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Improvements in knowledge of Norplant® implants acceptors: An intervention study in West Sumatra and West Java

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**IMPROVEMENTS IN KNOWLEDGE OF
NORPLANT® IMPLANTS ACCEPTORS:
AN INTERVENTION STUDY IN
WEST SUMATRA AND WEST JAVA**

INDONESIA

FINAL REPORT

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Technical Assistance Project
The Population Council

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EXECUTIVE SUMMARY

Previous studies on NORPLANT® implants in Indonesia have shown that there are a substantial number of implant acceptors, providers, field workers, and volunteers who are unaware of the basic facts about NORPLANT® implants. In addition, there is a lack of information, education, and communication materials for providers, field workers, volunteers, and clients. With these issues in mind, the Training and Development Center for Biomedical and Human Reproduction Studies (PUBIO) of the National Family Planning Coordinating Board launched an Operations Research intervention study with Study Groups on Human Reproduction from Andalas University, Padang, West Sumatra and Padjajaran University, Bandung, West Java with supports from the Population Council. The study began on November 1, 1993 and ended on June 30, 1995.

The objectives of the study were to provide accurate information on NORPLANT® implants to women prior to insertion of the implants, and to assess the effectiveness of a system of approaches to providing information in order to increase acceptor's knowledge of the implants. A quasi-experimental Posttest-Only Control Group Design was adopted to assess the effectiveness of the intervention programs on women's knowledge and satisfaction. Two provinces, West Sumatra and West Java were chosen for this study and within each province, two districts (one for experimental and another for control) were carefully selected in consultation with provincial BKKBN and Health Authorities to be in the study. Experimental districts were provided with: (1) orientation training for midwives (providers), field workers, and volunteers; (2) trained midwives received flip-charts to counsel their clients before insertion of implants; (3) trained field workers and volunteers received leaflets to educate their potential clients; (4) each potential client received a leaflet to take home; and (5) midwives were to counsel every implant client before the insertion of implants using flip-chart. The flip-chart and leaflet were prepared specially for this study by Yayasan Kusuma Buana (YKB). These additional program activities were not available to control districts.

Within the period between October 1, 1994 - February 28, 1995, a total of 626 implant acceptors (262 in experimental and 364 in control) were recruited in West Sumatra. A total of 950 implant acceptors (541 in experimental and 409 in control) were recruited in West Java. During the three month period, 11 women (5 in West Sumatra and 6 in West Java) had their implants removed. All 1570 women were followed up twice (during the first week of use and the third month of use) and interviewed to collect data on demographic,

social, economic activity, fertility preference, various information on knowledge of NORPLANT® implants, and satisfaction. Selected findings and conclusions follow:

- In West Java, only 25 percent of the women who received implants in experimental areas were provided information on implant through midwives. On the other hand in control areas, 50 percent of the women received information through midwives. It is clear that midwives did not adhere to the research protocol. On the contrary, more women from control areas received information from midwives and from their friends, relatives, neighbors, other implant users. In this report, then we refer to the two West Java research areas by name rather using the terms 'experimental' and 'control' areas.
- In West Sumatra, as many as 65 percent of women in experimental areas received counselling from midwives while only 46 percent received information from midwives in control areas.
- Women's knowledge on 'implant has 6 capsules', 'five years effectiveness', 'should be removed after five years of use', 'can be removed any time' and 'knew the method switching possibility' in experimental areas is almost universal both in West Sumatra and West Java. In some selected items, more women from experimental areas are knowledgeable than from control areas.
- The proportions of women in experimental areas of West Sumatra with knowledge of who should use implants are higher in two out of six items (75 percent higher in 'those who seek continuous contraception' and 7 percent higher in those who want longterm birth spacing'). The proportions of women in Cianjur with knowledge of who should use implants are significantly higher than in Majalenka.
- In West Sumatra, the proportions of women in experimental areas with knowledge of who should not use implants are 300 percent to 400 percent higher compared to those women in control areas.
- The proportions of women with knowledge of common side-effects of implants (prolonged bleeding during the first months of use, no bleeding at all, and irregular bleeding) are significantly higher (between 49 percent and 172 percent) in experimental areas than in control areas of both provinces.

- The percentages of women with knowledge of 'warning signs' are higher (between 40 percent and 207 percent) in experimental areas than in control areas with exception to two items ('pus or bleeding at the insertion site' and episodes of migraine/bad health'). In West Java, the proportions of women with knowledge of 'warning signs' are higher by 8 percent to 32 percent in Cianjur compared to those in Majalenka.
- In West Sumatra over the three months period, there are more knowledgeable women in experimental areas as compared to those during the first week of implant use.
- With regard to West Java, the percentage increase of women with knowledge is larger in Cianjur than in Majalenka with some exceptions.
- The proportion of women who experienced problems after the use of implants is approximately 11 percent in experimental areas while the figure is 17 percent in control areas of West Sumatra.
- Those who reported that they experienced changes in their monthly cycle after the use of implants are 29 percent lower among women in experimental areas than in control areas of West Sumatra.
- Approximately 99 percent of the women in experimental areas of West Sumatra were satisfied with the information given to them while only 61 percent were satisfied in control areas. The proportions of women who were satisfied or would recommend to someone else are higher in experimental areas (13 percent and 6 percent) than in control areas.
- With regard to West Java, the proportion of women who were satisfied with the information given to them was 14 percent higher in Majalenka than in Cianjur. There were 11 percent more women who would recommend the implants to someone else in Majalenka than in Cianjur.
- The level of knowledge is positively related to women's satisfaction. In Majalenka, of those who have low knowledge 33 percent of the women were satisfied with the information given to them while the proportion of satisfied women reaches to 95 percent among those who have high knowledge.

- The proportion of satisfied women in Pesisir Selatan doubles when women have medium knowledge as compared to when women have low knowledge.

In conclusion, we find the following:

- women's knowledge could be increased with the provision of counselling and information services prior to the insertion of implants by providing proper materials to the providers, field workers, volunteers, and clients.
- ready access of information material to women enhanced knowledge on NORPLANT® implants over time.
- acceptors who are more knowledgeable of NORPLANT® implants are more satisfied with the implants than acceptors who are not as knowledgeable, in both the intervention and control groups.

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CHAPTER I

INTRODUCTION

A. Background and Importance of the Problem

Following clinical and field trials, NORPLANT® implant was formally introduced into the Indonesian Family Planning Program in January 1987. Since then, the number of NORPLANT® implants users has risen sharply, with the total number of acceptors exceeding 2.60 millions by March 1995 (BKKBN, 1995). Today, the Indonesian NORPLANT® implants program represents the largest in the world.

Recognizing that much remains unknown about operational problems in delivering NORPLANT® implants services on a large scale, in 1992 the National Family Planning Coordinating Board (BKKBN), in collaboration with The Population Council under the Asia and Near East Operations Research/Technical Assistance (ANER/TA) Project, carried out a study entitled "An Evaluation of NORPLANT® Use-Dynamics in the Indonesian Family Planning Program". This study was conducted in two provinces (West Sumatra and West Java) and aimed to provide information on: client characteristics, geographical setting and service delivery characteristics, the quality of services received by clients, overall use-effectiveness and continuation rates, and early onward or use beyond five years (BKKBN, 1993).

The Use-Dynamics Study revealed that more than one-third of the NORPLANT® implants acceptors expressed their unwillingness to recommend the use of implants to others. At the same time, 25 percent to 38 percent of the acceptors surveyed, in West Java and West Sumatra respectively, also expressed that they were not satisfied with the information given to them by health workers before insertions.

Almost one-half of the NORPLANT® implants acceptors who were not satisfied with the information given to them regarding NORPLANT® implants received implant insertions at the health centers (PUSKESMAS). Midwives provided insertion services to nearly three-fourths of these acceptors. In addition, a large majority of these acceptors had NORPLANT® implants inserted during "Safari Service" or "Mass Service" before 1992. The findings also supported the fact that a large majority of acceptors were not told about the various aspects of NORPLANT® implants nor did they know what it looked like before insertion.

According to the findings of the Use-Dynamics Study, approximately 30 percent of acceptors in West Sumatra and 17

percent in West Java did not know that NORPLANT® implants consisted of six capsules and approximately 40 percent in West Sumatra and 66 percent in West Java were not aware that the implants could be removed before five years. A large majority of acceptors, 70 percent in West Sumatra and 74 percent in West Java, did not know the common side-effects of NORPLANT® implants. Only 30 percent in West Sumatra and 26 percent in West Java knew at least one common side-effect.

The 1993 Use-Dynamics Study also found that the level of knowledge regarding NORPLANT® implants was low among most providers, field workers, and volunteers.

In summary, there are a substantial number of NORPLANT® implants acceptors, providers, field workers, and volunteers who are unaware of the basic facts about NORPLANT® implants. In addition, there is a lack of IE & C materials for providers, field workers, volunteers, and clients. Thus, there is a need to improve the knowledge of providers (doctors and midwives), field workers (PLKBs), and volunteers (PPKBDs) and thereby clients accepting NORPLANT® implants.

B. OBJECTIVES AND HYPOTHESES

Objectives:

The general objective of this OR intervention project is to increase acceptors' knowledge of NORPLANT® implants use, common side-effects, and warning signals through the intervention of various approaches to providing information to clients. Specific objectives are the following:

- To provide accurate information on NORPLANT® implants to women before they accept the implants. In order to achieve this objective, IEC materials will be produced and midwives, PLKBs, and PPKBDs will be trained.
- To assess the effectiveness of a system of approaches to providing information in order to increase acceptor's knowledge of the implants.

Hypotheses:

The hypotheses of this study are the following:

- The NORPLANT® implants acceptors who have received information from newly trained sources (intervention

group) will have advantage in knowledge and satisfaction with NORPLANT® implants over acceptors in the control area.

- Acceptors' knowledge increases over time due to ready access to information material.
- Acceptors who are more knowledgeable of NORPLANT® implants will be more satisfied with the implants than acceptors who are not as knowledgeable, in both the intervention and control groups.
- There will be no significant difference in knowledge or satisfaction between those who receive the implants in a clinic setting versus those who receive it during a "safari".¹

C. Variables Used in the Study

In this study, there are three different variables: control, independent, and dependent. The control variables consist of: completed age of acceptors at the time of acceptance, the highest level of education completed, type of work, number of living children, age of youngest child, desire for more children, timing of next wanted child, knowledge of modern family planning method(s), and ever use of contraceptives.

The independent variable is the set of interventions to be tested: 1) providing information to clients at the SDP before insertion on an individual basis or in group settings; 2) providing information through PLKBs and PPKBDs during home visits or personal contacts before coming to the SDP; and 3) distributing leaflets at both the community level and at the SDPs to potential clients. This independent or program variable has two categories: Experimental and Control. "Experimental" consists of all three components of intervention while "Control" does not have any special effort but continued to have the regular activities through BKKBN.

A goal of this study is to demonstrate an impact of a multiple intervention approach to providing information to NORPLANT® acceptors. Each one of the approaches is believed to improve the performance of the family planning program by providing the clients with accurate information about NORPLANT® implants. In order to evaluate this intervention approach, two sets of dependent variable

¹ This hypothesis could not be tested as there were not enough cases in safari setting in each area.

are used: 1) a series of variables regarding client knowledge or a composite variable; and 2) the clients' level of satisfaction with information given. The client's knowledge includes:

- NORPLANT® Implant has 6 capsules
- NORPLANT® Implant effective for 5 years
- NORPLANT® Implant removal after 5 years
- NORPLANT® implant can be removed before 5 years

- Who should use NORPLANT® Implants
- Who should not use NORPLANT® Implants
- Common potential side-effects of NORPLANT® Implants
- Warning signals and when to see provider
- When to return for routine follow-up
- Switching method possible if implant is not suitable

Variables to measure client satisfaction include:

- Since the insertion, did you have any problems? Have you experienced changes in your menstrual cycle? Have these been a problem for you?
- Are you satisfied with information given to you?
- Are you satisfied with the services you have received?
- How many times within the past months did you visit health workers?
- Will you recommend the method to others? If not, why not?

CHAPTER II

RESEARCH METHODOLOGY

A. Study Design

This study adopts a quasi-experimental Posttest-Only Control Group Design. The design of the study is as follows:

Experimental Group	X	O ₁	O ₂
Control Group		O ₃	O ₄

This is a quasi-experimental design with no baseline measurement observation and no random assignment criteria of a true experiment. Therefore, this design does not allow us to determine the magnitude of change (before and after measurement) within the experimental group. Since the current design includes a control group, this design allows measurement of the effect of a program intervention (X) on the experimental group by comparing that group (O₁) with the control group (O₃). In order to determine the combined effect of experience and leaflet, a second observation for the experimental groups and for the control groups is planned at or around three months after insertion. A comparison between (O₁) & (O₂) will provide an indication of the effect of experience and leaflets in experimental areas while a comparison between (O₃) and O₄ allows a measure of the effect of experience only.

B. Location and Sample Size

This intervention study was carried out in the two provinces-- West Sumatra and West Java-- where the NORPLANT® implants Use-Dynamics Study was conducted. Given the difficulty of using a random process to recruit acceptors for the experimental and control groups, the two groups might greatly differ in terms of acceptors' characteristics, such as age, parity, and education. In order to ensure the clients' characteristics do not vary greatly between the experimental group with the control group, Kabupatens for experimental and control groups were selected within the same province.

Selection of Kabupatens and Kecamatans was based on: availability of services, case load, and mode of information giving. The Provincial and District level BKKBN officials participated in selection of the areas. The control area was selected by matching the current method mix which corresponds to

the experimental areas. The data on method mix was available from the service statistics maintained at the BKKBN provincial office.

Description of sample sites

Two Kabupatens, one in each of the two provinces, Majalengka in West Java and Padang Pariaman in West Sumatra, were purposely selected through the help of the respective provincial BKKBN offices. The Kabupaten of Majalengka was chosen because of its relatively high prevalence of Norplant method use. Padang Pariaman Kabupaten was also selected for its tendency to recruit more Norplant acceptors.

Pesisir Selatan was chosen for the control area because it has approximately the same geographic location with that of Pariaman. Both kabupatens are coastal area, semi-urban, with the majority of people dependent for subsistence on agriculture, fishery, and handicrafts. However, the result of this study should only be generalized with considerable caution to policy-makers, especially in these two provinces. Background information on the study areas is provided in Appendix A.

Sample sizes

Approximately 800 NORPLANT® implants acceptors (400 from each experimental group and 400 from the control group) from each province were planned. Approximately, the first 400 acceptors from each group were included in the sample for this study during the period October 1, 1994 - February 28, 1995. However, this time table could not be followed in West Java as the researcher had difficulty in understanding the protocol. The actual time period followed was December 17, 1994 - January 31, 1995 during which period all subjects were recruited in West Java.

C. Methods of Data Collection

The NORPLANT® implants acceptors who were recruited for the study were interviewed at their homes two times -- during the first week and the third month of implant use. Data collection was done in both experimental and control areas.

Information was collected on knowledge of implants and client satisfaction using the structured questionnaire which was pre-tested on approximately 25 implants acceptors from Jakarta and from neighboring districts of West Java. Most questions were closed-

ended and asked without probing, particularly the section on knowledge. The questionnaire contained the following information including those listed under section C of chapter I.

Demographic: Age of client, number of living children, and age of youngest child

Socio-economic: Education attainment and Occupation of client

Fertility Preference and Family Planning: Want another child, timing of next child wanted, knowledge and previous use of family planning method

Data collection was done by 16 interviewers in West Sumatra. Interviewers in West Sumatra were high school graduates and local residents with or without previous experience. In West Java, there were 20 interviewers who were local information officers (JUPEN) and worked as part-time interviewers. All interviewers received a 2-day intensive training on data collection procedures, familiarization with instruments, and implants.

Another source of data was a qualitative approach "direct observation" in which experienced researchers observed interaction between provider and client to record quality of service being rendered, particularly counselling. An observer spent time at the clinic observing what happens during the interaction between provider and client, particularly the type of information exchange and information material used. Observation started from the time of counselling to the insertion of implants. No direct observation was done in the field while PLKBs and PPKBDs were educating their potential clients.

D. Analytical Approach to Intervention Impacts

The unit of analysis for this study is women who accepted NORPLANT® implants within experimental and control districts after interventions begun in experimental areas. Within each province, we compare client's knowledge, experiences, and satisfaction between the experimental group and the control group. A comparison is made on clients' knowledge of NORPLANT® implants characteristics at the first week of use and at the third month of use separately within experimental group and control group. Also the effects of interventions are shown by comparing clients' experiences and satisfaction at the third month of use between experimental group and control group.

As there are a number of sub-variables within each major knowledge variable, an attempt is also made to construct composite index to summarize the effects. For example, "basic characteristics" includes five different knowledge questions: whether client knew NORPLANT® implant consists of six capsules, effective for 5 years, should be removed at the end of five years, possible to remove any time before five years, and possible to switch method. A woman who knew of all five characteristics would receive a score of five points while a woman who knew of none would receive a score of zero point. Therefore, a score could lie between 0 to 5 points.

Assessment of the impact of intervention programs is an extremely complex problem. The impact what we are trying to measure could have effects of other numerous variables that are beyond the control of researchers, such as geographical, social, cultural, economic, political, and other family planning program activities which go on in the experimental areas and control areas. At the time of selection of sample sites, extreme care was taken to ensure that both experimental and control areas shared the same characteristics so that they were comparable. To assess intervention impacts on clients' knowledge, experiences, and satisfaction of NORPLANT® implants, we analyze the differences and changes in these factors between the program areas (experimental and control) while controlling for client's five characteristics, i.e. age, education, type of work, age of youngest child, and desire for more children. We chose these variables by eliminating one of the highly correlated variables (between age and number of living children, we chose age). The limit to five controlling variables or covariates is necessary as we are using SPSS package. Data are analyzed applying Multiple Classification Analysis (MCA) which allows us to estimate unadjusted and adjusted values.

CHAPTER III

DESCRIPTION OF INTERVENTIONS

This OR study is to demonstrate the effect of a multiple intervention approach to providing information to potential NORPLANT® implants acceptors. The information was provided prior to counselling (at the field level) and during counselling. Both of these activities were conducted before the insertion of implants. The multiple interventions include:

- 1) Providing information to clients through individual or group counselling by midwives on an individual basis at the service delivery points (SDP);
- 2) Providing information through PLKBs and PPKBDs during home visits or personal contacts before coming to the SDP; and
- 3) Distributing leaflets at both the community level and at the SDPs.

Flip-charts and leaflets containing information on all FP methods were used during individual and group counselling. Minimum messages are included in the text form on the flip side of the flip-chart. Potential acceptors were provided with leaflets containing essential information on NORPLANT® implants.

There were three basic activities: 1) a review of available materials on NORPLANT® implants, adoption of appropriate information, and production of materials for use at SDPs; 2) orientation training for midwives, PLKBs and PPKBDs who had already received training on other contraceptive methods; and 3) delivery of NORPLANT® implants information and services.

A. IEC Materials

Two sets of IEC materials, one for midwives (called flip-chart) and another (called leaflet) for field workers, volunteers, and clients, were produced and used for this study. Both materials are presented in simple writing and pictorial form. Flip-charts were produced for midwives who explain NORPLANT® implants to potential acceptors. The flip-chart contains information on how NORPLANT® implants work, effectiveness, insertion and removal information and mechanisms, contraindications, common potential side-effects, warning signals, possibility of removal before five years, and possibility of switching methods. It includes minimum messages required in text form on the flip side of each chart. The

leaflet also presents the same information but presented in a pictorial style so that it will be easy to understand by field workers, volunteers, and clients. This leaflet is distributed to all clients.

Both materials were developed by Yayasan Kusuma Buana (YKB) after reviewing and pilot testing in West Java and West Sumatra. Before testing at the field level, a one-day workshop with participants from Yayasan Kusuma Buana (YKB), Raden Saleh Clinic, University Research Corporation (URC), BKKBN staff (PUBIO, Contraceptive Bureau, IEC Bureau, and Provincial BKKBN), and Indonesian Midwives Association (IBI) was held in Jakarta to discuss and collect inputs from these experts. Suggested revisions, content and style were incorporated in the final draft of the materials. The final drafts were pre-tested in West Java and West Sumatra to get feed back from users (potential users, midwives, field workers, and volunteers). A total of 150 flip-charts and 6000 leaflets were produced and distributed in experimental areas.

B. Training

A two-day orientation training session was organized for midwives on: providing information on NORPLANT® implants through both individual and group counselling before acceptance and NORPLANT® implants insertion. This training focussed on procedures for using flip-charts to provide potential acceptors with information on NORPLANT® implants. Flip-charts and pictorial leaflets developed for this project were used in the training session. This training also provided an opportunity for midwives to review the basic facts on NORPLANT® implants. Training was held in the respective provinces and organized by the BKKBN provincial offices in cooperation with the provincial Health Authority. At the end of the training, midwives received flip-charts and leaflets for use at their health institutions.

A one-day orientation training session was provided to those PLKBs and PPKBDs who are working in the experimental areas to providing information at the community level through personal contacts and through the distribution of leaflets to potential NORPLANT® implants clients. Orientation meetings were held at the sub-district level and organized by the BKKBN and the Health Authority. All PLKBs and PPKBDs received multiple copies of leaflets for distribution to potential acceptors.

Two trained trainers in each province provided training to midwives, PLKBs, and PPKBDs. Details of the process of training are as follows:

At the outset of this study we conducted a preliminary meeting consisting of both investigators from West Sumatra and West Java, two officers from BKKBN of the two provinces, three persons considered to be knowledgeable about provision of NORPLANT® implant methods, one from Bureau of Information and Motivation, one from Bureau of Logistics and one from Center for National Manpower Training were also attended in this meeting. The meeting aimed to discuss the study design, schedule, questionnaire, training etc.

In accordance with the consensus reached, two training guidelines for using the leaflet and flip-chart were also developed. The guideline was developed in English and then translated into Bahasa Indonesia by the West Sumatra team.

In a special meeting in Bandung on 12-13 September 1994, both local investigators, were handed a package of teaching aids along with the prior developed guidelines. Both local researchers were briefed on the objectives of the training, how to use the guidelines and what to expect from the trained midwives, field workers and volunteers.

The training for the midwives consisted of seven sessions: the first session was introduction to the training course and purpose of the research. Session two through four concentrated on knowledge about NORPLANT® Implants, choice of methods and methods switching, and pre-insertion consideration. The fifth session focused on problem management and reasons for removal. Session sixth and seven dealt with follow-up, record keeping, and data collection and with counselling and information given to clients.

The training for the field workers and/or the PPKBDs consisted of five sessions. Session one through five dealt with the introduction to training course and purpose, introduction to NORPLANT® implants, choice of methods and method switching, follow-up and data collection, and counselling and information given to clients.

A two-day training session for 29 midwives was conducted in the experimental area, Majalengka, followed by a one-day training for 60 PLKBs (field workers), 20 PLKBs in four batches. Before and after the training, the trainees were requested to fill in questionnaires to assess participants' knowledge. Results of pre and post-test of training are presented in Appendix B.

The study focused primarily on assessing the level of knowledge about Norplant implant methods and the willingness of the midwives and PLKBs (or PPKBDs) to communicate with or counsel their knowledge to implant acceptors in the two Kabupatens.

The same training session for all staff involved in experimental areas was also conducted in Padang Pariaman, as the experimental area for West Sumatra province during the month of October 1994.

A two-day training session for interviewers was also conducted in Padang for West Sumatra. Interviewers originated from both experimental (Padang Pariaman) and control area (Pesisir Selatan). At the beginning of training, interviewers were briefed on the objectives of the data collection and the use of the instruments. The training included considerable role-playing in the class room and actual field practice.

As for West Java, there was a misunderstanding in field activities, in which interviews were conducted with both new and old NORPLANT® implant acceptors instead of only those newly recruited during the intervention period. To rectify this situation, several meetings were conducted to determine steps to be taken, and interviews needed to be started all over again. There was a consensus that interviewers be recruited from among local information officers (Jupen) at Kecamatan level (Jupen is an Indonesia acronym for juru penerangan, this category of worker). Two separate two-day training session were conducted, one in Majalengka (10 JUPEN) and the other in Cianjur (9 JUPEN).

C. Counselling and Information Services

The actual recruitment of acceptors began on 17 December 1994 in West Java and ended on 31 January 1995. West Sumatra started on 1 October 1994 and ended on 28 February 1995.

The PLKBs and the PPKBDs provide information through personal contacts and distribute leaflets to potential clients before they arrive at the clinic for the implants insertion. Before insertion of the implants, trained midwives provide information on NORPLANT® implants to clients through either group or individual counselling² using flip-chart.

In order to confirm whether trained midwives followed the protocol to counsel clients before insertion of the implants, researchers observed some interaction while midwives were interacting with the implant clients. As it is an important intervention to improve knowledge of the clients, the findings of the study largely depended on what information the midwives conveyed during counselling before the insertion of implants.

² No group counselling happened during the study period in either provinces.

A total of 59 interactions were observed while clients were visiting the clinics for the implant insertions. In West Java, 20 interactions were observed each in the intervention district (Majalengka) and in the control district (Cianjur). Eleven were observed in Padang Pariaman (experimental district) and eight in Pesisir Selatan (control district) of West Sumatra. Interactions were observed by trained and experienced observers who were employed during the 1994 Situation Analysis Study (SAS). Observers used the SAS guidelines which were modified to cover only the counselling part.

In West Java, the duration of total interactions, including insertion ranged from 15 minutes to 22 minutes with no difference between experimental areas and control areas (median 15 minutes). The difference (medians for experimental areas 35 minutes and for control areas median 20 minutes) was highly significant in West Sumatra.

During interaction between midwives and clients, no material was used in control areas of both provinces. In experimental areas, observers had found that midwives used flip-chart only in 10 out of 20 interactions in West Java and in 6 out of 11 interactions in West Sumatra although the protocol calls for flip-charts to be used in all interactions before the insertion of implants. In experimental areas of West Sumatra, the brochure was used during counselling in 9 out of 11 interactions, samples of contraceptives in 8 out of 11 interactions, and poster in 10 out of 11 interactions.

Observers made an attempt to note whether midwives discussed clients' reproductive goals and family planning experiences. Midwives from experimental areas discussed with clients whether clients wanted to space or limit births in 7 out of 20 interactions in West Java and in 10 out of 11 interactions in West Sumatra. This topic was discussed less frequently in control areas of both provinces. In experimental areas, "timing of next child wanted" was discussed in 10 out of 20 interactions in West Java and in 7 out of 11 interactions in West Sumatra. Again it was a topic which was discussed less frequently in control areas than in experimental areas. In the majority of interactions in experimental areas, "total number of children wanted" was discussed more frequently than in control areas.

In the areas of family planning knowledge and experiences, midwives did not make an attempt to explore the client's knowledge of various contraceptive methods both in experimental and control areas of West Java. In West Sumatra, only 5 out of 11 interactions in experimental areas and 1 out of 8 interactions in control areas assessed the knowledge. Whether client had preference for a particular method was asked in almost all interactions in West Java

(both in experimental and control areas). In experimental areas of West Sumatra, this was discussed in 10 out of 11 interactions while the frequency was much lower in control areas (2 out of 8 interactions). In the majority of clients from both areas in both provinces, midwives discussed whether they had previous contraceptive experiences. Whether a client had concern about using the family planning method was not brought up for discussions by midwives.

Method-specific information was emphasized during the midwives' orientation training, so that information could be provided to clients before the insertion of implants. In general, observers noted that methods, such as condom, male sterilization and female sterilization were not mentioned to clients in experimental and control areas of both provinces. Implants, Injectable, Oral pills, and IUD, in descending order, were mentioned as contraceptive methods in West Java (more frequently in experimental areas than in control areas). When it comes to "how the method works", "advantages/disadvantages", "side-effects", midwives rarely informed their clients except information regarding the implants. Observers noticed that midwives from experimental areas of West Java told their clients about "how the implants method works" in 13 out of 20 cases, "advantages/disadvantages of implants" in 20 out of 20 cases, "side-effects of implants" in 17 out of 20 cases. These figures are slightly lower in the case of control areas, perhaps not enough to make a significant difference in the knowledge of clients.

With regard to West Sumatra, all clients were informed of the implants and IUD, and more than one-half were informed of injectable and oral contraceptives, including "how the method works", "advantages/disadvantages", "side-effects" in experimental areas. For example, before the insertion of implants, 11 out of 11 clients were given complete information on implants by midwives in experimental areas while only a small proportion of clients received such complete information in control areas. Observers found that midwives both in experimental and control areas of West Java promoted NORPLANT® implants during the counselling session while it was not so in West Sumatra. Most of the clients also seemed to have made their decision to use implants before coming to providers in both areas.

CHAPTER IV

FINDINGS

A. Sample Characteristics

This section of the chapter presents characteristics of women³ who accepted NORPLANT® implants in experimental and control areas after interventions started in the experimental areas. A total of 262 women in the experimental areas and 364 women in the control areas of West Sumatra participated in this project. In West Java, there are 541 women and 409 women involved in experimental and control areas respectively.

Table 1 presents the percentage distribution of women according to woman's age, number of living children, age of youngest child, educational attainment, type of work, desire for more children at time of insertion, and whether implant was inserted during 'safari'⁴.

The data indicates that the majority of the women fall within the age-group 20-34 years in both experimental (70 percent) and control (73 percent) areas of West Sumatra. On average, women from experimental areas (29.4 years) are approximately two years older than their counterparts from control areas (27.1 years). The data also shows that the majority of the women from West Java fall within in the age-group 25-34 years in both experimental (77 percent) and control areas (71 percent). Unlike in West Sumatra, the average age of women from experimental areas is the same as those from control areas (27 years).

In West Sumatra, women who have three or more living children at time of insertion of implants constitute approximately 57 percent in experimental areas while it is only 46 percent in control areas indicating that average number of living children is

³ From now on, 'women' refers to NORPLANT® implant acceptors recruited during the intervention period in both experimental and control areas.

⁴ At the policy level mass programs are no longer referred to as 'Safaris'(Fisher et al. 1995), but we are finding at district level, they still are referred to as 'Safari'. A distinction between previous 'Safari' and current 'Safari' is that earlier ones were conducted at non-clinic and clinic setting while the latter ones are only at health institutions.

slightly higher in experimental areas (3.4) than in control areas (2.8). In West Java, the percentage of women who have three or more living children in experimental areas is found to be little different from control areas.

Table 1: Percent Distribution of Implant Acceptors According to Selected Characteristics by Type of Program Areas and Province

Characteristics	West Sumatra		West Java	
	Experimental (262)	Control (364)	Experimental (541)	C o n t r o l (409)
<u>Age of acceptors</u>				
15-19	2.7	9.6	5.4	10.3
20-24	26.0	27.7	31.7	33.0
25-29	24.0	24.7	26.7	22.2
30-34	20.2	20.3	18.2	16.1
35-39	18.3	13.7	11.5	12.7
40 +	8.8	3.8	6.5	5.6
Total	100.0	100.0	100.0	100.0
Mean in years	29.4	27.1	27.2	26.7
<u>Number of living children**</u>				
< 2	20.2	25.3	37.3	30.6
2	22.9	28.6	28.3	31.3
3	13.4	16.8	18.1	17.8
4	16.4	15.9	9.8	9.3
5+	27.1	13.5	6.5	11.0
Total	100.0	100.0	100.0	100.0
Mean	3.4	2.8	2.2	2.4
<u>Age of youngest child*</u>				
0-5 months	38.9	40.7	25.1	33.0
6-11 months	19.5	25.8	13.3	19.1
12-17 months	12.2	12.4	9.6	9.3
18-23 months	29.3	21.2	51.9	38.6
Total	100.0	100.0	100.0	100.0
Mean in months	19.8	15.0	34.7	21.7
<u>Highest education attained*</u>				
No schooling	9.2	6.6	4.1	3.7
Not finish primary	18.7	19.2	13.3	31.5
Primary school	35.1	53.8	76.5	59.9
Junior high	21.8	13.5	4.4	3.2
Senior high+	15.3	6.9	1.7	1.7
Total	100.0	100.0	100.0	100.0 (Cont'd)

Characteristics	West Sumatra		West Java	
	Experimental (262)	Control (364)	Experimental (541)	Control (409)
<u>Type of work</u>				
No work/household	86.3	52.5	70.2	77.4
Agriculture/fishery	6.5	41.2	23.1	19.4
Others	7.2	6.3	6.7	3.2
Total	100.0	100.0	100.0	100.0
<u>Desire for more children*</u>				
Yes	21.4	41.5	45.6	37.4
No	45.4	37.9	50.0	58.2
Don't know	33.2	20.6	4.4	4.4
Total	100.0	100.0	100.0	100.0
<u>Whether implant inserted in 'Safari'</u>				
Yes	17.2	31.0	0.0	3.9
No	82.8	69.0	100.0	96.1
Total	100.0	100.0	100.0	100.0

Notes: * indicates chi-square value significant at 1% level.

** indicates chi-square value significant at 5% level.

Total percentage may not add up to 100% because of rounding.

Number inside parenthesis refers to number of cases

The third panel of Table 1 indicates that a slightly higher proportion of women in experimental areas have accepted implants when their youngest child was less than 12 months compared to those women in control areas of West Sumatra. On average, age of youngest child was approximately 20 months when their mothers accepted implants in experimental areas while their counterparts were 15 months in control areas. In West Java, ages of youngest child were quite different from West Sumatra and also between experimental and control areas. Women from control areas adopted implants when their youngest child was quite young (22 months) compared to those from experimental areas (35 months).

A slightly higher percentage of women from experimental areas have completed more than primary education (37 percent) compared to those from control areas (20 percent) in West Sumatra. Similarly, more women from experimental areas than from control areas have completed primary or higher education in West Java. With regard to type of work women were involved at the time of insertion, a very

high proportion of women in control areas were engaged in fishery while a large majority of the women in experimental areas did not have any work outside the house in West Sumatra. On the other hand, the majority of women from West Java in both experimental and control areas were not engaged in any work aside from household activities.

The last panel of Table 1 indicates that about 21 percent of the women in experimental areas of West Sumatra adopted implants for spacing purpose, 45 percent for terminating childbearing, and 33 percent were not sure whether they wanted more children in future. In control areas, there were more women using implant for spacing and less for terminating. In the case of West Java, approximately one-half of the women wanted no more children in both experimental and control areas at time of insertion. Slightly more women had implants inserted during 'Safari' in control areas than in experimental areas of West Sumatra. The large majority of the women from West Java received implant in 'non-safari' settings in both experimental and control areas.

B. Women's Knowledge of Implant characteristics

One of the intervention programs of this research study is to test the effect of information provided by family planning workers, including midwives who received a special two-day orientation training to enhance their knowledge on implants and improve skill to provide counselling before inserting implants. In addition, PLKBs and PPKBDs were also given one-day orientation training to enhance their knowledge on implants. Midwives received flip-charts to counsel their clients and PLKBs and PPKBDs received multiple copies of leaflets to inform potential clients about implants and distribute a leaflet to each potential client. All these extra activities should have taken place in experimental areas but not in control areas.

Table 1A: Percent of Implant Acceptors According to Sources of Information by Province and Type of Program Areas

Source of Information	West Sumatra		West Java	
	Experimental (P.Pariaman)	Control (P.Selatan)	Experimental (Majalenka)	Control (Cianjur)
None	0.0	6.0	1.3	1.5
PPKBD	37.0	43.1	34.	28.6
PLKB	40.0	29.5	70.	70.0
Midwives	65.0	46.4	25.	50.0
Others	2.0	2.7	6.8	42.6
Number of cases	262	364	541	409

Note: Column percentages will not add up to 100 because multiple responses are possible except a category 'None'.

Table 1A indicates sources of information to women or indirectly, to what extent additional activities on counselling and giving information in experimental areas and to what extent similar activities but no extra effort from the research program had happened during the research period. This information was also collected by asking all women who were involved in the research study.

The data from West Java suggests that only 25 percent of the women who received implants in experimental areas were provided information on implant by midwives. About 70 percent of the women were provided information⁵ by PLKBs, 35 percent by PPKBDs, and 7 percent by friends, relatives, neighbors, other implant users. On the other hand in control areas, 50 percent of the women received information through midwives, 70 percent received through PLKBs, 29 percent through PPKBDs, and 43 percent through friends, relatives, neighbors, other implant users. According to the women in experimental areas, the majority were not counselled by midwives, therefore, midwives⁶ did not adhere to the research protocol. On the contrary, more women from control areas received information from midwives and from their friends, relatives, neighbors, other implant users. To reiterate, the time spent by a midwife with each acceptor was no different between experimental areas and control areas (median 15 minutes) according to the results of the observation study (see above). Since counselling and giving information activities were not carried out fully in Majalenka by trained midwives, we shall no longer refer to 'Experimental' and 'Control' areas instead **we shall refer to district for West Java** to avoid confusion.

The data from West Sumatra suggests that many more (though not all) women (65 percent) in experimental areas received counselling from midwives while only 46 percent received information from midwives in control areas. Considerably more women also received

⁵ We did not ask women what kind of information was provided to them, therefore, we have not way of knowing what information was conveyed to women by these workers, volunteers, and peer groups.

⁶ During a supervision mission in West Java, the researcher noticed that a midwife who received a 2-day orientation training and is working in a participating clinic for the study was not providing counselling and information to women. When asked why she did not do it, she responded that she assumed women already knew all about implants before coming to her. This is one example of not adhering to the research protocol. Also we found from the observation study, few midwives provided counselling in experimental areas and those who did counsel but did not use the flip-chart or leaflet.

information from PLKBs in experimental areas (40 percent) than in control areas (30 percent). On average, midwives spent more time to counsel and inform women about NORPLANT® implants in experimental areas (median 35 minutes) than in control areas (median 20 minutes).

During the first week of Implants Use

The adjusted proportions of women with knowledge of implant characteristics during the first week of use in each program area by province are shown in Table 2. Under basic characteristics group, woman's knowledge in experimental areas is almost universal both in West Sumatra and West Java. Although the data shows that the proportion of women in control areas with knowledge is quite high, the proportions in experimental areas are higher than in control areas in selected variables in both provinces. In some variables, we find there is no difference in the proportions between experimental and control because the percentages already reach nearly 100.

There are six variables under 'Implants should be used by those who' group. The second panel of Table 2 indicates that the proportions of women in experimental areas of West Sumatra with knowledge of who should use implants are higher only in two out of six items (75 percent higher in 'those who seek continuous contraception' and 7 percent higher in those who want longterm birth spacing'). Three items show no difference between two program

Table 2: Adjusted Percent of Implant Acceptors Who Knew of Implant Characteristics by Type of Program Areas and Province.

Characteristics (A)	Experimental (262) (B)	West Sumatra		Majalengka (537) (E)	West Java	
		Control (364) (C)	Percent difference $((B-C)*100/C)=D$		Cianjur (407) (F)	Percent difference $((E-F)*100/F)=G$
<u>Basic Characteristics</u>						
Six capsules implant	86.2	82.2	+ 4.9	91.3	80.3	+ 13.7*
Five years effectiveness	99.0	99.0	0.0	99.2	99.2	0.0
Should be removed after five years of use	99.2	99.2	0.0	98.9	98.9	0.0
Can be removed anytime	94.2	68.2	+ 38.1*	86.2	63.2	+ 36.4*
Knew the method switch	94.4	87.4	+ 8.0*	85.3	89.3	- 4.5
<u>Implants should be used by those who</u>						
seek continuous contraception	32.6	18.6	+ 75.3*	55.1	79.1	- 30.3*
want longterm birth spacing	92.8	86.8	+ 6.9**	87.8	97.8	- 10.2*
prefer over other methods	42.0	42.0	0.0	59.8	80.8	- 26.0*
desire a convenient method	40.0	40.0	0.0	69.8	83.8	- 16.7*
do not like sterilization	6.1	6.1	0.0	38.7	64.7	- 40.2*
cannot use contraception with estrogen	3.2	5.2	- 38.5	22.0	19.0	- 15.8*

Characteristics (A)	West Sumatra			Majalengka (537) (E)	West Java	
	Experimental (262) (B)	Control (364) (C)	Percent difference $((B-C)*100/C)=D$		Cianjur (407) (F)	Percent difference $((E-F)*100/F)=G$
<u>Implants should not be used by those who</u>						
are pregnant	68.6	77.6	- 11.6**	95.9	98.9	- 3.0**
has acute liver disease	37.0	8.0	+362.5*	50.2	92.2	- 45.6*
has/had jaundice	38.2	7.2	+430.6*	55.0	91.0	- 39.6*
had blood clots in legs/lungs/eye	59.7	11.7	+410.3*	55.0	81.0	- 32.1*
had history of heart attack/chest pain/stroke	16.3	21.3	- 23.5	55.5	78.5	- 29.3*
<u>Acceptors who knew of</u>						
prolonged bleeding during the first months of use	55.3	20.3	+172.4*	21.2	14.2	+ 49.3*
no bleeding at all	18.9	9.9	+ 90.9*	39.7	19.7	+101.5*
irregular bleeding	56.2	32.2	+ 74.5*	39.4	41.4	- 4.8
<u>Conditions under which</u>						
<u>acceptors must see provider</u>						
severe lower abdominal pain	17.1	12.1	+ 40.5*	51.0	72.0	- 29.2*
heavy vaginal bleeding	32.6	10.6	+207.5*	60.5	86.5	- 30.1*
arm pain	71.6	35.6	+101.1*	71.1	87.1	- 18.4*
pus or bleeding at the insertion site	35.0	47.0	- 25.5*	61.8	91.8	- 32.7*
expulsion of an implant	44.4	24.4	+ 82.0*	65.1	88.1	- 26.1*
episodes of migraine/bad health	20.6	20.6	0.0	37.7	55.7	- 32.3*
delayed menstrual cycles	22.2	10.2	+117.6*	48.1	52.1	- 7.7
<u>Composite Index</u>						
Basic characteristics	4.7	4.4	+ 6.8*	4.6	4.3	+ 7.0*
Implants should be used	2.2	2.0	+ 10.0	3.3	4.2	- 21.4*
Implants should not be used	2.2	1.2	+ 83.3*	3.1	4.4	- 29.5*
Acceptors knew of side-effects	1.3	0.6	+116.7*	1.0	0.7	+ 42.9*
Conditions to see provider	2.4	1.6	+ 50.0*	4.0	5.3	- 24.5*
Total knowledge	12.9	9.8	+ 31.6*	16.0	19.0	- 15.8*

Notes:

- Adjusted percentages are derived applying Analysis of Variance with Multiple Classification Analysis (MCA) after adjusting for the effects of background characteristics of acceptors (such as, Age, education, type of work, age of youngest child, and desire for more children) and all possible interactions.
- * indicates effect of independent variable significant at 1% level.
** indicates effect of independent variable significant at 5% level.
- Number inside parenthesis refers to number of cases.
- Positive sign indicates increase in experimental area over control area or Majalengka over Cianjur.

areas while 'those who cannot use contraception with estrogen' shows higher in control areas (38 percent). However, the difference is found to be not significant because it is known to only small proportion of women in both program areas. On the contrary in West Java, the proportions of women in Cianjur with knowledge of who should use implants are significantly higher than in Majalenka. It is to be noted that information was not provided in Majalenka while it was in Cianjur (Table 1A). This suggests that knowledge among women increased if they were provided information.

The proportions of women in experimental areas of West Sumatra with knowledge of who should not use implants are significantly higher compared to those women in control areas with the exception of two items '...those who are pregnant' and '...those who had history of heart attack...'. The differences between experimental and control areas are as high as 300 percent to 400 percent.

Three common potential side-effects of implants-- prolonged bleeding during the first months of use, no bleeding at all, and irregular bleeding-- are all facts which are important for clients to know. This information was emphasized during the training of midwives, field workers, and volunteers and also these messages are clearly spelled out in the information materials. Most often potential side-effects of implants are not told to clients to avoid frightening clients who would then not accept the method. The fourth panel of Table 2 indicates the genuine improvements in women's knowledge of potential side-effects of implants in experimental areas of both provinces. The proportions of women in experimental areas with knowledge of prolonged bleeding as a side-effect of implants are significantly higher (172 percent in West Sumatra and 49 percent in West Java) than in control areas. The proportions of women in experimental areas with knowledge of amenorrhea as a side-effect are double the proportions in control areas of both provinces. There are 75 percent more women with knowledge of irregular bleeding as a side-effect of implant use in experimental areas of West Sumatra while no difference is noticed between the two program areas of West Java.

It is important that women are aware of 'warning signs' to seek help for complications due to the use of implants. In the study, women were asked to report under what conditions they should see their provider. The last panel of Table 2 indicates that the proportion of women with knowledge of one of those warning signs varies from 17 percent to 72 percent in experimental areas while it varies from 10 percent to 47 percent in control areas of West Sumatra. The percentages of women with knowledge in all items are higher (between 40 percent and 207 percent) in experimental areas than in control areas with exception to two items ('pus or bleeding at the insertion site' and episodes of migraine/bad health'). Since the women in Cianjur of West Java received more information than the women in Majalenka, it is natural to have higher proportion of the women in Cianjur with knowledge. The proportions of women with knowledge of 'warning signs' are higher by 8 percent to 32 percent in Cianjur compared to those in Majalenka.

Table 2 also presents a composite knowledge score of women at the first week of implant use by program areas and province. As expected, knowledge scores are higher in experimental areas of West Sumatra. The score for 'side-effects' is more than double in experimental areas than that in control areas of West Sumatra. On the whole, total knowledge score is 32 percent higher among women in experimental areas of West Sumatra. With regard to West Java, scores for basic characteristics and side-effects are higher in Majalenka and scores for the rest are higher in Cianjur. On the whole, total knowledge score is 16 percent higher among women in Cianjur.

During third month of Implants Use

As stated earlier, all women involved in the research study were followed up at the third month of implant use asking them the same questions administered during the first week of implant use. Table 3 presents the proportions of women by program types of both provinces with knowledge of implants characteristics at the third month of implant use. Over the three months period, differences between experimental and control areas of West Sumatra are more pronounced in almost all knowledge variables as compared to during the first week of implant use.

The proportions of women in experimental areas of West Sumatra with knowledge of implant characteristics increase considerably from the first week of implant use to the third month of implant use (Table 4). The figures also indicate that the proportions of women with knowledge in control areas have increased over the three month period, but they are much smaller as compared to experimental areas for the same period. The huge increases in the proportion of women with knowledge in experimental areas could be attributed to two main reasons: experiences gained during the period of implant use and ready access to information. Since women from both program types have had similar experiences with the use of implants during that period, the increased proportions of women with knowledge could be only due to ready access to information material (leaflets) which were distributed to each implant acceptor in experimental areas.

Table 3: Adjusted Percent of Implant Acceptors Who Knew of Implant Characteristics by Type of Program Areas and Province During Third Months of Implant Use

Characteristics (A)	West Sumatra			Majalengka (537) (E)	West Java		
	Experimental (262) (B)	Control (364) (C)	Percent difference $((B-C)*100/C)=D$		Cianjur (407) (F)	Percent difference $((E-F)*100/F)=G$	
<u>Basic Characteristics</u>							
Six capsules implant	93.6	86.6	+ 8.1*	83.6	93.6	-10.7*	
Five years effectiveness	99.0	99.0	0.0	97.0	100.0	- 3.0*	
Should be removed after five years of use	99.0	99.0	0.0	97.0	99.0	- 2.0*	
Can be removed anytime	97.5	68.5	+ 42.3*	89.4	59.4	-50.5*	
Knew the method switch	95.6	87.6	+ 9.1*	93.8	95.8	- 2.1	
<u>Implants should be used by those who</u>							
seek continuous contraception	45.4	18.4	+146.7*	62.8	88.8	- 29.3*	
want longterm birth spacing prefer over other methods	97.3	89.3	+ 9.0*	87.5	99.5	- 12.1*	
desire a convenient method	62.1	49.1	+ 26.5*	65.9	86.9	- 24.2*	
do not like sterilization	45.9	33.9	+ 35.4*	67.9	88.9	- 23.6*	
cannot use contraception with estrogen	16.4	4.4	+272.7*	37.7	74.7	- 49.5*	
	5.4	6.5	- 16.9	29.3	36.3	- 19.3**	
<u>Implants should not be used by those who</u>							
are pregnant	69.6	76.6	- 9.1	91.6	98.6	- 7.1*	
has acute liver disease	45.6	7.6	+500.0*	68.6	98.6	- 30.4*	
has/had jaundice	45.6	7.6	+500.0*	71.5	96.5	- 25.9*	
had blood clots in legs/lungs/eye	61.7	11.7	+427.4*	67.9	90.9	- 25.3*	
had history of heart attack/chest pain/stroke	32.1	23.1	+ 39.0*	65.2	90.2	- 27.7*	
<u>Acceptors who knew of</u>							
prolonged bleeding during the first months of use	61.9	23.9	+159.0*	20.3	15.3	- 32.7**	
no bleeding at all	21.7	20.7	+ 4.8	36.6	39.6	- 7.6	
irregular bleeding	65.4	38.4	+ 70.3*	43.7	59.7	- 26.8*	

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Characteristics (A)	West Sumatra			Majalengka (E)	West Java	
	Experimental (262) (B)	Control (364) (C)	Percent difference $((B-C)*100/C)=D$		Cianjur (407) (F)	Percent difference $((E-F)*100/F)=G$
<u>Conditions under which acceptors must see provider</u>						
severe lower abdominal pain	25.4	13.4	+ 89.6*	65.2	86.2	- 24.4*
heavy vaginal bleeding	38.2	11.2	+241.1*	70.8	90.8	- 22.0*
arm pain	67.1	38.1	+ 76.1*	75.4	88.4	- 14.7*
pus or bleeding at the insertion site	46.2	48.2	- 4.1	71.5	96.5	- 25.9*
expulsion of an implant	46.4	25.4	+ 82.7*	70.4	93.4	- 24.6*
episodes of migraine/bad health	27.0	20.0	- 35.0	35.7	70.7	- 49.5*
delayed menstrual cycles	28.6	10.6	+169.8*	38.9	62.9	- 38.2*
<u>Composite Index</u>						
Basic characteristics	4.9	4.4	+ 10.2*	4.6	4.5	+ 2.2**
Implants should be used	2.8	2.1	+ 33.3	3.5	4.8	- 27.1*
Implants should not be used	2.6	1.3	+100.0*	3.7	4.7	- 21.3*
Acceptors knew of side-effects	1.5	0.8	+ 87.5	1.0	1.1	- 9.1**
Conditions to see provider	2.8	1.7	+ 64.7*	4.3	5.9	- 27.1*
Total knowledge	14.5	10.2	+ 42.2	17.0	21.0	- 19.0*

Note: Same as Table 2.

Table 4: Percent of Implant Acceptors Who Knew of Implant Characteristics by Time Since Insertion and Type of Program Areas: West Sumatra

Characteristics (A)	Experimental*			Control**		
	One week (B)	3-month (C)	Percent difference ((C-B)*100/B)=D	One week (E)	3-month (F)	Percent difference ((F-E)*100/E)=G
Six capsules implant	87.2	93.6	+ 7.3	82.2	86.6	+ 5.4
Five years effectiveness	99.0	99.0	0.0	99.0	99.0	0.0
Should be removed after five years of use	99.2	98.0	+ 0.8	99.2	99.0	+ 0.2
Can be removed anytime	95.2	98.5	+ 3.5	67.2	67.5	+ 0.4
Knew the method switch	95.4	95.6	+ 0.2	87.4	86.6	- 0.9
<u>Implants should be used by those who</u>						
seek continuous contraception	33.6	45.4	+ 35.1	18.6	17.4	- 6.5
want longterm birth spacing	92.8	96.3	+ 3.8	87.8	89.3	+ 1.7
prefer over other methods	40.0	59.1	+ 47.8	43.0	50.1	+ 16.5
desire a convenient method	38.6	49.9	+ 29.3	41.6	42.9	- 3.1
do not like sterilization	6.1	15.4	+152.5	6.1	5.4	- 11.5
cannot use contraception with estrogen	3.2	5.4	+ 68.8	5.2	6.4	+ 23.1
<u>Implants should not be used by those who</u>						
are pregnant	66.6	67.6	+ 1.5	78.6	77.6	- 1.3
has acute liver disease	37.0	45.6	+ 23.2	7.0	7.6	+ 8.6
has/had jaundice	39.2	46.6	+ 18.9	6.2	7.6	+ 22.6
had blood clots in legs/lungs/eye	59.7	61.7	+ 3.4	11.7	11.7	0.0
had history of heart attack/chest pain/stroke	15.3	32.1	+109.8	22.3	23.1	+ 3.6
<u>Acceptors who knew of</u>						
prolonged bleeding during the first months of use	54.3	61.9	+ 14.0	21.3	23.9	+ 12.2
no bleeding at all	19.9	21.7	+ 9.0	9.9	19.7	+ 99.0
irregular bleeding	56.2	64.4	+ 14.6	32.2	38.4	+ 19.3
<u>Conditions under which acceptors must see provider</u>						
severe lower abdominal pain	18.1	26.4	+45.9	11.1	13.4	+ 20.7
heavy vaginal bleeding	31.6	37.2	+17.7	10.6	11.2	+ 5.7
arm pain	70.6	66.1	- 6.4	36.6	38.1	+ 4.1
pus or bleeding at the insertion site	32.0	44.2	+38.1	49.0	49.2	+ 0.4
expulsion of an implant	45.4	47.4	+ 4.4	23.4	25.4	+ 8.5
episodes of migraine/bad health	21.6	28.0	+29.6	19.6	20.0	+ 2.0
delayed menstrual cycles	22.2	28.6	+28.8	10.2	11.6	+ 5.6

* n = 262

** n = 364

Table 5: Percent of Implant Acceptors Who Knew of Implant Characteristics by Time Since Insertion and Type or Program Areas: West Java

Characteristics (A)	Majalengka*			Cianjur**		
	One week (B)	3-month (C)	Percent difference ((C-B)*100/B)=D	One week (364) (E)	3-month (364) (F)	Percent difference ((F-E)*100/E)=G
Six capsules implant	91.3	84.6	- 7.3	79.3	92.6	+ 16.8
Five years effectiveness	99.2	97.0	- 2.2	99.2	100.0	+ 0.8
Should be removed after five years of use	98.9	97.0	- 1.9	98.9	100.0	+ 1.1
Can be removed anytime	87.2	89.4	+ 2.5	62.2	59.4	- 4.5
Knew the method switch	86.3	93.8	+ 8.7	88.3	95.8	+ 8.5
<u>Implants should be used by those who</u>						
seek continuous contraception	56.1	62.8	+11.9	77.1	87.8	+ 13.9
want longterm birth spacing prefer over other methods	87.8	87.5	- 0.3	96.8	99.5	+ 2.8
desire a convenient method	59.8	65.9	+10.2	80.8	86.9	+ 7.5
do not like sterilization	70.8	68.9	- 2.7	81.8	87.7	+ 7.2
cannot use contraception with estrogen	39.7	38.7	- 2.5	62.7	73.7	+ 17.5
	23.0	30.3	+31.7	18.0	34.3	+ 90.6
<u>Implants should not be used by those who</u>						
are pregnant	95.9	90.6	- 5.5	97.9	99.6	+ 1.7
has acute liver disease	52.2	69.6	+33.3	90.2	97.6	+ 8.2
has/had jaundice	57.0	72.5	+27.2	89.0	96.5	+ 8.4
had blood clots in legs/lungs/eye	55.0	68.9	+25.3	80.0	89.9	+ 12.4
had history of heart attack/chest pain/stroke	56.5	66.2	+17.2	76.5	89.2	+ 16.6
<u>Acceptors who knew of</u>						
prolonged bleeding during the first months of use	21.2	21.3	+ 0.5	14.2	14.3	+ 0.7
no bleeding at all	22.7	35.6	+56.8	40.7	40.6	- 0.2
irregular bleeding	39.4	42.7	+ 8.4	42.4	60.7	+ 43.2
<u>Conditions under which</u>						
<u>acceptors must see provider</u>						
severe lower abdominal pain	52.8	65.2	+23.5	52.8	86.2	+ 63.3
heavy vaginal bleeding	62.5	71.8	+14.9	83.5	89.8	+ 7.5
arm pain	71.1	75.4	+ 6.0	87.1	89.4	+ 2.6
pus or bleeding at the insertion site	62.8	71.5	+13.9	90.0	96.5	+ 7.2
expulsion of an implant	65.1	70.4	+ 8.1	88.1	93.4	+ 6.0
episodes of migraine/bad health	38.7	36.7	- 5.2	54.7	68.7	+ 25.6
delayed menstrual cycles	50.1	39.9	- 20.4	50.1	60.9	+ 21.6

* n = 537

** n = 407

With regard to West Java, the proportions of women in both program types with knowledge of implant characteristics have also increased during the first week and the third month of implant use (Table 5). Again, the percentage increase is larger in Cianjur than in Majalenka with the exception of 'Implants should not be used by those who' group, which could be the reflection of ready access to information among women in Majalenka.

C. Women's experience and satisfaction at the third month of the implant use

Information on women's experiences and satisfaction are best to measure over a longer period of use, if possible. Therefore, we analyze the data collected during the second phase of interview, i.e. during the third month of implant use. Table 6 presents the proportions of women with problems and satisfaction by program type and province. The proportion of women who reported experiencing problems after the use of implants is approximately 11 percent in experimental areas while the figure is 17 percent in control areas of West Sumatra. Similarly those who reported changes in their monthly cycle after the use of implants are 29 percent lower among women in experimental areas than in control areas. West Java findings are problematic since we don't know what kind of information women in West Java received In West Java. Therefore, it is very difficult to draw conclusions.

There are four different questions asked to women concerning satisfaction. As can be seen from Table 6, approximately 99 percent of the women in experimental areas of West Sumatra were satisfied with the information given to them while only 61 percent were satisfied in control areas. Another indicators of satisfaction were taken by asking whether they were satisfied with implant services, whether they were satisfied on the whole and whether they would recommend the implant to someone else. All these indicators also indicate that the proportions of women who were satisfied or would recommend to someone else are, indeed, higher in experimental areas than in control areas.

With regard to West Java, two satisfaction questions (whether they were satisfied with the information given and would recommend the implants to someone else) stand out to be in favor of Majalenka which had leaflets for women to take home. The proportion of women who were satisfied with the information given to them was 14 percent higher in Majalenka than in Cianjur. There were 11 percent more women who would recommend the implants to someone else in Majalenka than in Cianjur. Other satisfaction questions revealed that almost all women were satisfied with the implant services in both program areas.

In order to assess a relationship between women's knowledge and satisfaction, we have used a composite index on knowledge based on all 26 questions relating to knowledge. Each knowledge variable is dichotomous. As explained earlier, the knowledge index is the sum of the 26 individual knowledge variables. The index is divided into three groups with 0 to 8.7 indicating low knowledge, 8.7 to 17.5 indicating medium knowledge, and 17.5 to 26 indicating high knowledge.

Table 6: Percent Distribution of Implant Acceptors According to Experiences and Satisfaction at the Third month of Use by Type of Program Areas and Province

Characteristics (A)	West Sumatra		Percent difference ((B-C)*100/B)=D	West Java		Percent difference ((E-F)*100/E)=G
	Experimental (262) (B)	Control (364) (C)		Majalengka (541) (E)	Cianjur (409) (F)	
<u>Any Problems since insertion</u>						
No	89.3	82.9		98.0	99.5	
Yes	10.7	17.1	- 37.4	2.0	0.5	+ 75.0
Total	100.0	100.0		100.0	100.0	
<u>Experienced changes in monthly cycle</u>						
No	76.7	67.2		98.0	99.0	
Yes	23.3	32.8	- 29.0	2.0	1.0	+ 50.0
Total	100.0	100.0		100.0	100.0	
<u>Satisfied information given to you</u>						
No	1.1	39.1		6.7	20.0	
Yes	98.9	60.9	+62.4	93.3	80.0	+ 14.3
Total	100.0	100.0		100.0	100.0	
<u>Satisfied with implant services</u>						
No	0.8	11.9		3.3	0.2	
Yes	99.2	88.1	+12.6	96.7	99.8	+ 3.2
Total	100.0	100.0		100.0	100.0	
<u>Satisfied on the whole</u>						
No	1.5	11.6		1.7	2.7	
Yes	98.5	88.4	+11.4	98.3	97.3	+ 1.0
Total	100.0	100.0		100.0	100.0	
<u>Recommend implant to others</u>						
No	4.2	9.7		4.3	14.4	
Yes	95.8	90.3	+ 6.1	95.7	85.6	+ 10.6
Total	100.0	100.0		100.0	100.0	

Note: Number inside parentheses refers to number of cases.

The proportions of satisfied women by the knowledge index are presented in table 7. The level of knowledge is positively related to women's satisfaction. The proportion of women who were satisfied with the information provided increases with the increase in the level of knowledge irrespective of program types. As for example in Majalenka, of those who have low knowledge 33 percent of the women were satisfied with the information given to them while the proportion of satisfied women reaches to 95 percent among those who have high knowledge. Similarly, the proportion of satisfied women in Pesisir Selatan doubles when women have low knowledge compared to when women have medium knowledge. The positive relationship between the level of women's knowledge and women's satisfaction holds no matter what satisfaction variables we used. However, we find that the positive relationship is stronger in some program areas than others depending on what satisfaction variable is considered.

Table 7: Percent of Satisfied Women by Knowledge Index and Program Area

Satisfaction variable/ Program area	Knowledge Index			All
	Low	Medium	High	
<u>Satisfied with information provided</u>				
Padang Pariaman	(80)	(99)	100	99
Pesisir Selatan	34	77	(68)	61
Majalenka	33	89	95	90
Cianjur	-	35	88	82
<u>Satisfied with services</u>				
Padang Pariaman	(80)	100	100	99
Pesisir Selatan	86	91	(77)	88
Majalenka	33	94	96	92
Cianjur	-	98	99	99
<u>Satisfied on the whole</u>				
Padang Pariaman	(80)	99	99	98
Pesisir Selatan	85	91	(86)	88
Majalenka	33	96	98	94
Cianjur	-	100	99	99
<u>Recommend to others</u>				
Padang Pariaman	(70)	96	100	96
Pesisir Selatan	83	94	100	90
Majalenka	33	96	96	93
Cianjur	-	100	99	99

Note: percent inside a parenthesis based on less than 25 cases.
 - no case is available in the category.

D. Summary and Conclusions

The objectives of this intervention study were to increase implant acceptors' knowledge of NORPLANT® implants use and its common side-effects, who should and should not use the implants, and warning signs and client's satisfaction. Three of the four hypotheses stated in an earlier section of this report were tested and the following discussion summarizes and draws conclusions regarding the results of this investigation.

Hypothesis 1: The NORPLANT® implants acceptors who have received information from newly trained sources (intervention group) will have an advantage in knowledge and satisfaction with NORPLANT® implants over acceptors in the control area.

The results from West Sumatra showed that the intervention program had produced a greater proportion of women with knowledge on different aspects of NORPLANT® implants. Increases in knowledge were higher in the areas of 'who should not use implants', 'side-effects', and 'warning signs'. As expected the smaller proportion of women in experimental areas reported that they had any problems after the use of implants compared to those in control areas. Consequently, there were a larger proportion of women from experimental areas, who were satisfied with the information provided to them than those from control areas. Also more women from experimental areas were satisfied with implants and would recommend to someone else to use.

The results from West Java need to be carefully interpreted because the experimental district actually did not have counselling (exchange of information between provider and client) carried out by midwives before the insertion of implants. But there were some kinds of information exchange between midwives and clients before the insertion of implants in Cianjur. Also a large number of women in Cianjur received information from their peer groups which did not happen in Majalenka. Therefore, this leads to belief that women in Majalenka were less exposed to information on NORPLANT® implants than their counterparts from Cianjur. The findings from this investigations showed that a larger proportion of women from Cianjur were knowledgeable on NORPLANT® implants than their counterparts from Majalenka. Increases were more so in the areas of 'who should use implants', 'who should not use implants', and 'warning signs' than 'side-effects' and 'basic characteristics'. Knowledge concerning 'basic characteristics' was universal in both program types and provinces. Information on 'advantages/disadvantages' and 'side-effects' was found to have been told to almost all clients in Majalenka while it was not so in Cianjur (according to the observation study). Therefore, it is not surprising to find that there were more knowledgeable women in Majalenka than in Cianjur who knew 'side-effects' of implants. As a result of this information-exchange, there were more satisfied

women in Majalenka than in Cianjur, particularly we if consider 'information giving' and 'recommend implant to someone else'.

The above findings proved the hypothesis that women's knowledge could be increased with the provision of counselling and information services prior to the insertion of implants.

Hypothesis 2: Acceptors' knowledge increases over time due to ready access to information material.

Both groups of women from experimental and control areas had gained knowledge by the use of implants. The only difference between experimental and control groups was that women from experimental areas received a leaflet to take home and could enjoy reading it whenever they felt like doing so. When we compared experimental and control groups, the data clearly showed that a greater proportion of women with knowledge were found in experimental areas compared to women from control areas. Increases in women's knowledge were particularly high in the areas of 'who should use implants', and 'warning signs' in experimental areas which could be directly related to the availability of leaflets to the women. Therefore, the hypothesis is true that ready access of information material to women enhanced knowledge on NORPLANT® implants over time.

Hypothesis 3: Acceptors who are more knowledgeable of NORPLANT® implants will be more satisfied with the implants than acceptors who are not as knowledgeable, in both the intervention and control groups.

The proportion of women who were satisfied with the information provided to them increased from 33 percent among women with low knowledge to 90 percent among women with medium knowledge and 95 percent among women with high knowledge in Majalenka. The satisfied women also increased from 34 percent among women with low knowledge to 77 percent among women with medium knowledge in Pesisir Selatan. Increase in the percent of satisfied women is positively related to the level of women's knowledge. This positive relationship holds true for all program areas and satisfaction variables.

Specific findings are:

1. IEC material given to the acceptors do help increase their knowledge, particularly their understanding of side-effects, how it works etc.
2. Increased knowledge on the part of the acceptors does increase their satisfaction.
3. Although the majority of the midwives have had a substantial training in family planning and counselling techniques, and

professional competence are adequate for the task at hand, the study witnessed that the midwives did not spend much time with their clients explaining about the implants. It proved that counselling was neglected even though urgent attention was emphasized.

4. Even though the worker's job description formally includes counselling, she perceives a counselling function as entirely outside of her realm of work.
5. The midwives generally feel that the counselling function is part of field workers or volunteers's activities. While field workers and volunteers play as simply motivator.
6. Supervision of the midwives is one of the weakest links in the government health and family planning program. Only a small portion of supervisor's time is directed at organizing work aimed at increasing the midwives's productivity and achievement.

RECOMMENDATIONS

1. Being an important link between the health and family planning program and individual client, midwives should be encouraged to take responsibility to do counselling.
2. Midwives should be encouraged to spend more time to educate client and listen to their questions.
3. A cost-benefit study should be conducted to assess the effect of counselling on delivery of the implant services.
4. A number of specific operational barriers that stand in the way of better services, such as worker densities, motivation of staff, supervision, technical competence, and supplies, have been mentioned in many different times. Each of these barriers, among others, constitutes an important obstacle by itself. Therefore, they should be looked into at different institutional level to deliver user-oriented health and family planning services by maintaining adequate and appropriate standards of care.

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APPENDIX A

BACKGROUND INFORMATION ON STUDY AREAS

Padang Pariaman (West Sumatra)

Characteristics	1995
Land area	7,413.5 Km ²
Demographic	
Population size	524,910
Population density	71 per Km ²
Population growth	0.61
Health facility	
Hospital	1
Public Health Center	23
FP clinic	46
Health personnel	
Fieldworker	24
IEC worker	62
Fieldworker (paramedics)	6
Field worker (midwives)	3
Auxiliaries	34
Midwives (MOH)	100
Methods of contraceptive use	
Oral pills	6,996
Injectable	14,686
Condom	296
IUD	11,243
Implant	4,880
Sterilization	1,373

Pesisir Selatan (West Sumatra)

Characteristics	1995
Land area	5,749.8 Km2
Demographic	
Population size	383,483
Population density	67 per Km2
Population growth	1.01
Life expectancy	63
Health facility	
Hospital	1
Public health center	70
FP Clinic	70
Health personnel	
Fieldworker	11
IEC worker	44
Fieldworker (paramedics)	1
Field worker (midwives)	4
Auxiliaries	16
Midwives (MOH)	100
Methods of contraceptive use	
Oral pills	7,435
Injectable	9,660
Condom	72
IUD	11,947
Implant	4,969
Sterilization	914

Cianjur (West Java)

Characteristics	1995
Land area	5,432 Km2
Demographic	
Population size	1,754,478
Population density	323 per Km2
Health facility	
Hospital	1
Public health center	88
FP Clinic	117
Health personnel	
Fieldworker	26
IEC worker	152
Fieldworker (paramedics)	-
Field worker (midwives)	-
Auxiliaries	27
Midwives (MOH)	75
Methods of contraceptive use	
Oral pills	115,505
Injectable	51,374
Condom	207
IUD	16,112
Implant	25,424
Sterilization	13,872

APPENDIX B

RESULTS OF PRE AND POST-TEST OF MIDWIVES TRAINING

(WEST SUMATRA)

Background information

	<u>Percent</u>
1. Expectation from training	
a. to improvement in counselling skills	23
b. to provide better services to clients	69
c. to increase NORPLANT® implant acceptors	7
TOTAL	100
2. Years of experience	
a. < 1 year	4
b. 1 - 5 years	58
c. 6 - 10 years	0
d. > 10 years	38
TOTAL	100
3. Provide insertion services	
a. Yes	92
b. No	8
TOTAL	100
4. Provide removal services	
a. Yes	92
b. No	8
TOTAL	100
5. Provide information to clients	
a. Yes	100
b. No	0
TOTAL	100

Midwives' knowledge before and after the training (N=28)

	%	%	%
	<u>Pre-test</u>	<u>Post-test</u>	<u>difference</u>
Knowledge about			
a. Advantages of implants			
Knew	58	92	+34
Did'know	42	8	
TOTAL	100	100	
b. Disadvantages of implants			
Knew	50	88	+38
Did'know	50	12	
TOTAL	100	100	
c. Major side-effects			
* bleeding first months			
Knew	54	65	+11
Did'know	46	35	
TOTAL	100	100	
* no bleeding			
Knew	42	57	+15
Did'know	58	43	
TOTAL	100	100	
* irregular bleeding			
Knew	50	65	+15
Did'know	50	35	
TOTAL	100	100	
d. Warning signs			
* severe lower abdominal pain			
Knew	42	92	+50
Did'know	58	8	
TOTAL	100	100	
* heavy vaginal bleeding			
Knew	42	81	+39
Did'know	58	19	
TOTAL	100	100	
* arm pain			
Knew	23	73	+50
Did'know	77	27	
TOTAL	100	100	
* Infection			
Knew	19	65	+46
Did'know	81	35	
TOTAL	100	100	
* expulsion			
Knew	15	65	+50
Did'know	85	35	
TOTAL	100	100	

* migraine/bad health			
Knew	15	62	+47
Did'know	85	38	
TOTAL	100	100	
* delayed menstraul cycle			
Knew	4	23	+19
Did'know	96	77	
TOTAL	100	100	

APPENDIX C

List of Study Area

WEST SUMATRA

Padang Pariaman

1. Ulakan
2. Ketaping
3. Tandikat
4. Batu Basa
5. Sikabu
6. S. Geringging
7. Lubuk Alung
8. Kayutanam
9. Pasar Usang
10. Pasir Lawas
11. Padang Alai

Pesisir Selatan

1. Lunang
2. Salido
3. Balai Selasa
4. Indrapura
5. Tapan
6. Surantih
7. Batang Kapas
8. Br. Balantai
9. Tarusan
10. Pasar Baru

WEST JAVA

Majalengka

1. Majalengka
2. Kadipaten
3. Dawuan
4. Kertajati
5. Jatitujuh
6. Ligung
7. Jatiwangi
8. Sumberjaya
9. Leuwimunding
10. Rajagaluh
11. Sukahaji
12. Baja

Cianjur

1. Warungkondang
2. Cikalongkulon
3. Pacet
4. Cibeber
5. Campaka
6. Cugenang
7. Mande
8. Sukaresmi
9. Ciranjang
10. Sukahuju