

An experimental study of the relationship between planned educational communication on an individual basis and action for infant care and post-partum care was conducted among Indian women. The study revealed that certain personal experiences related to health are associated with the seeking of postnatal or infant care, but that the constellation of experiences differs for the two actions. Implications for research and action are indicated.

AN EXPERIMENTAL STUDY OF TWO APPROACHES TO COMMUNICATION

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PUBLIC HEALTH workers are faced every day with the question of which of several educational methods might best be used in a given situation. Focusing on this question, the experimental study reported here investigated the effectiveness of two possible methods of planned communication within the context of a maternal and child health program.

Results of the study show that planned, person-oriented contact with staff, combined with the communication of simple, action-oriented information in understandable and meaningful language, is positively and significantly associated with an increase in the action recommended in the communication. Women were personally approached by selected hospital staff on an individual basis and were told through an indirect tape-recorded or a direct word-of-mouth message about the need for postnatal and well baby care in six weeks and the resources available for such care. Those exposed to this planned education, after hospital delivery of a well

child, attended postnatal and well baby clinics within the specified time period in significantly larger proportions than did the mothers who were not approached by staff in this planned way.

Background of the Study

The study was carried out in a Public Health Service hospital which serves most of the Western Navajo Reservation and in which a hospital-community-research-centered health education program had already been set up in July, 1959, as Phase II of the Navajo Health Education Project.* The study, then, was not an isolated effort but fell within the framework of the Phase II plan and, like the rest of the Health Education Project, was a part of the

*The Navajo Health Education Project, first begun in July, 1955, resulted from a contractual arrangement between the Division of Indian Health, Public Health Service, and the School of Public Health (Division of Health Education) of the University of California at Berkeley. William Griffiths and Beryl J. Roberts were co-directors of the project.

total governmental public health program for the Navajo.

Two concerns led to this study. The first was a desire to increase the effectiveness of health education efforts among the Navajo. The second concern was about the low degree to which Navajo women sought postnatal and infant care. It was possible to combine these concerns in the experimental study because, logically, inadequate postnatal and infant care might be attributed at least in part to lack of education about the need for such care, or ineffectiveness of the educational approaches used.

As for the second concern, data on the Western Navajo, and particularly the population under study, had revealed "limited" attendance at postnatal clinics and also "newborns not being returned in adequate numbers . . . for health supervision, resulting in a high number of sicknesses and deaths in the first years of life."¹ Study of a sample of patients had shown that only 18 per cent of the infants were brought back for preventive care and that only 8 per cent of the mothers returned for post-partum visits.²

As for the concern with health education, it was presumed that professional staff, as part of their regular work, were educating women who had delivered babies in the hospital to understand and to desire post-partum care and medical supervision for their new babies. Nevertheless, there was the possibility of good intentions but inadequate health education because of the many pressures upon staff time, the difficulties inherent in communication between Navajo mothers and non-Navajo hospital staff, and, perhaps, because of lack of staff interest, motivation, or training in the use of the educational approach. The question arose whether planned education based upon communication by particular methods might be a greater stimulus to the desired actions

than unplanned, individually motivated staff efforts.

The study finally set up and reported here was an investigation of the effects of a minimal but planned communication effort in which information, which was carefully selected because of its saliency for the actions desired, was given to women who were intended to seek post-partum and infant care. The information was presented in two alternative approaches to communication. Thus the study, it was hoped, would determine whether a particular, planned communication affected the rate of return for postnatal and infant care, and which of two communication approaches had the greater effect.

Purpose of the Study

That information alone does not necessarily lead to the desired practices or actions was clearly recognized.³⁻⁸ While the communication of salient information was considered a step in planned education, it was borne in mind that the role of information is frequently overemphasized and that much beyond that kernel which is essential to action is often provided. Underlying this study of limited "first-level" education was a belief that education influences action, that communication of functional information is a step in education, and the assumption, evolving from research, that salient facts applied to oneself, concern about a problem in relation to oneself, and acceptance of the value of the action to be taken are all positively associated with taking that action.^{4,7,8} There was also a realization, from research, that more personal, more two-way communications have a greater effect on action than less personal, one-way methods.^{3,6,9,10}

The general purpose of the study, then, was to compare two methods of communicating relevant information and their relationship to the actions

specified in the message. The questions which guided the study and which are stated in hypotheses presented later were: Is a planned, direct, more personal approach to communicating a message associated with a greater extent of follow-through on recommended actions than is unplanned communication? Is a planned, indirect, less personal approach to communicating a message associated with a greater extent of follow-through than is unplanned communication? Is a planned, direct, more personal approach to communicating a message associated with a higher degree of follow-through on action than is a planned, indirect, less personal approach?

Operationally, the study permitted analysis of a comparison between (1) a tape recorded and (2) an orally presented face-to-face message and the results on the seeking of post-partum care at the regular hospital clinic and of infant care at the hospital well baby clinic. The tape recorded message was regarded as the indirect, less personal approach; a preplanned message presented orally by a hospital worker on a face-to-face basis was the direct, more personal approach. The tape recorded message is here called the secondary approach; the face-to-face approach, the primary type.

Research Procedures

Design of the Study

According to the experimental design, there were two experimental groups and one control group. The dependent variables in the study were the seeking of (1) post-partum care, and (2) infant care within a specified time; the independent variable was the communication approach, i.e., a primary and a secondary approach were used. One approach was used in each of two experimental groups.

Beyond these variables, some others

which might conceivably affect the results were identified. Some of these were assumed to be randomly distributed in the sample, but in order to determine whether the three subgroups in the study population differed with respect to these variables by more than chance, data were collected on them; viz., age, education, use of English, extent of prenatal clinic visits, previous inpatient experiences at this hospital, previous deliveries at this hospital, number of other children now living, distance from home to the hospital and to the nearest paved road, and type of transportation used to reach the hospital for this delivery. In order to deal with still other important variables, the study population excluded women with certain characteristics which are indicated in the discussion of the study sample.

Post-partum and infant care services, essential to the actions which were the dependent variables, were available in separate clinics held one (and the same) morning each week in the study hospital. Therefore, the act of seeking care was centered on a single public health facility to which the program directed the women. Well baby care was available, on request, at clinics held in the field, but the communication used in the study gave information about the hospital clinic since the full services were given here. The study thus had the strength of operating within the framework of the usual hospital clinic procedures, but permitted control of variables which might have been introduced if more than one clinic had been available.

Efforts were made to have hospital staff continue their usual educational work with patients since it might affect results if staff increased or changed their guidance to patients during the research period. Beyond the central administrative group, staff were not informed of the research focus and participated in or observed merely a new

program effort. If staff behavior were influenced, the effect on patients, presumably, was the same for all three study groups.

The same health education staff continued throughout the study, the project health educator and hospital health education aide being most directly involved. The educator had completed graduate study in public health education, was an experienced mature worker, was not Navajo or Navajo-speaking. The aide was a high school graduate, Navajo, Navajo-speaking, had worked previously as a dental assistant, and had been trained by the health educator to perform in the role of aide. While the research had been planned by the professional staff of the project—both those from the Navajo Reservation and those from Berkeley—it was the health educator, necessarily, who supervised the actual experiment and who collected the data available in hospital records.

The two experimental approaches, primary and secondary, were varied only in the approach to communication per se. The same worker (the aide) was used in both and in all contacts with patients, and in so far as possible, she used an identical manner of meeting the patient, of coping with patients' questions, and of presenting the educational program. The content and wording of the message in the two approaches were identical. Since the aide recorded the taped message, only the vehicle of presentation differed, i.e., tape recording or face-to-face oral presentation. The language, but not the content, varied according to a patient's choice of English or Navajo since the aide was bilingual and the language used was that preferred by each patient.

Privacy was controlled in the primary approach by taking each patient to a private room; in the secondary approach, privacy was permitted by drawing the drapes around the bed. In both approaches, the patient was seen

by the aide prior to the program for a brief introductory interview which covered questions about relevant variables on which data were not available on hospital records. In accordance with the usual hospital procedure, the ward nurse gave each patient at the time of discharge an appointment slip which indicated the date of her return visit and also her infant's, in six weeks.

The Study Population

The study population was comprised of Indian women who lived in the Public Health Service area, had just delivered a baby in the hospital in which the study was conducted, were being discharged and would take a well baby home. All women who delivered during November, 1960, and from January 1, 1961, through the end of May were included, with the exception of 56 who were excluded in order to control selected variables which might have affected the major factors under investigation. Specifically, the excluded group was composed of Indian women entering the hospital after a delivery outside, those experiencing complications, those hospitalized beyond the usual period, those having a stillbirth, or those whose infant died after birth or was not discharged as a well baby. No further selection of patients was made, although nine patients were omitted because of unexpected early discharge or for similar reasons. No patient refused to participate.

A total study group of 222 women resulted after the 56 suiting the definitions above were excluded. This study group was divided into three subpopulations, two experimental and one control group. Patients admitted to the hospital in January and March, 1961, were exposed to the primary approach and comprised a group of 79. Those admitted in February and April, exposed to the secondary approach, comprised a group of 76. These were the two ex-

perimental groups. Patients admitted in November, 1961, and May, 1961, comprised the control group being offered no program (67 women). December was omitted since pretesting of the educational message was carried out at that time.

Preparation of the Educational Message

As a first step in planning the activity which was the experimental variable, the hospital health education aide, who regarded all this as program and not research, and the health educator met with the obstetrician and pediatrician. Both of the latter encouraged the activity, suggested content for the message, and indicated that the post-partum visit and the first visit to the well baby clinic each should be made six weeks after delivery, as was then recommended routinely.

The second step was a consideration of Navajo motivation and behavior as it related to the actions desired. Staff observations made in the field and data in published reports on the Navajo were utilized, as well as results of guided exploratory discussions which the aide held with women patients prior to the study period. Staff discussions centered a good deal around the problem of motivating modest Navajo women to seek postnatal pelvic examinations, of arousing concern for checkups when neither child nor mother presented signs of illness, and of determining the relevancy of various content items to the actions women were to be advised to take.

The next step was the preparation of a message to state the essential points within a framework that would motivate patients and support hospital policy. The message was then cleared for technical content, translated into Navajo, pretested with patients in December, 1960, revised, and further pretested. The message included facts about the type of action to be taken; when checkup visits should be made; the

schedule and location of clinics; reasons that the suggested actions should be taken, even though no illness was experienced; and signs and symptoms for which prompt medical care should be sought if they occurred before six weeks.

The content and meaning of words and phrases were given attention in order to reduce language itself as a barrier to action, but considerable difficulty was encountered in translating health and medical concepts into Navajo. The tape of the English version ran for nine minutes, whereas the Navajo tape was 16 minutes long, an indication of the more extensive wording required in Navajo.

The control of content in the primary presentation, which required repetition of the message from patient to patient, called for practice so that the aide could render the presentation in a meaningful way. She was trained in the technic of the preliminary interview and in that of the actual educational sessions by the social worker, by the pretesting experience in which she became familiar with the two approaches, through recording the taped communication, and by special training sessions arranged by the health educator.

In the primary approach, the aide was assisted by a series of small cards arranged in sequence to be used as needed. A form guided the preliminary interviews, and a form also guided the recording of patients' questions and of the aide's comments about a particular session.

Conduct of the Experimental Program

The two experimental groups each received a planned educational communication; for the control group, only the usual staff efforts were maintained. In carrying out the study, the aide met with any new patients each morning during the experimental months, elicited the necessary descriptive data, and arranged through the obstetrician a time

for the educational program. Usually it was set for the patient's second hospital day, since most patients were discharged the third day after delivery, and usually between nine and eleven o'clock or two and four, when patients were otherwise unoccupied. In the primary approach, a patient was met on the ward by the aide, taken to a room for the program, and returned to the ward. In the secondary approach, the aide wheeled the recorder to the bedside, drew the drapes, helped the patient arrange the earphones and volume, instructed her on how to replace the earphones, left her to listen quietly, and returned later.

Each patient met the aide first through the preliminary interview. For the educational program itself, the aide approached patients in a friendly manner, asked about language preference, and then proceeded with the message. Personal contact was thus a part of both primary and secondary approaches, though it was necessarily more extensive in the former.

Collection and Analysis of Data

Data on the relevant variables which might theoretically affect the main relationships under study were available in hospital records and from the aide's interview prior to the program. Data on the dependent variables—visits for postnatal checkups and child care—were recorded routinely by date and purpose of visit on hospital records by clinic staff.

All data taken from hospital records by the health educator were recorded on prepared forms, and these, together with facts from the aide's interviews, were coded by the health educator. Final tabulations and analysis were completed in Berkeley. As dictated by the hypotheses, data were analyzed to describe the nature of relationships between the dependent and the independent variables and to determine how other relevant variables were related to the dependent variable, or how they af-

ected the initial relationship observed between a particular communication approach and action with respect to postpartum and infant care.

The chi square test was applied to test the significance of observed differences, and a probability of 0.05 was set as the level of significance. When the expected frequency in any cell was less than five, the Fisher exact probability test was employed. The effect of the relevant variables on the initial relationship between dependent and independent variables was studied by partial association procedures.

The seeking of postnatal care was separated in the analysis from the seeking of infant care because women sometimes sought one but not the other, but the same definitions applied to both actions. The actions of patients were studied from the standpoint of complete and partial follow-through and no follow-through. In the final analysis, complete follow-through was opposed to partial action combined with no follow-through.

Complete follow-through was regarded as a return visit to the clinic for the express purpose of postnatal care or infant care from six to eight weeks after delivery, allowing a two-week leeway. "Partial follow-through" was a return visit for the specified purposes, but in the period from 8 to 12 weeks after delivery, or a visit in the period from 6 to 12 weeks not for postnatal or infant checkups but for matters related to the educational message. "No follow-through" was regarded as no return visit within 12 weeks after delivery, or a return visit for purposes unrelated to the message.

Results

Description of Study Population

Analysis of data on the descriptive and intervening variables indicates that the subgroups in the study population did not differ to a statistically significant degree. Where data were available only

on the experimental groups, they did not differ significantly from each other. It is assumed, then, that the two experimental and the one control group were similar with respect to selected characteristics which might affect action for post-partum or infant care. The following data, therefore, are not reported for each of the study groups and are given chiefly to describe the study sample as a whole.

All but 15 patients in the study groups were Navajo; the majority of the 15 were Hopi. Of the non-Navajo, seven were in the group experiencing the primary experimental approach, three were in the group having the secondary approach, and five were in the control group. Among patients in the experimental groups (155), 81 or about 52 per cent spoke only Navajo; 16 others spoke a little English. All non-Navajo were English-speaking. Only 25 women preferred to use English completely in the study.

The mean age of women in all study groups was approximately 28 years, with a range from 15 years to 47. Women were usually from 20 to 25 years of age (65 women, about 29 per cent), though 54 (about 24 per cent) were from 26 to 30 years of age.

Among 153 of the 155 women in the experimental groups, about 54 per cent (83) had no formal education. Three had some college education; but, among women with schooling, the larger proportion had completed only grade school, half having one or two years of schooling. The mean years of education for the entire group were 2.7, and for all having some schooling, 5.9. Preference for English in the study seems to reflect general education, for these factors are significantly associated ($P < 0.01$).

An individual's pattern of medical care and previous experience in the hospital might conceivably affect the two actions under study, as might the num-

ber of living children a woman had at the time of this birth. Accordingly, previous hospital experience, the extent of prenatal care, and the number of living children were studied, but, as with other relevant variables, the study groups were not differentiated by these factors.

Most women had other living children, ranging from none to 12, with 13 women having nine or more, and 27 having none. The mean number of other living children for all women was 3.6.

Most women had had prior deliveries or other inpatient experiences in the study hospital. According to hospital records, 28 women, about 13 per cent, had no previous inpatient experience, but a few may have used facilities provided by missionaries or available in a nearby off-reservation urban center. For those with hospital experience, there had been from one admission to 14, including the present, but only one woman had more than ten admissions. The mean number of admissions, including the present, was almost four.

Considering admissions for deliveries in particular, 53 or about 24 per cent had none; this was the first delivery for them in this hospital. Otherwise, women had had from one to eight other deliveries at this hospital; the mean, including the present child, was 2.7.

Most women had not had prenatal care, in the usually accepted amount at least, in the hospital clinic and presumably had not established a pattern of adequate care for no other prenatal clinics were available. About 48 per cent had no prenatal care whatever in the hospital clinic. Among the 115 who had care, 83 (about 72 per cent) had no more than two clinic visits. Prenatal visits ranged from one to 12, but only three women had six or more visits. The average for all with some degree of prenatal care was 2.1 visits.

Distance from home to the hospital

Table 1—Number and Proportion of Women Acting for Infant and Postnatal Care, by Type and Degree of Action and Without Respect to Communication Approach Used

Degree of Action	Action for Postnatal Care		Action for Infant Care		Action for Both Postnatal and Infant Care	
	No.	%	No.	%	No.	%
Followed through completely	54	24	94	42	43	19
Partially followed through	40	18	52	23	18	8
No follow-through	128	58	76	34	61	27
Different follow-through for two actions	—	—	—	—	100	45
Total	222	100	222	99	222	99

and to the nearest paved road and also means of transportation were investigated because the Western Navajo is a vast area; distance itself is a problem, and travel is often difficult. Public transportation is unavailable.

Specific data on residence were available only from interview and thus on the experimental groups; rather general information such as a post office address was recorded on hospital records. Distances ranged from very close to the hospital to about 115 miles away. Ten women lived within a mile of the hospital; nine lived over 75 miles away. The mean distance for all other patients was almost 34 miles; for all patients it was about 35 miles.

In terms of recognized communities and common patterns of movement, 36 women lived within five miles of the hospital, and four lived in the area six to ten miles away. People within ten miles travel often, for shopping and other purposes, to the center in which the hospital is located. Most women (115) lived more than ten miles from the hospital.

About 28 per cent (43) lived within one mile of a paved road, the range in distance to a paved road for all others being from one to 68 miles. The average distance for all in the experimental

groups except for those living within a mile was almost 15 miles; the average distance for all women was about 11 miles.

About 79 per cent of those in the experimental groups were transported to the hospital for delivery by motor vehicle only; nine women walked all the way, from one-eighth of a mile to four miles; 20 hitchhiked. About 63 per cent of those using cars, usually pick-up trucks, owned them. Otherwise, cars were owned by relatives, missionaries, or police.

Findings

Analysis revealed that 54 or about 24 per cent of the total study group of 222 had completely followed through for a postnatal checkup, 40 or about 18 per cent had partially followed through, and 128 or about 58 per cent did not follow through in terms of the definitions applied (Table 1). Action for infant care was somewhat different since some women attended the well baby clinic but not the postnatal clinic. Ninety-four, about 42 per cent, had followed through completely for infant care, about 23 per cent (52) had followed through partially, and about 34 per cent (76) did not follow through (Table 1).

Forty-three women, about 19 per cent of the 222, followed through completely on both types of action, and 61 or about 27 per cent completely lacked any follow-through for both actions. All others followed through differently for mother and child, except for 18 who followed through partially for both types of action.

Hypothesis I—Among women exposed to a secondary approach to communication, on an individual basis, a greater proportion will follow through on the action specified than among women receiving no planned communication.

Analysis revealed that women experiencing the secondary approach (tape recorded message) followed through completely in seeking post-partum care to a significantly greater degree than did women in the control group. About 30 per cent (23 women) in the group with the secondary approach followed through completely, whereas about 13 per cent (9) of those not receiving any planned communication did so (Table 2). This difference is statistically significant ($P = <0.02 > 0.01$), and the hypothesis is regarded as supported. A positive association exists, in this study, between seeking a postnatal examination

six to eight weeks after delivery and exposure to a tape recorded educational message recommending this action.

Since two types of action were involved and one was not always subsequent to the other even though the mother was the actor in both, the relationship between the two communication approaches and infant action is reported separately from the action for postnatal care. Patients in the experimental group having the secondary approach, then, returned for infant care within the specified period to a significantly greater degree than did those in the control group, more than 47 per cent (or 36) compared with almost 30 per cent (or 20) ($P = <0.05 > 0.02$). Thus these data also support the hypothesis (Table 3).

The proportion of women who returned for post-partum or infant care and were in the group receiving no planned communication is somewhat higher than that reported in the Service Unit Plan (see Background of the Study). This does not affect the analysis of data in terms of the hypotheses, but it is curious since the figures in the plan refer to the same years as those of the study and since the control group

Table 2—Extent of Follow-through for Postnatal Care, by Type of Communication Approach

Extent of Follow-through	Type of Communication Approach						All Groups	
	A		B		C			
	Primary Approach		Secondary Approach		No Planned Communication		No.	%
	No.	%	No.	%	No.	%	No.	%
Followed completely	22	28	23	30	9	13	54	24
Followed partially or not at all	57	72	53	70	58	87	168	76
Total	79	100	76	100	67	100	222	100

$X^2 = 6.255$ (2 df) $P = <0.05 > 0.02$
 Hyp. I —Cols. B and C: $X^2 = 5.807$ (1 df) $P = <0.02 > 0.01$
 Hyp. II —Cols. A and C: $X^2 = 4.504$ (1 df) $P = <0.05 > 0.02$
 Hyp. III—Cols. A and B: $X^2 =$ not significant

Table 3—Extent of Follow-through for Infant Care, by Type of Communication Approach

Extent of Follow-through	Type of Communication Approach						All Groups	
	A Primary Approach		B Secondary Approach		C No Planned Communication			
	No.	%	No.	%	No.	%	No.	%
Followed completely	38	48	36	47	20	30	94	42
Followed partially or not at all	41	52	40	53	47	70	128	58
Total	79	100	76	100	67	100	222	100

$X^2 = 6.238$ (2 df) $P = <0.05 > 0.02$
 Hyp. I —Cols. B and C: $X^2 = 4.586$ (1 df) $P = <0.05 > 0.02$
 Hyp. II —Cols. A and C: $X^2 = 5.043$ (1 df) $P = <0.05 > 0.02$
 Hyp. III —Cols. A and B: $X^2 =$ not significant

presumably experienced the usual kind of communication routinely given by staff. The difference might be due to the more liberal interpretation of return, inasmuch as the study used six weeks as the date for return but allowed a two-week leeway. It may be, of course, that staff increased their educational efforts when they saw that a more intensive program was under way.

Hypothesis II—Among women exposed to a primary approach to communication, on an individual basis, a greater proportion will follow through on the specified action than among those receiving no planned communication.

Women in the primary group (oral presentation) followed through on a postnatal examination in the specified time to the extent of almost 28 per cent (22 women), whereas about 13 per cent (9) of the control group followed through completely (Table 2). This difference is significant ($P = <0.05 > 0.02$), and the hypothesis is tenable. Receiving an orally presented educational message related to infant and postpartum care was positively associated, thus, to a significant degree with seeking a postnatal examination six to eight weeks after delivery.

From the standpoint of infant care, about 48 per cent, or 38 of the women in the experimental group experiencing the primary approach, and almost 30 per cent (or 20) of the women in the control group returned for infant care within the specified period. This difference is statistically significant ($P = <0.05 > 0.02$), and the hypothesis is regarded as supported (Table 3).

Hypothesis III—Among women exposed to a primary approach to communication on an individual basis, a greater proportion will follow through on the specified action than among women exposed to a secondary approach to communication.

More than 30 per cent (23) of the women who were in the group having the secondary approach and almost 28 per cent (22) of those in the group experiencing the primary approach acted for postnatal care within the specified period (Table 2). This same kind of finding applies to infant care. More than 47 per cent (36) of the women in the group exposed to the secondary approach and about 48 per cent (38) of those in the group exposed to the primary approach followed through completely in relation to infant care (Table 3). These very slight differences are

not significant, and these data, consequently, do not support the hypothesis.

Discussion

The results of the study are as predicted by Hypotheses I and II. Data indicate that either a primary (direct oral presentation) or a secondary (tape recorded) communication of an educational message about postnatal and infant care is significantly and positively associated to a greater degree than is the absence of such planned communication with action for postnatal and infant care within the time specified in the message. Curiously, the data do not support Hypothesis III; the association between a primary approach to communication and the recommended actions does not differ significantly from that between a secondary approach and the two actions. As a matter of fact, the difference between primary and secondary approaches and action is very slight indeed (Tables 2 and 3).

It must be remembered that the message used in this study was available in Navajo or English, according to a patient's preference, and that it was carefully prepared and pretested. The wording was thoughtfully selected; the information contained was chosen for its saliency to the actions recommended; the message was personally oriented and was embedded in appeals determined from Navajo culture. Furthermore, the message, introduced midway in a patient's hospitalization and at a time when she was free from other distractions, was presented by a Navajo, though not so traditional a Navajo as many, a person of some education (high school graduate), but not a worker on a professional level. Thus, there was undoubtedly some, but not undue, social distance from patients. In addition, the communication may have triggered off discussion between patients, or between patients and their families or others.

In other words, neither a carelessly

planned communication nor even this one by itself—divorced from the situation and person involved—may lead to the positive association observed here between tape recorded message and action, or primary face-to-face approach and action. But why did the predicted difference between primary and secondary approaches not reveal itself? Why is a difference lacking almost completely when research evidence and theory suggest that a direct, more personal approach to communication is usually more effective than an indirect, less personal approach?^{6,9,10} It will be recalled that Pelz¹¹ reports no difference in action between groups with one-way or two-way communication approaches or control groups, though in the study reported here it was the personal nature of the communication not strictly a one-way versus a two-way approach that was involved.

Were there factors that surmounted the difference in the two communication approaches used, made them more similar, and reduced the anticipated difference in effect? Factors common to both tape and oral approaches were the nature of the message, the wording, the particular voice used, and all aspects of the communication already mentioned. The experimental difference was the method of communication.

Though the difference planned for was the communication method—direct or indirect—one major element present in both approaches, reflection reveals, was the personal context of the communication, for contact with the hospital health education aide during the preliminary interview and at the time of the presentation was a constant. The significant factor may not have been a personal contact in itself, however, but contact which revealed an interest in the patient because of the way the worker approached each patient, and, also, because of the nature of the questions in the preliminary interview. It must

be recalled that the contact was made by a worker trained specifically for this assignment and one having some but not extreme social distance from patients.

In the primary approach, the personal contact per se was necessarily more lengthy; but in the tape recorded approach the patient was involved in handling a new machine and taught to use it by the aide. This may have aroused interest, a feeling of others' interest in her, and a kind of involvement such as was created by the continuing personal contact throughout the primary presentation. This involvement, however, would come not from the use of any machine, conceivably, but from the use of one somewhat unfamiliar to the patient, one which she operated herself, one she understood and could control, and one which carried a message having to do with her.

Is it possible, then, in short, that the similarity of action in the two experimental groups derives from the two communication approaches being less different than was theoretically expected? Did both utilize a personal context in the preliminary interview and in the introduction to the presentation which became an important factor? Was a factor in the personal contact the interest conveyed, the empathy, the lack of extreme social distance?^{12,13} Did the feeling of involvement with the tape recorder reduce the expected impersonality of this approach and, at the same time, in view of the features of situation and machine indicated above, in a sense replace the continued personal contact and more direct communication of the face-to-face presentation? Is it important, also, to keep in mind that most individual approaches are made by people and a communication in individual approaches will not usually be divorced from personal contact of a type, though not necessarily of the type utilized here? Much research that stresses the value of the personal face-

to-face presentation focuses on mass communications wherein it is perhaps possible to use a strictly nonpersonal context and compare this with the more personal approach.

This study assumed that the women lacked information or concern about postnatal and infant care, or both. The communication was planned to present the essential facts and to arouse concern for personal action. Was the message so essential and so meaningful as to be conveyed in an equally effective way regardless of the method used? Were the facts already known, but did the communication with the personal context utilized help women to apply the facts to themselves, to see the essentiality of the actions for themselves, and to gain a commitment, though private perhaps, to act? Was it the personal aspect that created the impact? Was it the message plus this contact? What would happen if no additional facts were provided beyond that which staff give routinely anyway, and if personal interest were evidenced in patients by persons not too distant socially or able to bridge a social gap?

Further Results

As indicated earlier, data were collected on factors relevant to the dependent variable of action. How do these relate to the two actions? And do any of them affect the total association observed between the seeking of action for postnatal and for infant care and the primary and secondary approaches to communication?

In the analysis of relationships between relevant variables and the two actions, the two experimental study groups were combined since, as stated, the groups did not differ significantly on the relevant variables, and they were very much alike in acting for both infant and postnatal care. In the following discussion, accordingly, the two groups experiencing primary and sec-

ondary communication approaches are considered as one.

Action for Post-partum Care—From the standpoint of action for post-partum care, preference for use of English over Navajo in the study, mother's age, number of other living children, previous inpatient experiences at the study hospital, previous hospital deliveries, distance from home to the hospital and to a paved road—none of these were significantly associated with action for post-partum care. Prenatal visits, on the other hand, were associated significantly with this action, as was type and ownership of transportation used to reach the hospital for this delivery.

There was a positive, statistically significant relationship between having had no prenatal visits and not seeking postnatal care ($P = <0.01$). Women seeking no prenatal care (105) acted in small proportion (16 per cent) for postnatal care. Moreover, a significant, direct proportionate relationship exists between number of prenatal visits and action for post-partum care ($P = <0.02 > 0.01$).

The other variable bearing a significant relationship to action for post-partum care was type of transportation used. Women using a car (usually a pickup truck) which they owned acted significantly more often (35 per cent) for postnatal care than did those who used others' cars or different transportation (20 per cent), such as horse and wagon or hitchhiking ($P = <0.05 > 0.02$).

Though the other variables, which were chiefly antecedent to the communication program, were not associated significantly with postnatal action, analysis reveals interesting trends. For example, women preferring to use English in the study tended to act for post-partum care slightly more than did those preferring Navajo ($P = <0.10 > 0.05$). Years of schooling and use of English, as reported, were highly associated ($P = <0.001$).

Women with some formal education (70) were not significantly different from those with no education (83) in acting for post-partum care, but, not unexpectedly, women having high school and college education acted significantly more often than did those with less schooling and no schooling ($P = <0.05 > 0.02$). There is no difference in action between women having no formal education whatever and those having grade school education. For women with some education, however, a tendency appears toward a direct proportionate relationship between education and action; as education increases, action does also.

Women with previous inpatient experiences in the study hospital tended to seek post-partum care more than did women without such experience ($P = <0.10 > 0.05$). Again, a tendency toward a direct relationship appears. Women with no previous inpatient experience whatever sought postnatal care least, those having one to four experiences acted next often (the mean was about four experiences), and women with five or more hospitalizations tended toward the highest proportion acting for care. The trend remains the same if deliveries are removed from inpatient experiences.

When previous deliveries at the study hospital are singled out for analysis, only a very slight tendency is observed for women having previous deliveries to act for postnatal care more than those with no other hospital deliveries. A tendency toward a direct relationship appears again; as the amount of action increases, the number of deliveries increases.

Considering the number of other living children rather than deliveries, the same kind of trend is evident, for as the number of other living children increases, the proportion of women seeking post-partum care tends to increase. Hospital deliveries, mentioned above,

may reflect to a degree the number of children, but cross-tabulation revealed that there were more children than hospital deliveries.

The notion that long distances between home and either hospital or a paved road militates against postnatal care is supported by trends in the data. Since the area within ten miles of the hospital is well traveled, relatively speaking, and since the mean distance was about 35 miles, distances of within one mile, one to ten miles, 11 to 30 miles, and over 30 miles were considered. A tendency toward an inverse relationship between distance and postnatal care was revealed; i.e., the greater the distance to the hospital, the less the amount of care. The same kind of trend is apparent in the distance from home to a paved road; as distance increased, the proportion of post-partum visits decreased.

Trends cannot be accepted as meaningful but here some may be suggestive since several trends reported in the foregoing are consistent. For example, with increasing numbers of prenatal visits (significant, not trend) and with an increasing number of hospital deliveries, of inpatient experiences, and of other living children, there is an increasing tendency toward more follow-through for postnatal care.

Are women who seek prenatal and postnatal care more, who tend to use the inpatient services more, and have more hospital deliveries also more health conscious? Are they better educated about hospital care as a result of more extensive experience with care? Are such women in the habit of using hospital and clinic services; are they "users" of available services? Are they "users" whose "use" practice extends into several spheres of life? Are they more oriented to white culture, less traditionally Navajo, more prone to use newer facilities, facilities that put them in contact with white culture? Have hospital deliveries, prenatal care, and

postnatal care become a constellation of actions? Has having other children predisposed women toward post-partum care?

Trends in distance as it relates to action are supported hypothetically. A firmer association between distance and care would suggest, perhaps, the need for more widely distributed health services—for people geographically distant presumably require higher motivation to go for care. This motivation may arise through an understanding of the need for care, or acuteness of symptoms may create incentive to act. Along this line, it is of interest that with prenatal care, which like postnatal care is preventive and in which action is not based upon acuteness of symptoms, there is a similar trend; as distance to the hospital increases, prenatal care decreases, but not in so pronounced a pattern as with postnatal care. With inpatient services, where acuteness may be more of a factor, the relationship does not tend toward a consistent pattern.

The significant association observed between postnatal care and use of a personally owned car to reach the hospital may suggest that ready transportation facilitates the seeking of postnatal care. Ownership of a car may reflect a less traditional and a more modernizing or a more educated person, or a higher economic level; the factor in the relationship may not be transportation itself. This is suggested in a cross-tabulation which reveals that use of a personally owned car tends to be associated with higher education. About 85 per cent of those with high school and college education owned the car used, about 61 per cent of those with education through grade eight, and about 49 per cent of those with no schooling.

That an educational level of high school or college is associated significantly with more postnatal care, and no education and education through grade eight is associated with less care indicates, tentatively, that knowing

about and being motivated toward postnatal care reflects general education. Other factors such as progressive attitudes, a more modern way of life, and the like, may lie behind higher education, of course.

Action for Infant Care—In examining these relevant variables in relation to action for infant care some different and some similar findings or trends are observed. Preference for English over Navajo in the study, educational level, distance from home to the hospital, and also distance to the nearest paved road had a statistically significant, positive association with action for infant care. The other relevant variables showed trends.

As was the case with post-partum care, preference for English was significantly associated with a greater proportion of action for infant care ($P = <0.05 > 0.02$), and it will be remembered that use of English is associated with general education. Not unexpectedly, then, educational level and action for infant care are also positively associated and more clearly than in the case of post-partum care. Women with some formal education sought infant care significantly more often; those with no schooling acted less often ($P = <0.05 > 0.02$). Furthermore, a direct proportionate and significant relationship exists between education and action; for as education increases from no schooling to some, to high school, and to college education, increasing levels of action for infant care are observed ($P = <0.02 > 0.01$). While there was only a trend toward a direct proportionate relationship between education and postnatal care, the relationship is significant here.

A significant difference is observed if women within ten miles (the more traveled area) are compared with those more than ten miles away, the former acting more often ($P = <0.05 > 0.02$). An inverse relationship tends ($P = <0.10 >$

0.05) between distance to the hospital and action. Women living over ten miles distant sought infant care less (about 43 per cent), those living within ten miles acted more, and those within one mile acted most (70 per cent). Beyond ten miles, the trend does not hold as it did for postnatal care.

As distance from a paved road increases, from within a mile to one to ten miles (mean was 10.87 miles) to over ten miles, action tends to decrease for infant care. Women within a mile of a road acted significantly more often than those residing farther away ($P = <0.05 > 0.02$).

Other trends are suggestive. Women under 30 years of age tended somewhat more to seek infant care. Those who used their own car to reach the hospital for delivery tended somewhat more than others to seek infant care.

Women who made prenatal visits to the hospital differed only slightly from those without prenatal care, a finding which contrasts with the relationship between prenatal visits and post-partum care. Although women having three or more visits tended to seek infant care more than others did, the direct proportionate relationship between visits and action observed in post-partum care is not found.

The same is true of inpatient experiences. Women having prior experiences tended ever so slightly to seek infant care more, but no clear trend toward a direct relationship between number of experiences and action appeared as it did in post-partum care.

When deliveries in the study hospital are singled out from inpatient experiences, again what is observed differs from the finding in post-partum care. In infant care, women without previous deliveries tended to act more often, not unexpectedly, and there is no trend toward a direct relationship between deliveries and action.

Likewise, the trend seen for post-

partum care and number of other living children is not manifested. There is, rather, a tendency for women with no other living children to seek infant care more and an inverse relationship between number of children and infant care tends.

These significant associations and trends suggest that having more education and preferring to use English in the study and living nearer rather than farther away from the hospital and from a paved road make a real difference in whether women follow through on recommendations to seek infant care. This seems to make sense.

Further Discussion

More hospital experience, more prenatal care, more children, and more hospital deliveries seem to constitute a kind of constellation with reference to post-partum care. On the other hand, no previous deliveries and no other living children tend to comprise the constellation in infant care, together with more prenatal care and no particular pattern of inpatient experiences. Thus, examination of trends and significant findings suggests that motivations for post-partum care and for infant care differ. Post-partum care seems to be associated with a group of factors that may reflect a pattern of use of hospital facilities, or a health consciousness, or a combination of prenatal care, hospital delivery, and post-partum care into a larger action pattern. Infant care seems sought more in terms of protecting a first child, as might be anticipated.

General education makes its impact significantly in infant care, but higher education appears a factor in both types of action. While distance works against seeking both types of care, it tends toward a greater impact on action for infant care and has a significant impact if the more well traveled area is considered. Distance to a paved road makes

a difference also for both actions, but the impact is significant for infant care.

Interpretation with Relevant Variables

This analysis suggests that women with certain qualities here identified tend toward more postnatal or infant care and that the qualities differ for the two actions. Without a specific communication effort such as the one tried in this study, women possessing certain characteristics could be expected to act for care more than others. The relationship of these characteristics to action, as reported, is of interest, but of more concern in this study is the way these variables affect the association observed between communication and action. Consequently, a study was made using partial association procedures and using the relevant variables as test variables to determine how the total association was affected. Analysis was completed for variables on which data were available for the control group.

The type of association originally observed (total association) and reported in relation to the three hypotheses held up under all analyses: Those experiencing a planned primary or secondary type of communication acted more often for postnatal or infant care than did the group not having such planned communication. Regardless of which test variable was held constant, Hypotheses I and II were supported significantly or by trends. Results of the partial association procedures are presented below. Owing to the relatively small size of the study population, the analysis was carried only through the first order of tables.

Action for Postnatal Care—From the standpoint of postnatal care, holding age constant reveals little effect on the nature of the original association which maintains, though statistical significance was lost, for both older and younger women. Age seems not to be a factor

strongly influencing the observed relationship. This is also true for the number of other living children where the original relationship is maintained and almost to statistical significance, regardless of whether women had other living children or not (Table 4).

Prenatal visits, previous inpatient experiences, and hospital deliveries offer a different picture. Significance in the relationship between planned communication and follow-through for postnatal care is maintained for women having prenatal visits ($P = <0.05 > 0.02$) and for those having previous inpatient experiences ($P = <0.05 > 0.02$). Thus, these two factors may be conditions for the original relationship observed (Table 4). Holding the number of previous deliveries at the study hospital constant, the original relationship maintains significantly for women with no previous deliveries. Not having a previous delivery in this hospital, then, may be a condition for the observed communication effect. Nevertheless, the original relationship between a planned communication approach and follow-through for postnatal care tends to maintain among women with no prenatal visits, no prior hospital experience, and those having previous deliveries in the study hospital. Education has its impact, thus, regardless of the presence or absence of any of these test variables.

It will be recalled that having prenatal visits was significantly associated with action for postnatal care and having previous inpatient experiences, other hospital deliveries, and other living children tended toward a positive association with such action. Further, as any of these increased in amount, action tended to increase also. This evidence suggests underlying motivational factors; women with such qualities will tend to such postnatal care more than women with opposite qualities. Are they more ready for education related to postnatal care?

Partial association procedures suggest that women having prenatal visits and prior inpatient experiences are possibly more receptive to an educational communication for they responded more in this study; women without prenatal visits or prior inpatient experiences tended to seek care less anyway, but also responded to a lesser degree to the educational effort (Table 4). On the other hand, women having previous hospital deliveries, though tending on this factor to seek care more than would those with no deliveries, were seemingly not more receptive, for significance in the association between communication and action was maintained among women without previous hospital deliveries; such women responded proportionately more to education (Table 4).

Action for Infant Care—In terms of infant care, age did not appear to be a condition for the original association. Having previous inpatient experiences, previous hospital deliveries, other living children, and no prenatal visits, however, were each conditions, it seems, for the original association, for educational communication differentiated women in these partial tables significantly. Women with these characteristics and the educational communication sought infant care more significantly than did such women having no educational program (Table 5). Perhaps such qualities in themselves do not motivate, but the educational program provided the information, aroused the concern, or triggered off action. It will be recalled that women with no previous deliveries, no other children, more prenatal care, and no particular pattern of inpatient experience tended to seek infant care more than women with the opposite characteristics. Such characteristics seemingly have in themselves motivational undertones leading to action for infant care. Women with these qualities were not resistant to the

Table 4—Number and Per cent of Women Acting for Postnatal Care According to Communication Approach, Extent of Action, and Status on Selected Variables

Status in Test Variable and Communication Approach	Extent of Action				Total	
	Complete Follow-through		No Follow- through			
	No.	%	No.	%	No.	%
Having Prenatal Visits						
Primary or secondary communication	31	38	51	62	82	100
No planned communication	6	18	27	82	33	100
Total	37		78			
			X ² (1 df) = 4.152; P = <0.05>0.02			
Without Prenatal Visits						
Primary or secondary communication	14	19	59	81	73	100
No planned communication	3	9	29	91	32	100
Total	17		88			
			X ² (1 df) = 1.576; not significant X ² for totals (1 df) = 7.640; P = <0.01			
Having Previous Inpatient Experience						
Primary or secondary communication	42	30	96	70	138	100
No planned communication	9	16	47	84	56	100
Total	51		143			
			X ² (1 df) = 4.241; P = <0.05>0.02			
Without Previous Inpatient Experience						
Primary or secondary communication	3	18	14	82	17	100
No planned communication	0	00	11	100	11	100
Total	3		25			
			P exact = 0.25; not significant			
Having Previous Hospital Deliveries						
Primary or secondary communication	36	29	87	71	123	100
No planned communication	8	17	39	83	47	100
Total	44		126			
			X ² (1 df) = 2.659; not significant			
Without Previous Hospital Deliveries						
Primary or secondary communication	9	28	23	72	32	100
No planned communication	1	5	19	95	20	100
Total	10		42			
			P exact = 0.036			
Having Other Living Children						
Primary or secondary communication	40	29	98	71	138	100
No planned communication	9	16	48	84	57	100
Total	49		146			
			X ² (1 df) = 3.734; P = <0.10>0.05			
Without Other Living Children						
Primary or secondary communication	5	29	12	71	17	100
No planned communication	0	00	10	100	10	100
Total	5		22			
			P exact = 0.079			

educational effort, for the program had the anticipated effect on their action, but the program had its greater impact on women with other deliveries, other children, prior inpatient experiences, and no prenatal visits. In such groups, education and action were significantly associated (Table 5) and, conversely, no planned educational program and failure to seek infant care were associated.

The substance of the analysis of partial associations is that the planned educational communication has an effect on action regardless of whether or not women possess characteristics that presumably predispose them to act. That the absence of such predisposing factors does not appear to create resistance to educational efforts is a useful finding. So is the finding that the action level produced by such predisposing characteristics in themselves can be raised by planned educational communication.

In summary, in approaching a group of Indian women who had experienced a hospital delivery and were being discharged with a well baby, an educational communication could be foreseen to be associated with an increase in action either for infant care or postpartum care. From the standpoint of infant care, it could be expected that women without other hospital deliveries, with no other living children, with more prenatal care, and no particular pattern of inpatient experience would tend to seek infant care and that the educational effort would affect their action but significantly affect action in women with other deliveries, other children, other inpatient experiences, and no prenatal care. From the standpoint of postpartum care, it could be expected that women would tend to act anyway if they had other children, other hospital deliveries, other inpatient experiences, and had had prenatal visits, but that the educational effort, while influencing such women, would affect significantly

those women who had had prenatal care, prior inpatient experiences, but had not had previous deliveries.

Implications of the Study

A single study such as this requires replication before the findings assume meaning for action. If the findings were duplicated, it seems that attention should be directed toward the interpersonal aspect of one-to-one relationships that have an educational objective or by-product. Ways of building a sense of involvement on the part of the educatee deserve attention, as does the ability of the "educator" in a situation to relate to others and to communicate in meaningful ways. This study suggests that two differently planned approaches to communicating an educational message are equally effective if combined with personal contact which reveals interest and permits verbal communication in suitable language from one who is somewhat but not too distant socially.

The study suggests, beyond this, that the individual approaches used will be effective not only in triggering off and directing action toward which people are tending but also, and more importantly, in bringing about action in those not having such predisposing characteristics as were identified here. Receptivity to education is a multidimensional phenomenon, and findings from this study do not permit us to say that any one characteristic identified as creating a readiness to seek postnatal or infant care will, when combined with education, bring about the highest level of the recommended action.

It should be kept in mind that this study did not explore a full-scale expansive educational effort; it was a minimal effort, but planned according to certain specific features.

Some aspects of the study suggest hypotheses or questions for further research. If the indirect approach is util-

Table 5—Number and Per cent of Women Acting for Infant Care According to Communication Approach, Extent of Action, and Status on Selected Variables

Status in Test Variable and Communication Approach	Extent of Action				Total	
	Complete Follow-through		No Follow- through			
	No.	%	No.	%	No.	%
Having Prenatal Visits						
Primary or secondary communication	40	49	42	51	82	100
No planned communication	12	36	21	64	33	100
Total	52		63			
			X ² (1 df) = 1.464; not significant			
Without Prenatal Visits						
Primary or secondary communication	34	47	39	53	73	100
No planned communication	8	25	24	75	32	100
Total	42		63			
			X ² (1 df) = 4.315; P = <0.05>0.02 X ² for totals (1 df) = not significant			
Having Previous Inpatient Experience						
Primary or secondary communication	67	49	71	51	138	100
No planned communication	16	29	40	71	56	100
Total	83		111			
			X ² (1 df) = 6.496; P =			
Without Previous Inpatient Experience						
Primary or secondary communication	7	41	10	59	17	100
No planned communication	4	36	7	64	11	100
Total	11		17			
			X ² (1 df) = not significant			
Having Previous Hospital Deliveries						
Primary or secondary communication	57	46	66	54	123	100
No planned communication	12	26	35	74	47	100
Total	69		101			
			X ² (1 df) = 6.107; P = <0.02>0.01			
Without Previous Hospital Deliveries						
Primary or secondary communication	17	53	15	47	32	100
No planned communication	8	40	12	60	20	100
Total	25		27			
			X ² (1 df) = not significant			
Having Other Living Children						
Primary or secondary communication	64	46	74	54	138	100
No planned communication	16	28	41	72	57	100
Total	80		115			
			X ² (1 df) = 5.588; P = <0.02>0.01			
Without Other Living Children						
Primary or secondary communication	10	59	7	41	17	100
No planned communication	4	40	6	60	10	100
Total	14		13			
			X ² (1 df) = not significant			

ized without any personal contact, as is easier in mass approaches, would it be as effective as a direct individual approach; e.g., would a teaching machine by itself be as effective as a face-to-face presentation? If the personal context is important, can professional workers create the appropriate relationship and atmosphere? What are the significant features of the relationship: ability to build empathy, cultural similarity, ability to use the same language, no social distance, or some but not too much? What level of information about infant and postnatal care and the resources do women already possess, and what is the essence of the communication; is it giving facts, gaining application of known facts, giving support?

Summary

An experimental study of the relationship between a planned, educational communication on an individual basis and action for infant care and postpartum care was conducted among Indian women who had had a hospital delivery and were about to be discharged with a well baby. A planned, tape recorded, indirect presentation was significantly associated with both types of action, as was a direct face-to-face verbal presentation. Unexpectedly, the two communication approaches did not differ significantly in their effects. It is suggested that the personal context of the two approaches reduced the impersonality of the indirect method and that the person-centered interested approach of a culturally similar and not too socially distant worker may have been a potent factor in both approaches. Analysis of data of variables which

it was thought might be linked to the two types of action under study reveals that certain kinds of personal experience related to health, to the use of medical care facilities, and to having children are associated with a tendency to seek postnatal or infant care, but the constellation of experiences, or characteristics, differs for the two actions. The study revealed that the communication approaches used affected action not only in those who were tending toward action but also in those who apparently were not tending to act. Implications for research and action are indicated.

REFERENCES

1. Albuquerque Area Service Unit Plan, Tuba City Service Unit, Plan Period July 1, 1960, to June 30, 1963, pp. 39 and 40.
2. *Ibid.*, pp. 21 and 22.
3. Bond, Betty W. Group Discussion—Decision: An Appraisal of Its Use in Health Education. Minneapolis, Minn.: Minnesota Department of Health, 1956.
4. Hochbaum, Godfrey M. Public Participation in Medical Screening Programs: A Socio-Psychological Study. PHS Pub. No. 572. Washington, D. C.: Gov. Ptg. Office, 1958.
5. Hyman, H. H., and Sheatsley, P. B. "Some Reasons Why Information Campaigns Fail." In *Readings in Social Psychology* (3rd ed.). Maccoby, E. E.; Newcomb, T. M.; and Hartley, E. L. (Eds.). New York, N. Y.: Holt, 1958.
6. Lewin, Kurt. "Group Decision and Social Change." In *Readings in Social Psychology* (3rd ed.). Maccoby, E. E.; Newcomb, T. M.; and Hartley, E. L. (Eds.). New York, N. Y.: Holt, 1958.
7. Roberts, Beryl J. A Study of Selected Factors and Their Association with Action for Medical Care. Unpublished doctoral dissertation, Harvard University, 1956.
8. Rosenstock, I. M.; Derryberry, M.; and Carriger, B. K. Why People Fail to Seek Poliomyelitis Vaccination. *Pub. Health Rep.* 74:98-103 (Feb.), 1959.
9. Klapper, J. T. *The Effects of Mass Communication*. Glencoe, Ill.: Free Press, 1960.
10. Katz, Elihu, and Lazarsfeld, P. F. *Personal Influence*. Glencoe, Ill.: Free Press, 1955.
11. Pelz, E. B. "Some Factors in 'Group Decision'." In *Readings in Social Psychology*. (3rd ed.). Maccoby, E. E.; Newcomb, T. M.; and Hartley, E. L. (Eds.). New York, N. Y.: Holt, 1958, pp. 212-219.
12. Simmons, Ozzie. *Social Status and Public Health*. New York, N. Y.: Social Science Research Council, 1958, Pamphlet No. 13.
13. Hollingshead, A. B., and Redlich, F. C. *Social Class and Mental Illness*. New York, N. Y.: Wiley, 1958.

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