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DEVELOPMENT OF INTEGRATED FAMILY PLANNING, NUTRITION AND HEALTH SERVICES IN NARANGWAL, PUNJAB, INDIA

FINAL REPORT TO AID, CONTRACT AID/TA-C-1362

JANUARY 1978

Department of International Health
The Johns Hopkins University
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Summary

A linear multiple regression model was developed to relate family planning use (dependent variable) in the combined health and family planning program villages of the Narangwal Population Study to four sets of factors as follows.

A. Social Status Variables

1. Religion-Caste
2. Occupation of Husband
3. Education of Husband

B. Demographic Variables

1. Living Children and Age of Mother
2. Number of Child Deaths

C. Attitude, Belief, Knowledge, and Practice Variables

1. Attitude toward Family Planning
2. Belief about Child Mortality
3. Discussion of Family Planning with Husband
4. Awareness of Modern Contraceptives
5. Prior Use of Contraception

D. Service Input Variables

1. Care of Women's Illnesses
2. Other Services to Women (Preventive)

3. Care of Children's Illnesses

4. Other Services to Children (Preventive)

5. Family Planning Motivation of the Husband

The analysis was conducted on 1,187 women who were present and currently married at both rounds of the cross-sectional surveys and who were potential users of family planning (i.e., neither the wife nor husband had been sterilized).

For purposes of analysis the social status variables were considered exogenous but potentially important determinants of family planning use and therefore of interest in the targeting of service needs. To some extent the demographic and KAP variables were likewise "given." Since they were considered subject to modification by program intervention, however, their impact on family planning use was of interest. The service variables had direct program implications.

Within this framework the analysis was conducted and produced the following results.

1. None of the social status variables, with the possible exception of education, was statistically significant.

2. Demographic variables were all important. Younger women, especially those of high parity, were more likely to become program family planning users than older women. Loss of a previous child was found to be a significant deterrent to family planning use.

3. Women who had had prior contraceptive experience, talked with husbands about family planning, and expressed approval had a use rate about 30 percent higher than those with none of these characteristics.

4. Children's preventive services and motivation of husbands contributed substantially to family planning use. Women's illness services were also a statistically significant factor, though somewhat less important quantitatively.

5. In the absence of favorable KAP status and service exposure, the regression equation predicted a use rate of about 10 percent, a level approximating that actually observed under baseline conditions. Favorable attitudes toward family planning and use of selected services led to a predicted use rate well in excess of 50 percent.

The regression model has recognized limitations in that linearity was assumed and possible interactions were ignored. Nevertheless, the model provided valuable insights into basic relationships. In particular, controllable program inputs were found to be more important to family planning use than the exogenous factors studied. Having isolated the critical program variables, closer assessment of their inter-relationships would appear to be a potentially fruitful next step. Having found that children's preventive services and motivation of husbands were individually significant, for example, was there a synergistic effect when employed in combination? Similarly, did motivation of husbands affect family planning use both directly and indirectly through promotion of husband-wife communication?

DEVELOPMENT OF INTEGRATED FAMILY PLANNING, NUTRITION AND HEALTH SERVICES IN NARANGWAL, PUNJAB, INDIA

Report to AID, Contract AID/TA-C-1362

I. Introduction

The purpose of this study was to provide AID with information on factors important in the development of integrated family planning, nutrition and health services. The analysis focussed on obtaining information from the Narangwal Population Study* on the relationship of socioeconomic characteristics and attitudes towards family planning of married couples, the services provided to them, and their practice of family planning. It was hoped that the multiple regression analysis undertaken would help define variables for subsequent more complex analyses and aid in documenting some practical operational issues involved in integration of existing health services, including the basic requirements to make them cost-effective.

In keeping with these study objectives the following report details the analysis, presents the results, and raises questions for further investigation.

II. Data and Methodology

The proposed multiple regression analysis used data collected during the Narangwal field project including socioeconomic indicators,

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*The Narangwal Population Study, Integrated Health and Family Planning Services, Rural Health Research Center, Narangwal, Punjab, India, 1975, (mimeographed report).

married women's attitudes and knowledge about family planning, their previous pregnancy experience, and service program inputs as independent variables and the couples' family planning practice as the dependent variable.

Data were available from all 26 villages included in the Narangwal project with a combined population of over 35,000. However, some of the surveys and studies did not cover the total population. The data base for this analysis was derived from the following sources of information:

Cross-Sectional Surveys

Attitudes and Beliefs about Family Planning and Child Survival	1st Survey	1968-69	22 villages
	2nd Survey	1971-72	26 villages
Knowledge and Practice of Family Planning	1st Survey	1968-69	22 villages
	2nd Survey	1971-72	26 villages
Pregnancy History	1st Survey	1968-69	22 villages
	2nd Survey	1971-72	26 villages
Socioeconomic Status	1st Survey	1967-68	22 villages
	2nd Survey	1971-72	26 villages

Longitudinal Data Collection

Family Planning Practice	1969-74	8 villages
	1971-74	3 additional villages
	1972-74	4 additional villages
Service Records	1969-74	18 villages
	1972-74	4 additional villages

The two Attitudes and Beliefs (AB) Surveys and the two Knowledge and Practice of Family Planning (KP) Surveys were undertaken more or less

simultaneously. Married women, aged 15-49 years, residing in study villages were interviewed during two sets of cross-sectional surveys held approximately two years apart. For purposes of this analysis only 1,187 women who were currently married, who appeared in both AB surveys, rounds 1 and 2, who resided in the 11 villages receiving health services, and who provided complete information on all the variables, were selected.

Variables for the analysis were selected from the broad categories noted above and were generally limited to those that showed some promise upon preliminary bivariate analysis. (See Appendix for results of the bivariate analysis.)

III. Description of Variables

A. Socioeconomic Variables

Information from the two cross-sectional surveys yielded a wide variety of socioeconomic variables and it was originally proposed that income, wealth (land and possessions), education, occupation, housing, as well as religion/caste be included for multivariate analysis. Preliminary examination, however, suggested that income, wealth (land and possessions), and housing could be dropped.

Data were gathered on household income (from both land and non-agricultural sources) and on household wealth (land and possessions), but were not available on a family basis. Since all the attitudinal, demographic, family planning and service record data refer to eligible women within families, there was question about allocating wealth, possessions, and income between families forming one joint household.

Nevertheless, an attempt was made to examine both household income and modern household possessions (radios, bicycles and sewing machines) that had shown up in earlier factor analyses of socioeconomic survey data as separate dimensions. However, when cross-tabulated with family planning practice during the project, both household income and modern household possessions did not show significant association with contraceptive practice (χ^2 = 2.49 and 0.05 respectively).

The housing variable had to be dropped because there were problems with combining different items in the survey data to form a meaningful composite index on housing. For example, information had been gathered distinguishing between the materials and conditions of the roof from materials and condition of the floor and walls and needs to be combined. Further, information was also gathered on electricity, sanitation, source of water supply, and the number of rooms. However, these various items did not cluster together on factor analysis, and a housing index combining both quality and space was not feasible.

1. Of all the variables measuring social and economic status in the Narangwal context religion and caste is often held to be the most important, both because it encompasses a whole range of social and economic status-related dimensions, and because no interventions are possible. The religion/caste hierarchy of the Narangwal villages places the Jat Sikhs as the dominant group, other high castes both Sikh and Hindu as a middle group, and the low castes (majority Ramdasee Sikhs) as the lowest status group. Therefore, these three groupings have been included here, as dummy variables, even though bivariate analysis showed religion/caste to have no significant association with contraceptive practice.

2. Another variable usually considered to be of some importance in family planning is that of the husband's occupation. Consequently, it is included here (as three dummy variables--laborers, farmers, other occupations) even though no occupation is significantly associated with a couple's contraceptive practice (χ^2 = 1.54 for laborers, 0.001 for farmers, and 1.50 for other occupations).

3. Since most Narangwal women have had little or no schooling, the education variable included for this analysis is based on the husband's education. It is grouped into illiterate and less than primary school; 6-10 years, i.e., secondary schooling; and more than high school education. This is the only sociceconomic status variable that is significantly associated in bivariate analysis with contraceptive practice (χ^2 = 23.32).

B. Demographic Variables

Preliminary examination had shown that standard demographic variables such as age of women, child loss, and the number of surviving children although highly correlated among themselves were important in any consideration of contraceptive use in the Narangwal context.

1. Women's age and number of surviving children at the time of the first cross-sectional survey were combined to form four dummy variables:

Age < 35 years and $\leq$ 3 children

Age $\geq$ 35 years and $\leq$ 3 children

Age < 35 years and > 3 children

Age $\geq$ 35 years and > 3 children

2. The child loss variable was defined as the actual number of live born children who had died prior to the first cross-sectional surveys, and were coded as 0, 1, 2, 3+.

C. Attitudes and Beliefs, Knowledge and Practice

1. Attitudes towards family planning were derived from the survey question:

> "Nowadays some married couples are doing something to keep from getting pregnant too often or having children they do not want. Do you approve or disapprove of their doing these things?"

The responses were coded as Approve, Uncertain, and Disapprove, and have been utilized here as three dummy variables.

2. Beliefs about changes in child survival came from two questions:

> "In your opinion, are there more chances of survival of children than 30 years ago?"

and

> "Do you think more or less children die now than in those days?"

While the two child survival questions were in different sections of the interview, they were aimed at eliciting the same information. The responses to them have been combined here to form one ordinal "beliefs and death-survival" variable as follows: 1 = more children die or less survive, 2 = the same die or survive or the respondent was uncertain, and 3 = less children die or more survive. In cases of discrepancies between definitive responses to the two questions the second question (more or less die) took precedence.

3. Another question included in the cross-sectional survey concerns reported behavior, i.e., talking with husband about family planning. Married women were asked,

> "Have you talked with your husband about keeping from getting pregnant?"

The responses were coded Yes or No.

4. Married women's awareness of modern family planning methods before the start of the Narangwal program were assessed in the first AB survey. The responses were coded Yes or No and form a dummy variable in the analysis.

5. The surveys and program records identified whether couples had used any family planning method before the start of service inputs in the Narangwal program. Women were ranked depending on whether they had never used family planning (0), had used traditional methods only (1), or had used both traditional and modern methods or modern methods only (2).

D. Service Input Variables

Variables selected to represent the provision or use of services by the target population of eligible couples included health care for the wife ("Women's Services") and children ("Child Care") and family planning services for the husband. The majority of family planning motivation contacts to the wife were provided along with the Women's Services and Child Care and are not easily separable. Services considered for this analysis were limited to those provided between the two cross-sectional surveys and consisted of the first three years of women's and children's services (1969-1971) and the first two years of family planning services

to men (1970-1971). Preliminary examination of the data tended to indicate that the total volume of services used during these time periods would be related in a complex fashion to dependent variables, most probably not linearly. Thus we developed a simpler indicator of use which we assumed would more likely be linear and be appropriate for the multiple regression analysis. For Women's Services and Child Care it was defined as no use during any of the three years 1969-1971 (0), use in one of the three years (1), use in two of the three years (2) and use in all three years (3). Similarly, for family planning services to men it was no use (0), use in one year (1), and use in both years (2). The specific service variables were defined as follows:

Women's Services: Care of the wife was divided into two variables:

1. Care of Women's Illness (WS-ILL) which included all illness related contacts or services and generally represented recipient initiated services, and

2. Other Services to Women (WS-OTH) which were project initiated services such as bi-monthly home visits to monitor fertility, preventive services and health and family planning education. Maternity care was excluded since it is so directly associated with fertility status. In addition any positive effect maternity care would have on family planning would be delayed and therefore would require a more complex sequential analysis. (This delayed positive effect was seen in preliminary correlation analyses of aggregated data.)

Child Care: Services to all the couple's children under fifteen were aggregated and then split into:

3. Care of Children's Illness (CC-ILL), provided essentially at the initiative of the family and usually in the clinic, and

4. Other Services to Children (CC-OTH) which involved surveillance and preventive care contacts such as morbidity surveys, weight checks, well child examinations, immunizations and nutrition and health education. Care of illnesses picked up on these routine contacts was kept in this "other" category.

5. Family Planning: All contacts with husbands by male family planning workers that involved discussion of general topics for rapport purposes or to increase awareness of problems associated with large families or population pressures as well as specific family planning motivation and education were grouped into one variable (FPMOT). Services involving provision of contraceptives or followup of users was excluded since the dependent variable was acceptance of family planning.

E. Contraceptive Practice (Dependent Variable)

Measurement of contraceptive practice after the baseline cross-sectional surveys was restricted to only those methods offered through program sources: vasectomy, tubectomy, injection depo-provera, IUD, oral pill and condom. Use or non-use of one or more of these methods during the period of program operation was chosen in the present analysis to measure this contraceptive practice. Since those couples who accepted vasectomy or tubectomy before the program would not have an opportunity to accept a method through program sources, these couples were excluded from the analysis. Also, since outmigration and dissolution

of marriage act as deterrants to acceptance of contraception from program sources, only those couples who stayed in the experimental villages and were in a currently married state for at least two years between the two cross-sectional surveys were included in the analysis. Thus there were 1,187 such women on whom information on all the selected variables was available and the present analysis is based on these women (couples).

IV. Results

The results of a multiple regression analysis performed on 20 selected variables posited as explaining variation in contraceptive behavior of couples in Narangwal are presented in Table 1. It shows the relative importance of these variables, which were defined as either ordinal or dummy, and provides their regression coefficients and levels of significance. The results of bivariate analysis are given in the appendix, which shows the nature and extent of association of program-contraception with each of the selected characteristics taken individually. The results of these analyses are summarized as follows.

A. Social Status Variables

Religion-caste, occupation and education of husband are among the selected variables which broadly depict the social status of couples. These variables did not rank high in explaining the contraceptive behavior of couples. Education of husband was the only variable which was somewhat related (not highly significant) to contraceptive practice, the relationship being the higher the husband's education the greater was the contraceptive practice.

Table 1

REGRESSION COEFFICIENTS AND THEIR LEVELS OF SIGNIFICANCE

Variable		Coefficient	t-value	Level of Significance
Education of Husband		.0545	1.9	.051
Occupation of Husband:	Labor	.0076	0.2	n.s.
	Farming	.0441	1.1	n.s.
	Other	*	*	*
Religion-caste:	Non-scheduled Jat Sikh	-.0761	1.6	n.s.
	Ramdasia	-.0579	1.3	n.s.
	Other	*	*	*
Living Children and Age:	≤ 3 and < 35	.1894	3.6	.001
	≤ 3 and ≥ 35	*	*	*
	> 3 and < 35	.2788	4.7	.001
	> 3 and ≥ 35	.0997	1.9	.051
Number of Children Dead		-.0305	2.1	.028
Awareness of Modern Contraception		-.0324	0.6	n.s.
Prior Use of Contraception		.0847	4.2	.001
Belief about Child Mortality		.0121	0.7	n.s.
Talk with Husband		.0893	3.2	.001
Attitude toward Family Planning:	Approval	.1206	3.1	.002
	Uncertain	*	*	*
	Disapproval	.0463	1.1	n.s.
Services Utilization:	Women's Illness	.0481	4.1	.001
	Women's Other	.0032	0.2	n.s.
	Children's Illness	-.0199	1.1	n.s.
	Children's Other	.1049	6.1	.001
	Male Motivation	.1022	5.3	.001

*suppressed category; effect included in constant term

n.s.: not significant ($p > .10$)

B. Demographic Variables

There was greater contraception among younger women (less than 35 years) than older women. This was further clarified by the number of surviving children. Among younger women, the contraception rate was higher for those who had more than three children than those who had fewer children. A greater tendency to use contraceptives among younger women with larger family sizes has obvious program implications for defining receptive target populations for family planning services.

A significant negative association also seems to exist between the number of liveborn children who died and women's contraceptive practice--the fewer the children who died the greater the contraceptive practice.

C. Knowledge, Attitude, Belief and Practice Variables

Approval of family planning, belief about child mortality, talk with husband about family planning, awareness of modern contraception, and prior practice of reversible methods of family planning were the variables included in this group.

Awareness of modern contraceptive methods was exhibited by 93 percent of the study women; and consequently awareness was not crucial to subsequent contraception behavior. Approval of family planning as well as inter-spousal communication regarding family planning did seem to help subsequent contraceptive practice. The relationship, though not significant, between contraceptive practice and belief about child-mortality was in the expected direction in that the contraceptive practice rate was greatest among those who believed that child mortality had been reduced as compared to 30 years ago and was the least among those who believed mortality had

increased. The non-significance of this belief variable could be due to its possible correlation with actual child loss experience depicted by the "number of children who died" variable. Prior practice of reversible methods of family planning showed significant association with subsequent contraception through program sources. The rate of contraceptive practice was greater among those who had earlier practiced modern, traditional or indigenous methods of family planning. The positive association may be indicative of satisfaction being greater than dissatisfaction with the methods used earlier. This finding leads one to assume that a certain amount of program contraception involved substitution of modern methods for less effective methods used previously. It is interesting to note, however, from the Appendix that program contraception was greater among those who were prior users of modern contraceptive methods than of traditional and indigenous methods.

D. Service Input Variables

All five service input variables, viz., women's illness services, women's other services, children's illness services, children's other services and family planning motivational services for the husband, are considered in the present analysis. Utilization of these services seems to be related to practice of family planning. Of special significance in the regression analysis are the intensity of utilization of women's illness services, children's other services and male motivational services.

V. Discussion

From the preceding summary of results, we note that eight of the variables considered proved to be statistically significant ($p < .05$):

age and living children, number of children who died, prior use of contraception, talk with husband, attitude toward family planning, and use of women's illness, children's other, and male motivation services. The last five of these may be treated as variables susceptible to direct program manipulation.

To identify the relative effects of program inputs more concretely, consider a hypothetical baseline population of average social status, awareness of modern contraception, belief about child mortality, and use of women's other services and children's illness services. Further, assume that the wives are less than 35 years of age, have not more than three living children, have had no child deaths, and are average in previous contraceptive use. The regression equation predicts that 9.8 percent of these baseline couples will become program contraceptive users without further program inputs.

Since the last three factors mentioned in the preceding paragraph were found to be statistically significant, different assumptions would alter the forecast of program contraceptive use, as indicated in Table 2. For example, if interest is centered on women under 35 with more than three living children and no previous family planning experience, the table indicates an expected program use rate of 13.6 percent (9.8 + 8.9 - 5.1).

The results of the regression analysis summarized in Table 1 suggest that if in addition to the above baseline conditions husband-wife communication takes place, through program intervention or otherwise, program use of family planning can be expected to increase by 8.9 percent. When coupled with expressed approval of family planning, the use rate can be expected to increase by another 12.1 percent. These and the

Table 2

ADJUSTMENT FACTORS FOR SIGNIFICANT VARIABLES

Variable	Level/Category	Adjustment (%)
Living Children and Age	≤ 3 and < 35	0.0
	≤ 3 and ≥ 35	-18.9
	> 3 and < 35	+ 8.9
	> 3 and ≥ 35	- 9.0
Number of Child Deaths	0	0.0
	1	-3.0
	2	-6.1
	3 or more	-9.2
Prior Family Planning Practice	None	- 5.1
	Traditional Only	+ 3.3
	Modern	+11.8

service input effects can be summarized as follows:

Baseline Use Rate		9.8%
Talk with Husband	+ 8.9	
Family Planning Approval	+12.1	
Women's Illness Service, One Year	+ 4.8	
Children's Other Service, One Year	+10.5	
Male Motivation Service, One Year	+10.2	
Hypothetical Program Effect	+46.5	
Modified Use Rate		56.3%

If all of the listed effects were present, the program family planning use rate would be expected to reach 56.3 percent, an increase of 46.5 percent over baseline conditions. Of the service variables, children's other services and male motivation services appear to be the most important. Assuming linearity of effects, use of the three types of service in two years instead of one would add another 25.5 percent to the family planning use rate, bringing it to 81.8 percent.

Adequacy of the Model

In the present analysis contraceptive practice of couples is related to a set of characteristics of these couples through a multiple linear regression technique. The set of variables used in the present analysis explains about 24 percent of variation in contraceptive practice. The unexplained variation could be attributed to variables not included in the present analysis and/or to non-linear components, if any, of

variables already included. A part of the unexplained variation could also be due to interaction between variables not considered in the present analysis.

Figures 1-7 show the relationship between contraceptive practice and a few of the explanatory variables. These relationships are aggregate in the sense that no adjustments are made for the influence of other variables. The three variables, namely, number of children who died, intensity of utilization of male motivation services and education of husband do seem to have fairly linear relationships with contraceptive practice. The relationships of women's illness services and children's other services are less linear while those of women's other services and children's illness services are far from linear.

Interactions between variables have not been investigated in the present analysis. Interactions between variables such as children's illness services and male motivational services, attitudes towards family planning and utilization of services are important and deserve to be incorporated in further analyses.

Despite the limitations of the model, the present analysis yields results which certainly have important implications for action programs. Program variables which are manipulable such as approval of family planning, husband-wife communication about family planning, health service inputs and motivational efforts for family planning are strongly associated with contraception behavior of couples. Social and demographic variables which are not easily controlled seem to be of lesser consequence in the practice of contraception by couples. Certainly this analysis

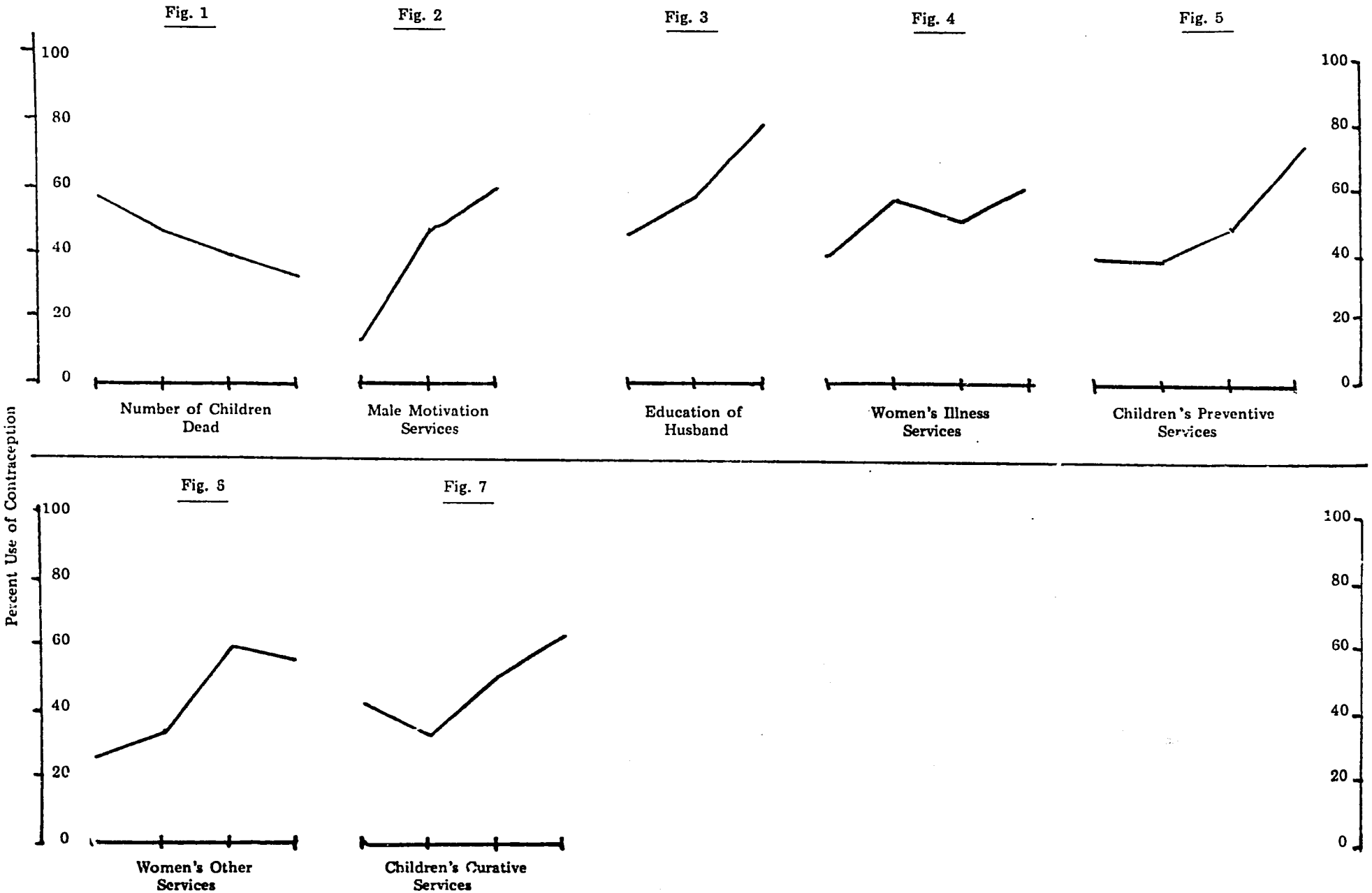
Fig. 1
Fig. 2
Fig. 3
Fig. 4
Fig. 5
Fig. 6
Fig. 7
Percent Use of Contraception
100
80
60
40
20
0
Number of Children Dead
Male Motivation Services
Education of Husband
Women's Illness Services
Children's Preventive Services
Women's Other Services
Children's Curative Services

suggests that in settings similar to the Punjab where socioeconomic development is occurring and there is relatively widespread distribution of the results of this development, initiation of combined health and family programs can have a major impact on contraceptive practice.

APPENDIX

Variable	Level		No. of Women	No. of Contraceptive Users	Percent Users	χ^2	Level of Significance
Education of Husband:	0-5 Yrs.		866	398	46.0	23.2	<.005
	6-10 Yrs.		289	164	56.7		
	10+ Yrs.		32	26	81.3		
Occupation of Husband:	Labor	0	827	420	50.8	1.5	n.s.
		1	360	168	46.7		
	Farming	0	711	352	49.5	0.0	n.s.
		1	476	236	49.6		
	Other	0	836	404	48.3	1.5	n.s.
		1	351	184	52.4		
Religion-caste:	Non-Sch. Jat Sikh	0	656	323	49.2	0.0	n.s.
		1	531	265	49.9		
	Non-Sch. Non-Jat Sikh, Non-Sch. Hindu	0	1,025	501	48.9	1.1	n.s.
		1	162	87	53.7		
	Other	0	693	352	50.8	0.9	n.s.
		1	496	236	47.8		
Living Children and Age:							
	≤3 and <35	0	631	274	43.4	19.6	<.005
		1	556	314	56.5		
	≤3 and ≥35	0	1,089	572	52.5	45.7	<.005
		1	98	16	16.3		
	>3 and <35	0	985	446	45.3	41.0	<.005
		1	202	142	70.3		
	>3 and ≥35	0	856	472	55.1	37.8	<.005
		1	331	116	35.0		
Number of Children Dead:		0	597	340	57.0	32.4	<.005
		1	306	142	46.4		
		2	165	66	40.0		
		3+	119	40	33.6		
Awareness of Modern Contraception:	Not Aware		81	33	40.7	2.3	n.s.
	Aware		1,106	555	50.2		

APPENDIX (Continued)

Variable	Level		No. of Women	No. of Contraceptive Users	Percent Users	χ^2	Level of Significance
Prior Use of Contraception:							
	None		608	261	42.9	58.7	<.005
	Traditional Methods Only		438	216	49.3		
	Modern Methods		141	111	78.7		
Beliefs about Child Mortality:	More Die		319	145	45.5	6.2	<.050
	Same		471	227	48.2		
	Less Die		397	216	54.4		
Talk with Husband:	Did not Talk		553	217	39.2	43.1	<.005
	Talked		634	371	58.5		
Attitude towards Family Planning:	Approve	0	545	231	42.4	20.1	<.005
		1	642	357	55.6		
	Uncertain	0	993	520	52.4	18.8	<.005
		1	194	68	35.1		
	Disapprove	0	836	425	50.8	1.7	n.s.
		1	351	163	46.4		
Women's Illness Services:		0	487	193	39.6	35.7	<.005
		1	152	87	57.2		
		2	223	115	51.6		
		3	325	193	59.4		
Women's Other Services:		0	157	40	25.5	72.3	<.005
		1	143	46	32.2		
		2	208	124	59.6		
		3	679	378	55.7		
Children's Curative Services:		0	525	223	42.5	54.3	<.005
		1	111	36	32.4		
		2	154	77	50.0		
		3	397	252	63.5		
Children's Other Services:		0	587	228	38.8	96.4	<.005
		1	100	38	38.0		
		2	115	53	46.1		
		3	385	269	69.9		
Male Motivation Services:		0	256	85	33.2	47.1	<.005
		1	488	237	48.6		
		2	443	266	60.0		
TOTAL			1,187	588	49.5		