	.076	.092
Age of youngest child	-.050	-.059
Religion	-.018	-.018
Education	-.010	-.011
Marital Status	-.008	-.008
Multiple R	.246	
F	1.33	

* Significant at 5%.

SUMMARY AND DISCUSSION

A study of the intervillage variation in family planning performance examined the characteristics of the female field workers (dais) and how they relate to their level of knowledge of contraceptive use, acceptance rates, and prevalence. Most of the dais were elderly, illiterate women with about 4 living children. Based on an examination of the field workers 17 months after program inception, the level of knowledge of the use of contraception and side effects management was assessed. From the multiple regression analysis, it was inferred that younger married dais with more children performed better than the others in terms of knowledge of contraception. This level of knowledge proved to be most predictive of the field workers' performance as reflected in acceptance and prevalence rates. Education was not a crucial factor. About a fourth (26%) of the variation in acceptance and prevalence rates was attributable to the dais characteristics.

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