

REPORTS

Introducing Client-centered Reproductive Health Services in a Pakistani Setting

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Pakistan is a high-fertility country with elevated levels of maternal mortality and unmet need for family planning. Limited access to and poor quality of reproductive health services and gender-related problems comprise the major explanations for these poor indicators. The authors designed an intervention to address some of these issues and implemented it on a quasi-experimental basis in Bhalwal Tehsil of the Sargodha district of Punjab. The intervention introduced a client-centered approach to providing reproductive health services, including family planning and infant, child, and maternal health care. The intervention consisted of training health-care providers based in fixed-location clinics and in communities. It introduced the concept of SAHR (an acronym for salutation, assessment, help, and reassurance), to inculcate a client-centered approach to care that acknowledges explicitly and addresses a client's gender and power relations within her family and household. Results of the intervention indicate significant effects on providers' behavior related to SAHR elements. The changes provide demonstrable evidence that the public sector can shift toward client-centered services in reproductive health care in a challenging setting. (STUDIES IN FAMILY PLANNING 2005; 36[3]: 221–234)

Reproductive health indicators in Pakistan are poor, as is indicated by the country's high levels of maternal mortality (between 300 and 500 deaths per 100,000 live births), of infant mortality (80 deaths per 1,000 live births), and of unmet need for family planning (more than 30 percent of women of reproductive age). These indicators are far worse for women belonging to poorer households (Sathar et al. 2004). The poor quality of existing public reproductive health services in Pakistan has been recognized and well documented (NIPS 2001). It is a major explanatory factor for the underuse of services and for Pakistani women's poor reproductive health outcomes (Cernada et al. 1993; Ministry of Population Welfare and Population Council 1996; Ashfaq et al. 2001; OPM 2002). Other factors are equally or even more important in the

Pakistani context. Pakistani women's mobility is constrained: only 24 percent can seek care at a hospital by themselves (NIPS and LSHTM 1998). They rarely participate in making important household decisions and almost never reach such decisions on their own. For example, only 28 percent of currently married women surveyed reported that they made the final decision concerning the treatment of a sick child (NIPS and LSHTM 1998). In light of women's not being able to act independently on matters regarding their own health, and because of the limited resources available to them as a result of widespread poverty, the quality of and access to health care must be improved for poor women in particular (Mir et al. 2004).

The International Conference on Population and Development (ICPD) held in 1994 in Cairo clearly marked the shift away from an emphasis on family planning to include other reproductive health issues (Sai 1997). This conference also directed attention to the social and economic constraints to women's access to reproductive health services. Moreover, it has promoted attention to clients, both men and women, and away from government- or provider-driven targets and objectives. These

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new emphases are core elements of the attempt to improve the quality of reproductive health services in Pakistan and of the ICPD agreement, signed by Pakistan in 1994. The Government of Pakistan has made considerable strides in expanding the scope of reproductive health services to incorporate ICPD objectives,¹ but the quality of these services has not yet received sufficient attention.

The standard quality-of-care framework refers to the care clients receive when they come into contact with services at a clinic or during a visit from a community provider. The majority of Pakistani women do not use public reproductive health services because their mobility is restricted and because they are apprehensive about the quality of care they would encounter at public services. Removing some of these restrictions is part of the change in quality of care envisaged for Pakistan by the government.

In-depth studies of the reasons for the unmet need for family planning in Pakistan point to women's reservations regarding the quality of the services and contraceptives provided, their lack of information about methods' side effects, and social or husbands' opposition to family planning as constraints to the use of existing facilities (Population Council 1997). Gender-related inequities and households' internal power structure have been identified as explanations of the gap between reproductive intentions and behavior in Pakistan (Mahmood and Ringheim 1977; Sathar and Kazi 2000). Poor communication between spouses and husbands' attitudes toward family planning have been shown to be critical determinants of women's nonuse of contraceptives (Mahmood and Ringheim 1997; Casterline et al. 2001). Women also face problems in accessing care during the antenatal period and particularly during delivery. Poor households with few educated family members make decisions collectively; however, the ultimate authority often rests with a parent-in-law or husband. Women, especially pregnant women, are excluded from decisionmaking. Delays in seeking urgently required obstetric care that result in maternal mortality have been attributed to such decision-making processes (Jaffarey and Korejo 1995).

These findings contradict a common assumption that the solution to eliminating unmet need for family planning and reproductive health services lies solely in increasing physical access to these services. Clearly, other factors must be addressed. The authors designed an intervention intended to increase use of available reproductive health services by expanding their accessibility and improving their quality, and also by addressing other factors contributing to the low demand for these services. The intervention was tested in Sargodha, a representative district of Pakistan. Results of the research are described below.

Introducing a Client-centered Approach to Reproductive Health Care

The authors of this study used the opportunity provided by the overall policy and program changes in Pakistan that were instituted in response to the ICPD Programme of Action to design and test a client-centered approach to reproductive health-care services. This approach was designed to integrate three of the ICPD objectives: (1) combining infant health, safe motherhood, and family planning within overall reproductive health care; (2) making the individual client the focus of services and ensuring that the services respond to her or his needs; and (3) addressing some of the gender-related and familial constraints to health-care service use. Hitherto, the structure of services was such that providers specialized in either family planning or in infant, maternal, and child health care. Furthermore, reproductive health-care providers paid little or no attention to gender-related attitudes that inhibit many women from seeking and using public services for their reproductive health needs.

The authors introduced the client-centered approach by means of a training program with the objective of enabling providers to focus on helping clients meet their needs by eliminating barriers to service access and use. This training was aimed at changing providers' attitudes and behavior so that they would be more receptive to clients, who would then become better able to satisfy their reproductive health needs.

A framework was designed for an improved provider-client interaction and was given the name SAHR, the word for "dawn" in Urdu and an acronym for salutation, assessment, help, and reassurance. This framework, the essential features of which are described in Appendix Figure A1, enables the provider to adopt a stepwise approach (which need not be followed rigidly) for determining and meeting clients' reproductive health needs. The framework is dynamic in that it can be adapted to any situation with which the provider may be confronted. For example, providers can find solutions for clients who are unable to return for follow-up visits or who have transportation problems. Furthermore, it can be employed by providers in many types of settings within and outside clinics. Three main areas of reproductive health were selected for receiving training in the client-centered approach: family planning, infant health, and maternal health. Until 2000, reproductive health services in Pakistan were segregated: population departments were responsible for family planning, and health departments were responsible for maternal and child health.

The essential messages of the SAHR training were: (1) *Salutation*. Respect clients by greeting them by name, seating them at the same level, and acknowledging the

presence of family and other household members; (2) *Assessment*. Work to understand clients' needs by obtaining information about their backgrounds, attitudes, prior experiences, preferences, past histories, current state of reproductive health, and personal needs; (3) *Help*. Begin a process of negotiation or information sharing to aid in the selection of a solution appropriate to the clients' needs so that they can address these needs themselves;² (4) *Reassurance*. Explain to clients that they can expect support from the provider in the future: they can obtain advice, supplies, help in handling emergencies and complications, and help with exploration of alternate solutions in case the one originally identified turns out to be unsuitable.

The training (described in detail in RamaRao and Mir 2004) was devised and conducted by an interdisciplinary team made up of senior trainers, doctors, anthropologists, and demographers at the Population Council, Pakistan. It was developed in conjunction with a nongovernmental organization (NGO), ROZAN, that specializes in gender-related issues and consciousness raising. The training was experiential; it involved participatory learning through individual "go-around" sessions in which each participant shared a personal experience from his or her life. The go-around afforded participants an opportunity to speak openly about themselves, about their strengths and weaknesses, examining and assessing their role in society and their contribution to their professions. Concepts and skills were clarified by means of briefings and by demonstrations from facilitators. Participants were enabled to absorb the training by role playing using situations based on real life. Special emphasis was placed on gender-related and power issues and on developing communication skills to improve interactions between clients and paramedics and between clients and doctors. Typically, provider-client interactions are brief, and providers often behave condescendingly toward clients. As a result, clients are unable to express their concerns or describe the limitations they face in trying to implement the providers' suggested course of action. The training focused on addressing the problems inherent in this dynamic.

The training was designed to integrate and combine the needs of service providers of the Ministries of Health and of Population Welfare that traditionally had operated in relative isolation from each other. Staff from fixed-location clinics affiliated with both ministries were trained together in groups, as were community-level providers affiliated with both ministries. Because of the differing orientation of the ministries and of the clinics and communities, the various cadres had different levels of technical training in reproductive health care. Examples and exercises in the training were adjusted accordingly.³

A total of 160 service providers⁴ from both ministries working in reproductive health services in the intervention areas underwent a one-week training in the SAHR approach between February and April 2000. (A few received their training in September 2000.) The intervention was followed by a three-day refresher course ten months later during November 2000 to January 2001. The refresher training addressed aspects of SAHR that were found to be deficient during service delivery, particularly in the areas of assessment and help.

A similar training was arranged for supervisors and senior managerial staff at the district, divisional, and provincial levels. Supervisors of providers were required to be familiar with the shift in focus being attempted in the way service providers deal with clients. To be supportive, managers would need to reinforce providers' training. In particular, they would be required to shift their emphasis away from judging providers' performance by setting targets to ensuring that providers help clients achieve their reproductive goals.

The training sensitized providers to appreciate and recognize that power in a typical Pakistani household lies with the husband and with older family members and that women's health is traditionally a matter of low priority. Decisions about health-seeking behavior and nutrition and the expenditures related to them are made according to power and gender norms in every woman's household. They must be discussed with the provider and incorporated into any solution suggested for a particular problem that the woman is facing. Most often, health-care providers do not take the client's household situation into account when they prescribe a course of action intended to improve her reproductive health.

Methodology

The intervention was developed and tested in the Sargodha district of Punjab, the most populous province in Pakistan. Sargodha District had a population of 2.7 million in 1998, with a density of 1,180 persons per square mile. The population is largely rural; about 72 percent of the district's inhabitants live in rural areas and 31 percent are engaged in agricultural activities. Literacy, although average by Pakistani standards, varies by area of residence: 55 percent of urban women are literate, compared with 24 percent of rural women. Differences in literacy by sex are considerable (33 percent of women and 59 percent of men are literate).

We used a quasi-experimental design to test the effectiveness of the training program in implementing a client-centered approach, in bringing about changes in the attitudes and behavior of health-care providers, and

in yielding positive outcomes at the individual level within communities. For this purpose, Bhalwal Tehsil, a large area in Sargodha District, with a population of 900,000 according to the 1998 census, was divided into quadrants along a major road that divides the *tehsil* (an administrative area within a district) from north to south and a railway line that divides it from east to west. Two diagonal quadrants comprised the experimental area and the other two were the control area. In order to maintain a strict comparison, no personnel in the control area were trained during the intervention. The experimental and control areas were not identified as such to the data-collection teams to minimize bias in collecting and recording information from the two areas.⁵ The populations of the experimental and control areas are similar: women in both areas are from rural backgrounds, only one-third have had any schooling, and only one-third or fewer live in pucca (permanent structure) housing. The rest are from poor socioeconomic strata.

We collected data through situation analyses conducted at the fixed-location clinics and with community-based workers in both experimental and control areas. The situation-analysis methodology uses four instruments to measure the readiness of a facility to provide services and the quality of these services: (1) an inventory of the facility that catalogs the services offered, the personnel on staff, the infrastructure, and the availability of various equipment and supplies; (2) an interview with service providers; (3) direct observations of provider–client interactions; and (4) exit interviews with clients on the day that our team visited the facility unannounced (Miller et al. 1997). The first situation analysis (SA1) was carried out in December 1999, before the implementation of the intervention, and was used as a diagnostic tool to design the content of the training intervention. The second situation analysis (SA2), undertaken in June 2001, contained similar instruments plus a number of additional questions on SAHR components to capture the elements that had been emphasized during the providers' training.

Staff from fixed-location clinics and community workers were interviewed in the two successive rounds of the situation analyses. Overall, at the clinics, 78 and 77 staff were observed in SA1 and SA2, respectively (see Table 1). In the communities, a sample of 72 and 86 community workers⁶ were interviewed and observed in rounds one and two, respectively. All staff members present at the clinics were interviewed, and those who were providing reproductive health services were observed subsequently. Table 1 shows that, except for lady health workers (LHWs) in round one, roughly equal numbers of providers were observed in the experimental and control areas.

Table 1 Number of providers observed in rounds 1 and 2 of the situation analysis, by place of work and ministry affiliation, according to study area, Sargodha, Punjab, Pakistan, 1999–2001

Type of provider	Situation analysis 1 (1999)			Situation analysis 2 (2001)		
	Experimental	Control	Total	Experimental	Control	Total
Fixed-location clinics						
MoH						
Providers observed	35	34	69	32	36	68
Observations	317	321	638	383	388	771
MoPW						
Providers observed	5	4	9	5	4	9
Observations	48	20	68	34	18	52
Total fixed-location clinic staff						
Providers observed	40	38	78	37	40	77
Observations	365	341	706	417	406	823
Community-based workers						
MoH (LHW)						
Providers observed	21	15	36	21	22	43
Observations	98	79	177	97	104	201
MoPW (VBFPW)						
Providers observed	18	18	36	21	22	43
Observations	86	118	204	111	131	242
Total community workers						
Providers observed	39	33	72	42	44	86
Observations	184	197	381	208	235	443

MoH = Ministry of Health. MoPW = Ministry of Population Welfare. LHW = Lady health worker. VBFPW = Village-based family planning worker. Source: Situation analyses 1 and 2.

Data were collected during observations of interactions between health-care providers and their clients.⁷ Because provider–client interactions may vary according to the setting in which they are conducted (in clinics versus in the community), data for fixed-location clinic staff and community-based workers were analyzed separately. Clinic staff were observed in 706 interactions in SA1 (1999) and 823 interactions in SA2 (2001). Clinic staff observations from round one were conducted by five observers, four of whom observed between 158 and 234 interactions (the fifth observer recorded information from only 13 interactions). Clinic staff observations from round two were conducted by six observers, four of whom observed between 190 and 257 interactions (a fifth observer recorded information from only six interactions and a sixth observer recorded one interaction). Observations of community-based workers were fewer, consisting of 381 interactions in SA1 and 443 interactions in SA2. Eight observers recorded information in round one with a range of 6–124 interactions; seven observers recorded information in round two with a range of 40–100 interactions.

Because our focus is on studying the extent to which providers' behavior has changed, the dependent variables are the providers' various observable actions dur-

ing their time with a client. We analyze providers' actions and behavior in the following four clusters: how they develop rapport with the client (relating to the S step of the SAHR training); how they assess the client's needs (the A step); how they help the client seek an appropriate solution to her problem (the H step); and how they reassure the client about the solution (the R step). The data from these four clusters were converted into four indexes (one for each step of the SAHR training), with each index constructed from a group of items representing a provider's behavior. Each item is a dichotomous variable that takes the value of one if a provider scores "yes" concerning a particular behavior and zero if the provider scores "no." For example, if the provider greeted the client, one point is recorded; if the provider did not greet the client, a zero is recorded. Each of the four indexes is a sum of the points for all items included in the index, with each item being given equal weight. A fifth index was also created by combining all four indexes into one representing the totality of the effects of the SAHR intervention.

To determine whether trained providers differed from untrained providers in their treatment of clients, we compare the S, A, H, R, and SAHR indexes in the experimental and control areas. T-test statistics are used to test the significance of differences between experimental and control areas separately at pre- and postintervention. The purpose of the bivariate analysis is to demonstrate the extent of preintervention similarity between the experimental and control groups and to test any postintervention differences between the two groups.

This approach is not an ideal way to address the question of the extent to which the intervention brought about change. Ideally, analysis of data from quasi-experimental designs tests whether the differences between the experimental and control groups are larger after the intervention than before it was implemented. In other words, the test assesses whether the differences between the changes in the experimental group and the changes in the control group are statistically significant. Such a test ensures that the differences between experimental and control groups do not reflect only the dynamics of secular change. Such an analytical approach, by means of multivariate analysis, is possible when the responses measured over time are from the same individual interviewed at baseline and endline to determine whether their knowledge, attitudes, or behavior have changed as consequence of the intervention.⁸ When the responses are not from the same individual at baseline and endline, as in this study, this approach cannot be employed. In other words, the clients who received services before and after the intervention were different individuals. In such situations, the best alternative is to pool the data

from two rounds and use a multivariate regression model with an interaction term.

Here, we fit multivariate regression models, where the same dependent variables are regressed on a variety of independent variables. We use ordinary least squares, because the dependent variables are continuous, ranging in value from zero to the number of items included in a particular index. Independent variables included in the analyses are: whether the provider was working in the experimental or the control area, the timing of the survey (round one or round two), and an interaction term that combines group status and survey timing. Inclusion of this interaction term addresses the problem encountered in the bivariate analysis; it allows us to test whether the difference between the two groups becomes larger over time. A positive and significant coefficient of the interaction term will imply that this is the case. We also control for other provider-level confounders such as the provider's age, the number of children she or he has, marital status, level of education, language spoken at home, and ministry affiliation of the service being provided. The meaning of the coefficients of the independent variables of interest—membership in the group, survey timing, and the interaction term—are explained below.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 X_2 + \beta_4 X_3 + \epsilon,$$

where Y = quality of care; X_1 = membership in the experimental group; X_2 = round two or endline survey; $X_1 X_2$ = interaction of membership status and timing of survey; X_3 = other background variables; ϵ = error term; and where α is the intercept and measures the control group at round one or baseline; β_1 measures the extent to which the experimental and control groups are similar at baseline; β_2 measures the effect of secular change, or the effect of time in the control group; β_3 measures the change in the experimental group relative to the control group beyond the effect of time, and β_4 measures the effect of all the background variables.

In heuristic terms, this approach can be visualized thus:

Group	Round 1	Round 2	Change
Experimental group	$\alpha + \beta_1$	$\alpha + \beta_1 + \beta_2 + \beta_3$	$\beta_2 + \beta_3$
Control group	α	$\alpha + \beta_2$	β_2

Thus, $\beta_2 + \beta_3$ measures the change over time in the experimental group and β_2 measures the change in the control group over time. Thus, we wish to test whether the change in the experimental group is greater than that in the control group, that is, whether $(\beta_2 + \beta_3) - (\beta_2) = \beta_3$ is statistically significant.

Findings

This research was undertaken to assess whether providers in the experimental area delivered services in a different manner than they had prior to the training intervention. We address three related issues: whether the client-centered approach was employed by providers so that they were responsive to clients' reproductive health needs; whether the training enabled providers to address gender, familial, and other constraints beyond the client's immediate problem, such as women's ability to reach a health center, to find the resources to seek health care, and to make a decision to visit a center and use its services; and whether the approach enabled providers to improve their interactions with clients by clarifying explanations and discussing solutions. The results are presented below in three sections. First, we compare characteristics of providers from the experimental and control areas prior to the intervention. Second, we describe the effect of the intervention on providers' behavior during provider-client interactions. Finally, we demonstrate the effect of the intervention on providers' behavior, after controlling for other confounding behavior, and we assess differences between the effects in the experimental and control areas.

Characteristics of Providers

In order to ensure that providers in the intervention and control areas were similar before the intervention, various sociodemographic characteristics were compared at the outset for each group (see Table 2). In general, although the two sets of providers from fixed-location clinics and from communities were different in many respects, the providers from the experimental and control areas for this study were similar in terms of a number of sociodemographic and professional characteristics. Fixed-location clinic staff from both the experimental and control areas were in their late thirties, and the majority were married and had approximately three children. The majority had more than a high-school education, and more than 10 percent in both areas were doctors. The majority of providers were working with the Ministry of Health. Community-based workers, by contrast, were barely 30 years of age on average, but most were also married and had three children. Their educational levels were much lower than those of the clinic staff; most had a high-school education or less. An equal number of the community-based workers worked with the health and the population welfare ministries.

More than three-fourths of both clinic and community providers had received training in a range of health services (general health care, safe motherhood, infant and

Table 2 Percentage of providers interviewed in round 1, by selected sociodemographic characteristics, according to study area, Bhalwal Tehsil, Pakistan, 1999

Characteristic	Fixed-location clinic provider		Community-based worker		Total	
	Experimental	Control	Experimental	Control	Experimental	Control
Average age (years) [range]	36.8 [22–56]	36.2 [19–59]	29.4 [20–45]	29.9 [20–49]	34.6 [20–56]	34.5 [19–59]
Married	79	71	72	70	77	70
Average number of living children [range]	2.9 [0–10]	2.6 [0–9]	2.6 [0–7]	2.6 [0–7]	2.8 [0–10]	2.7 [0–9]
Punjabi spoken at home	84	79	92	88	87	81
Educational attainment						
None	16	13	3	3	12	10
High school	36	45	97	85	54	55
> High school	32	31	0	12	22	26
Medical degree	17	12	0	0	12	9
Offers consultation/ treatment in						
Infant child health	89	90	100	94	93	91
Safe motherhood	91	94	100	97	94	94
Family planning	86	90	100	100	90	93
Ministry affiliation						
Health	84	84	54	45	75	74
Population Welfare	16	16	46	55	25	26
(N)	(90)	(94)	(39)	(33)	(129)	(127)

child health care, and family planning). Because the purpose of this study was to establish equivalence of the experimental and the control areas, differences among cadres of workers are not shown, for example, between doctors and other providers in the fixed-location clinics or between lady health workers and village-based family planning workers among the community-based workers.

The Effect of the Intervention

Observations of provider-client interactions at fixed-location clinics are presented in Table 3. Observations from round one indicate that providers from experimental and control areas behaved more or less the same toward clients; the only statistically significant difference was found in the reassurance index. In contrast, after the training, far more significant differences were found between the experimental and control areas in the second round in all of the SAHR indexes, indicating that the intervention had an effect. Providers at fixed-location clinics who had participated in the intervention were rated as having significantly better interactions with clients in all aspects of SAHR as compared with providers in the control group.

The higher quality of provider-client interactions observed in the experimental area appeared in an unusual form. Rather than manifesting itself as an improvement

Table 3 Pre- and postintervention mean score for fixed-location clinic providers' interactions with clients per observation on SAHR indexes, by study area and situation analysis round, Bhalwal Tehsil, Pakistan, 1999 and 2001

Index	Situation analysis round 1				Situation analysis round 2				Number of items
	Experimental (n = 365)	Control (n = 341)	Difference	(Standard error)	Experimental (n = 417)	Control (n = 406)	Difference	(Standard error)	
Salutation	4.30	4.25	0.05	(0.10)	4.35**	3.57	0.78	(0.09)	14
Assessment	1.60	1.68	-0.08	(0.05)	1.25**	1.01	0.25	(0.05)	3
Help	4.02	3.97	0.05	(0.07)	3.99*	3.86	0.13	(0.06)	9
Reassurance	0.98**	0.80	0.18	(0.07)	1.40**	1.09	0.31	(0.07)	6
SAHR	10.90	10.70	0.19	(0.19)	10.10**	9.53	1.47	(0.18)	32

*Significant at $p < 0.05$; ** $p < 0.01$. Significance is shown for the differences between experimental and control groups.

in interaction quality from round one to round two, the benefit of the SAHR intervention took the form of a counterbalance to a broader trend toward decline in the quality of providers' services in the area, as reflected in the decline observed in the control group. The quality of care provided in the control area fell from 10.70 points on the SAHR index before the intervention to 9.53 points after the intervention, whereas the quality of care provided in the experimental area declined slightly from 10.90 to 10.10 points on the SAHR index.

The impact of the training on community-based workers appears to be similar to the impact on providers in fixed-location clinics (see Table 4). In the first round, community workers in the experimental area performed better than those in the control area for some index items of SAHR (significantly better in the salutation and slightly better in their reassurance) but not better on others (significantly worse in the assessment and slightly worse in their help). The experimental group of community workers was thus not significantly different from the control group in its overall SAHR score at the outset (8.19 compared with 7.80). By the second round, however, the overall SAHR score of the experimental group was significantly higher than the score of the control group (8.16 compared with 6.79). This finding suggests that, as was true for the providers in fixed-location clinics, the intervention was successful in arresting the decrease in interaction quality that was manifested in round two of the control group.

Differences are apparent between providers at fixed-location clinics and community-based workers; for example, mean scores for salutation are higher for community workers than for workers at fixed-location clinics. This finding indicates that community workers already may have been trained and placed to use a client-centered approach because of the nature of their work, which is restricted to visiting women and providing services to women and households in the workers' own villages and catchment areas.

In general, after the intervention, both types of providers in the experimental areas were performing better than providers in the control areas, as measured by their scores for the four SAHR index items, despite the decline in quality of care found for both groups over time. Declines in quality of care observed for the experimental group were smaller than those observed for the control group, a finding that could be attributed to the intervention. The overall SAHR index for provider-client interactions for staff at fixed-location clinics in the intervention area was 10.10 compared with 9.53 for the control area. For community-based workers the difference was even wider, with a mean score of 8.16 for the experimental area compared with 6.79 for the control area. Our inference is that these overall declines were the result of organizational restructuring brought about by the merger of the Ministries of Health and Population Welfare that translated into disarray at the service-delivery level.

Table 4 Pre- and postintervention mean score for community-based workers' interactions with clients per observation on SAHR indexes, by study area and situation analysis round, Bhalwal Tehsil, Pakistan, 1999 and 2001

Index	Situation analysis round 1				Situation analysis round 2				Number of items
	Experimental (n = 365)	Control (n = 341)	Difference	(Standard error)	Experimental (n = 417)	Control (n = 406)	Difference	(Standard error)	
Salutation	5.27**	4.73	0.54	(0.18)	5.04**	4.27	0.77	(0.13)	10
Assessment	1.21**	1.41	-0.20	(0.06)	1.19	1.11	0.08	(0.06)	4
Help	0.72	0.86	-0.14	(0.09)	0.75	0.60	0.15	(0.09)	5
Reassurance	1.00	0.81	0.19	(0.11)	1.18	0.80	0.38	(0.10)	6
SAHR	8.19	7.80	0.39	(0.26)	8.16**	6.79	1.37	(0.24)	25

*Significant at $p < 0.05$; ** $p < 0.01$. Significance is shown for the differences between experimental and control groups.

Although the findings reflected some improvements, such as increases in providers' building rapport with clients and in asking clients about their main activities and their reproductive intentions (see Appendix Table A2), the values of the overall index indicate much room for improvement. Deficiencies are noticeable for both types of workers in their assessment of clients' needs and in helping clients to find appropriate solutions. For instance, providers do not seem to pay adequate attention to assessing a client's reproductive health needs or to providing her with enough information to encourage her to choose a solution or option on her own. In retrospect, the training clearly focused more on reorienting providers so that they engage with their clients in a personal way that reduced hierarchical and power barriers; it did not provide similar systematic instructions for assessing specific health needs and responding to them.

In sum, although the intervention worked as intended so that providers in the experimental areas scored higher than those in the control areas for all indexes, considerable room for improvement remains in all areas, particularly in the areas of assessment and help. Providers at fixed-location clinics could also benefit from further training in salutation.

Multivariate Analysis

The analysis presented above demonstrates that the behavior of providers in the experimental group was significantly different from those in the control group; most likely this difference was a result of the training intervention. Ascertaining whether the change in the experi-

mental group relative to that in the control group is greater, and whether the difference between groups remains when we control for other confounding effects such as providers' characteristics is equally and possibly more important, however. In the sets of analyses described below, we use five indexes as dependent variables: four representing each element of SAHR and one representing the overall index.

Results shown in Tables 5a and 5b indicate the net effect of training on the behavior of providers in fixed-location clinics; Tables 6a and 6b show the net effect of training on the behavior of community-based workers. Each observation is used as the unit of analysis. For all regressions in this set of four tables, we used the robust cluster variance estimator from the Stata SE 8 software to correct for the lack of independence among observations for each provider.⁹

Table 5a shows results from a model that included three controls: membership in the experimental group, timing of survey, and the interaction between the two; These results are consistent with the bivariate analysis presented above. As noted above, the two groups of providers were similar at the time of the preintervention survey, indicated here by the nonsignificant coefficient for the membership in the experimental group variable (0.20). Furthermore, declines can be observed over time in the quality of care provided, as indicated by the significant negative coefficient of the time variable (-1.18). Encouragingly, the significant and positive coefficient of 1.28 for the interaction term suggests that a significant change occurred in the care provided by the experimen-

Table 5a Regression of overall SAHR index based on observations of providers' interactions with clients at fixed-location clinics, Bhalwal Tehsil, Pakistan, 1999 and 2001

Index	Probability > F	Number of observations	R ²	Coefficient		
				Experimental (SE)	Round (SE)	Experimental x round (SE)
SAHR	0.01	1,529	0.05	0.20 (0.59)	-1.18* (0.48)	1.28* (0.61)

*Significant at p≤0.05. SE = Standard error.

Table 5b Regression of overall and subcomponent SAHR indexes based on observations of providers' interactions with clients at fixed-location clinics, Bhalwal Tehsil, Pakistan, 1999 and 2001

Index	Probability > F	Number of observations	R ²	Coefficient		
				Experimental (SE)	Round (SE)	Experimental x round (SE)
Salutation	0.00	1,403	0.12	0.09 (0.36)	-0.57 (0.35)	0.72 (0.43)
Assessment	0.00	1,403	0.14	-0.11 (0.14)	-0.64** (0.10)	0.35* (0.15)
Help	0.20	1,403	0.04	0.05 (0.17)	-0.06 (0.16)	0.05 (0.20)
Reassurance	0.00	1,403	0.09	0.29** (0.12)	0.43** (0.12)	0.00 (0.17)
SAHR	0.00	1,403	0.11	0.33 (0.64)	-0.84 (0.56)	1.11 (0.69)

*Significant at p≤0.05; **p≤0.01. SE = Standard error.

Notes: Model controls for provider's age, marital status, number of children, higher education, languages, and ministry affiliation.

Table 6a Regression of overall SAHR index based on observations of community-based workers' interactions with clients, Bhalwal Tehsil, Pakistan, 1999 and 2001

Index	Probability > F	Number of observations	R ²	Coefficient		
				Experimental (SE)	Round (SE)	Experimental x round (SE)
SAHR	0.00	824	0.05	0.39 (0.40)	-1.02** (0.36)	0.99 (0.56)

**Significant at p≤0.01. SE = Standard error.

Table 6b Regression of overall and subcomponent SAHR indexes based on observations of community-based workers' interactions with clients, Bhalwal Tehsil, Pakistan, 1999 and 2001

Index	Probability > F	Number of observations	R ²	Coefficient		
				Experimental (SE)	Round (SE)	Experimental x round (SE)
Salutation	0.00	772	0.10	0.77* (0.35)	-0.45 (0.31)	0.08 (0.42)
Assessment	0.23	772	0.04	-0.18 (0.10)	-0.30** (0.10)	0.26* (0.13)
Help	0.00	772	0.06	-0.26 (0.16)	-0.32* (0.14)	0.41* (0.18)
Reassurance	0.03	772	0.05	0.06 (0.19)	-0.04 (0.15)	0.31 (0.23)
SAHR	0.00	772	0.09	0.40 (0.49)	-1.10** (0.40)	1.06 (0.60)

*Significant at p≤0.05; **p≤0.01. SE = Standard error.

Notes: Model controls for provider's age, marital status, number of children, higher education, languages, and ministry affiliation.

tal group relative to that provided by the control group. These findings confirm our conjecture that although declines in quality of care occurred in both groups, they tended to be retarded in the experimental group, suggesting that the intervention was effective to this extent.

Table 5b presents the results of a model that contains additional variables, including provider's age, marital status, number of children, education, language she or he speaks, type of worker, and ministry affiliation. The regression coefficients for all the individual subcomponent indexes as well as the overall SAHR index are presented. For the overall index, the addition of controls attenuates the effect of the intervention—the magnitude of the interaction term is reduced, as is its statistical significance drops below the 5 percent level. Examining in greater detail the effects on the four subcomponents of the index, improvements in two are seen—salutation and assessment (although only the latter is statistically significant at the 5 percent level). From a programmatic point of view, these results show that although the training intervention had a positive effect overall, it was not equally strong for all aspects of providers' behavior toward clients.

Regression coefficients for the community-based workers are shown in Tables 6a and 6b. The results are consistent with the bivariate results presented above. The similarity between control and experimental groups before the intervention is reflected in the nonsignificant coefficient of the variable for membership in the experimental group (0.39); a decline in quality of care over time

is captured by the significant and negative coefficient on the time variable (-1.02); we also see, however, a small, positive effect of the intervention as captured by the coefficient of the interaction term (0.99). When additional controls are included (see Table 6b), these results hold. Furthermore, for two of the subcomponents—assessment and help—the intervention was able to improve significantly the quality of care offered by the service providers in the experimental group.

Conclusions

This study describes efforts to install a new model of reproductive health-care service delivery in the public-sector service system in Pakistan. The most innovative part of the intervention was its attempt to make large public reproductive health-care systems responsive to gender and familial constraints to better reproductive health. It encouraged clinic staff and community workers to become aware of clients' circumstances and to respond accordingly, to expand discussion beyond clients' immediate needs to a wider array of their reproductive health concerns, and to engage clients in discussion and negotiation regarding reproductive health-care solutions. The analysis shows that providers in the public sector can be trained to recognize that gender norms and power relations may inhibit women's access to health care. Trained providers were able to understand and express

these concepts—a signal change. The training affected provider–client negotiation, and it enhanced providers’ respect for clients’ rights and dignity—the essence of the Cairo agenda’s call for a client-centered approach.

In light of recent efforts to bring about health-sector reform in the public sector, and given the challenges involved in changing service-delivery norms, the changes brought about by the training intervention are an important achievement. The results presented here indicate that as it worked against pervasive malaise, absenteeism, and lack of responsiveness among providers in the public health system, the training intervention made small but significant changes in the care provided to clients. In most cases, the data reveal positive improvement in all four aspects of the SAHR intervention. The analyses presented here indicate that public-sector health-care providers can be trained to carry out their duties in a manner different from what they are accustomed to.

Although small in magnitude, these changes are probably underestimated in the findings as a result of measurement problems. The full impact of the intervention could not be captured because of the difficulty of maintaining strict separation between the experimental and the control areas. Although the two provincial secretaries of the Health and Population Welfare Ministries had agreed not to transfer any staff for the duration of the project, transfers in staff did take place. Such transfers, of course, occur frequently in the usual functioning of the system. Although fewer transfers occurred among community-based workers (because they live in the areas where they work) than among clinic staff, elements of the intervention were diffused because some supervisors worked in both the experimental and control areas, and they tried to “spread the word” to those of their supervisees who had not been trained. These factors likely had the overall effect of diluting differences in the results of the intervention between the experimental and control areas.

A second problem is the difficulty in applying the same measurement instrument in the two rounds of the situation analysis. In theory, a distinction should be made between the diagnostic phase and the evaluation phase, and the required data should be collected in three rounds. The first round would be used as a diagnostic tool for designing the intervention, and the second and third rounds for evaluating the effects of the intervention. Collecting data in three rounds would allow for refinement of items from round one and round two, thus allowing a tight overlap of items from round two and

round three and precise comparisons of measures before and after the intervention. In pragmatic terms, however, such precisely duplicated measurement is difficult to manage. In order to reduce costs, the first round of the situation analysis doubled as both a diagnostic tool to help with the design of the intervention and as a measure of the preintervention status of services. Therefore, after the intervention was implemented, specific items were included for measurement in the second round for which there were no baseline measurements, so that exact comparisons over time were not possible.

A third constraint is rooted in our choice of quantitative rather than qualitative research methods. The limitations of quantitative methods for measuring behavioral change have been widely noted, yet quantitative research remains important for convincing policymakers to incorporate this type of intervention into their broader programs. We relied mostly on quantitative methods, and as a result, suitable measures of behavior, which are not always clearly related to attitudes or to observable gestures, were difficult to find. Visits to providers and clients—by team members not involved in the training and by the managers of one of the major programs (the lady health worker scheme)—revealed far more change in behavior than what was picked up by the measurement tools employed for the study.

Despite these limitations, the evidence shows that the SAHR training was able to change some important elements of providers’ behavior. More specifically, the decline in quality of care over time was stalled by the training, a change that would not have occurred without the intervention. The small changes that were measured empirically appear to mark the beginning of a shift in providers’ attitudes and behavior in Pakistan. Certainly, more efforts must be made to sustain these changes and other aspects of provider–client interactions.

From this small beginning the training project is now ready for upscaling with potentially major impact. Fortunately, although it is time consuming and labor intensive in its approach, the training itself is not prohibitively expensive, as it requires no technical training or additional infrastructure to put in place. The main costs are trainers’ fees for five days, per diem allowances for the trainees, and the venue costs. It is also, therefore, cost effective.

The expansion of the SAHR training to include some 70,000 community-based workers would likely have a significant beneficial impact on the reproductive health of the women whom they serve.

Appendix

Table A1 Percentage of providers observed in interactions with clients at fixed-location clinics, by SAHR index items, according to analysis round and study area, Bhalwal Tehsil, Pakistan, 1999 and 2001

SAHR item	Situation analysis 1		Situation analysis 2		Effect of intervention		
	Experimental (n = 365)	Control (n = 341)	Experimental (n = 417)	Control (n = 406)	Probability > Chi ²	β	Standard error
Salutation							
Greeted the client	2	5	4	2	0.0003	-0.3050	0.4896
Met the client with a smile	18	23	14*	8	0.0001	-0.1173	0.4318
Offered the client a seat/bench	59	57	77**	49	0.0255	0.7701**	0.2913
Asked the client's name	60	58	59	56	0.0014	0.2531	0.2808
Introduced the observer	8	7	0	0	0.0000	0.8037	0.5246
Sought the client's permission for observer to be present	0	0	0	0	—	—	—
Asked the client about her children's health	3	4	8	8	0.1022	-0.1868	0.3715
Asked the client about her main activities	3*	0	3	1	0.0232	1.0671	0.5918
Asked the client about family's well-being	3	2	3**	0	0.0247	1.1479*	0.5287
Assured the client of confidentiality of consultation	0	0	1	0	—	—	—
Did not act as if she were in a hurry	10	12	89**	77	0.1905	0.7141	0.4101
Looked relaxed	96	93	88**	78	0.0078	0.7678	0.4173
Asked the client about any difficulty she had in reaching the facility	1	0	1	1	0.0000	1.2565	1.0980
Discussed topic of consultation	87	88	90**	76	0.0377	0.5698*	0.2807
Assessment							
Listened to the client	96	95	81**	72	0.0000	0.4302	0.4145
Asked the client whether she can make decisions about her health on her own	1	0	1	2	0.0000	0.0497	0.4919
Gave the client enough time to explain her problem	64	71	43**	27	0.0036	0.2512	0.3295
Help							
Asked the client whether she understands provider	4	4	6	7	0.0047	-0.2067	0.3997
Used any educational materials	1	0	0	5	0.0112	0.4423	0.9648
Explained the client's health situation/problem	36	36	16	15	0.0001	-0.0208	0.2375
Discussed how to use the medicine/treatment/method	74*	66	82**	67	0.0325	0.8062*	0.3137
Discussed side effects	5	2	5	3	0.0003	0.2983	0.4287
Discussed warning signs	3	5	6	8	0.2039	-0.4612	0.3531
Did not make any negative comments to the client	100	99	100	99	0.0095	1.0812	0.8241
Did not become provoked during the interaction	97	98	95	96	0.4521	-0.4549	0.4447
Did not interrupt the client at any point	84	87	89	91	0.6368	-0.4124	0.3199
Reassurance							
Explained that it is important to follow instructions	18**	10	21	16	0.0912	0.5163	0.5163
Asked the client to repeat instructions	1	0	3	2	0.0001	-0.1856	0.7417
Mentioned when the client should return for follow-up	41	36	64**	48	0.0001	0.6592*	0.2636
Assured the client that the present solution is not the only one available and that it can be renegotiated	4	2	6	6	0.0313	0.1959	0.3586
Asked whether the client wanted anything more now	2	1	1	0	0.1209	0.8833	0.6465
Referred the client for medicine/treatment/consultation	33	31	46*	36	0.0031	0.2458	0.4754

*Significant at $p < 0.05$; ** $p < 0.01$. — = Not applicable.

Other variables controlled for: age, number of children, marital status, higher education, language spoken by provider.

Table A2 Percentage of community-based providers observed in interactions with clients, by SAHR index items, according to analysis round and study area, Bhalwal Tehsil, Pakistan, 1999 and 2001

SAHR item	Situation analysis 1		Situation analysis 2		Effect of intervention		
	Experimental (n = 184)	Control (n = 197)	Experimental (n = 208)	Control (n = 235)	Probability > Chi ²	β	Standard error
Salutation							
Introduced herself	40	41	100	98	0.0000	0.3888	0.3892
Greeted the client	83**	70	84	82	0.0967	0.4892	0.3203
Met the client with a smile	80	87	66*	53	0.0000	0.4234	0.3123
Introduced the observer	41	41	38**	17	0.0017	0.7445*	0.2915
Sought the client's permission for observer to be present	1	1	0	0	—	—	—
Asked the client about her children's health	49*	37	48	40	0.0395	0.5100*	0.2111
Asked the client about family member's health	35**	15	23	18	0.0000	0.6305*	0.2439
Asked the client about her main activities	16**	7	28**	14	0.0013	1.0007**	0.2880
Built rapport with the client by discussing general topics	85	80	21**	8	0.0000	1.0392**	0.2781
Discussed topic of consultation	96	95	97	97	0.0000	-0.3970	0.5785
Assessment							
Asked the client whether she is pregnant	1**	10	17	23	0.0000	-0.2201	0.2243
Listened to the client	99	98	84	81	0.0002	0.3569	0.4245
Asked about the client's reproductive intentions	18	25	19**	7	0.2147	0.0906	0.2474
Asked the client whether she can make decisions about her health on her own	3*	8	0	0	0.1417	-0.9035	0.8858
Help							
Asked the client whether she understands worker	3	3	6	4	0.5150	0.3846	0.6520
Explained the client's health situation/problem	17	22	16	11	0.0001	0.0373	0.2436
Discussed how to use the medicine/treatment/method	45	40	22	17	0.0001	0.0043	0.2879
Discussed side effects	6**	20	17	18	0.1681	-0.5454	0.3084
Discussed warning signs	1	1	13	9	0.0000	0.5433	0.3061
Reassurance							
Explained importance of following instructions	22	21	30**	18	0.0314	0.2196	0.2756
Asked the client to repeat instructions	1	1	2	0	0.0161	1.3490	0.5197
Assured the client that the present solution is not the only one available and that it can be renegotiated	9*	3	9	4	0.0163	1.0257	0.5723
Asked whether the client wanted anything more at this meeting	8	9	6*	2	0.2460	0.3420	0.5343
Mentioned when the client should return for follow-up	22	16	18	11	0.0744	0.2769	0.3010
Referred the client for medicine/treatment/consultation	39	32	53	44	0.0037	0.3407	0.2112

*Significant at $p < 0.05$; ** $p < 0.01$. — = Not applicable.

Figure A1 SAHR, a systematic approach to meeting client's reproductive health needs

TREAT THE CLIENT WITH RESPECT AND DIGNITY		
Salutation →	<ul style="list-style-type: none"> Welcome in a courteous and friendly manner Show interest, empathy, and concern Show respect to the client and other family members Create a tension-free and relaxed atmosphere 	<ul style="list-style-type: none"> Ensure privacy and confidentiality Maintain atmosphere of equality Call the client by his/her name
ASSESS THE CLIENT'S REPRODUCTIVE HEALTH NEEDS		
Assessment →	<ul style="list-style-type: none"> Observe the client Listen carefully <ul style="list-style-type: none"> Use communication tools like reflective listening Provide ample time for consultation Identify the client's concerns, worries, and fears Assess the client's most pressing health need Assess other reproductive health needs (maternal health, child health, family planning) Examine the client, if necessary <ul style="list-style-type: none"> Ask permission to examine Explain reasons for examination Inform client of findings, including causes and prognosis 	<ul style="list-style-type: none"> Assess client's reproductive health intentions <ul style="list-style-type: none"> If not pregnant, intent to have another child and when If pregnant, ask about intended place of delivery and delivery attendant Breastfeeding intentions Child immunization intentions Assess decisionmaking power in the household Explore preexisting knowledge of health issues/problems Determine underlying attitudes and health beliefs without becoming judgmental
HELP NEGOTIATE A SOLUTION TO THE CLIENT'S REPRODUCTIVE HEALTH NEEDS		
Help →	<ul style="list-style-type: none"> Address client's concerns and issues Provide information about options appropriate to her/his reproductive health needs Negotiate a mutually agreeable solution <ul style="list-style-type: none"> Maintain an atmosphere of equality Provide ample time for listening to client's concerns Encourage the client to speak Avoid blaming the client Maintain eye contact with client Use appropriate tone and body language Avoid aggressive and passive behavior Be assertive 	<ul style="list-style-type: none"> Empower the client to address her/his needs Provide ample information about the negotiated solution If the client has to be referred, provide him/her information about <ul style="list-style-type: none"> Where to go When to go Distance involved Convenient mode of transportation Costs to be incurred Total time travel would take Directions as how to reach the referred facility Involve family members, if present, in negotiated solution and referral
REASSURE THE CLIENT AND RENEGOTIATE IF NECESSARY		
Reassurance →	<ul style="list-style-type: none"> Ask the client to repeat instructions to ascertain understanding about <ul style="list-style-type: none"> How to take medicine How to use contraceptives How to follow other instructions Allow client to ask questions Determine client's level of understanding Explore client's ability to follow the negotiated solution Reassure and allay client's fears 	<ul style="list-style-type: none"> Provide support and encouragement Reassure client that in case of need, he/she can contact the provider Work with the client to overcome obstacles Renegotiate solution, if necessary Community worker should also inform the client that provider will visit the client for follow-up client can call provider, if necessary client can visit provider directly

Notes

1 The Government of Pakistan has responded to the ICPD agenda by making significant changes in policy in the last few years. Traditionally, family planning was the purview of the Ministry of Population Welfare, and other reproductive health services (primarily maternal and child health services) were administered through the Ministry of Health. This division began to change in the late 1990s and was specifically redressed in 2000 when the responsibility for the bulk of service delivery in family planning and reproductive health was moved to the Ministry of Health. Workers in both ministries were expected to focus on all services; however, each cadre has tended to stress its own ministry's primary agenda, neglecting other service areas. The expanded program emphasis takes on greater significance in its call for closer coordination between these two ministries.

2 By "solution," we refer to a course of action that the client can undertake, for example, a specific treatment plan, check-ups, or use of contraceptives.

3 Providing the training to service providers in two different settings—community-based and fixed-location clinics—with two different institutional histories and sets of working conditions invites the possibility that the training would affect the two categories of workers differently. Specifically, the community-based workers might be better able than the providers in fixed-location clinics to incorporate the SAHR training. Community-based workers are able to work at their own pace, unlike staff at fixed-location clinics who work under the pressure of waiting clients. Community workers also make their visits in a more comfortable setting and therefore are able to address some of the broader needs of a client's household. Community-based workers are relatively recently trained: the Village Based Family Planning Worker pro-

gram was initiated in 1992 and the Lady Health Worker program in 1994. Their recent employment allows them to be open to suggestions for behavioral change. Their job performance is also closely tied to the number of community members they enlist and visit, which means that the quality and quantity of interactions are the central elements of their job description. By contrast, staff at fixed-location clinics tend to be more entrenched in their behavior because the program they work with is far older (it was launched in the 1960s and revamped in the 1980s). Its emphasis is on service delivery according to the traditional medical model.

- 4 These included medical officers, dispensers, medical technicians, lady health workers from fixed-location clinics of the Ministry of Health, and family planning workers from fixed-location clinics of the Ministry of Population Welfare. The community-based workers, namely lady health workers and village-based family planning workers, also provided the training.
- 5 The coordinator of data collection also was unaware of which were experimental sites and which were control sites. No randomization in assigning observers was employed across the experimental and control groups. Because the two situation analyses were conducted about 18 months apart, for the most part different observers were used for the separate rounds. Only three observers out of eight participated in both rounds of data collection in the fixed-location clinics, and two out of 13 participated in both rounds of data collection for the community-outreach intervention.
- 6 Although all community workers in the experimental area were given the SAHR training, only 36 community workers from the experimental area and 36 from the control area were interviewed.
- 7 The presence of an independent observer can result in changes in providers' behavior. This effect should not bias the findings of this study, however, because the impact of the presence of the observer on providers in the experimental and the control groups can be presumed to be the same.
- 8 This analytical approach is also employed in an analysis of quasi-experimental data from the Philippines; see Costello et al. (2001) for more details.
- 9 Lack of independence arises when one provider serves several clients.

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