IMPACT OF FRANCHISED FAMILY PLANNING CLINICS IN URBAN POOR AREAS IN PAKISTAN

MONIQUE HENNINK, STEVE CLEMENTS

ABSTRACT

Family planning programmes are costly to implement, so it is critical to determine their effect. This study uses a quasi-experimental design to determine the impact of new family planning clinics on knowledge, contraceptive use and unmet need for family planning, amongst married women in urban poor areas of six secondary cities of Pakistan. Baseline (n=5,338) and end-line (n=5,502) population surveys were conducted in four study sites and two control sites. Client exit interviews identified the socio-demographic and geographic characteristics of clinic users. The results show that the clinics contributed to a 5% increase in overall knowledge of family planning methods, and an increase in knowledge of female sterilisation and the IUD of 15% and 7% respectively. There were distinct effects on contraceptive uptake, with an 8% increase in female sterilisation and 7% decline in condom use. Unmet need for family planning declined in two sites, while there were variable impacts on the other sites. Although the new clinics are located within urban poor communities, users of the services are not the urban poor themselves but select sub-groups of the local population.

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Impact of Franchised Family Planning Clinics in Urban Poor Areas in Pakistan

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Introduction

Pakistan's family planning program has achieved meagre success over the past four decades, despite being one of the first countries in South Asia to make a commitment to fertility reduction as a national planning objective and develop a national family planning programme (Fikree *et al* 2001; Sathar and Casterline 1998). Fertility in Pakistan remains high at 4.8 births per woman, having fallen only slightly in recent years (NIPS 2001). Although knowledge of modern methods of contraception is high (95% of married women), only 20% of married women of reproductive age currently use a modern method of contraception (NIPS 2001). This is in sharp contrast to its neighbours, India and Bangladesh, where over 40% of couples use contraception and average family size is around 3 children (International Institute for Population Sciences and ORC Macro. 2000; NIPORT *et al* 2001). Even though there has been continued Government support for family planning and nearly 30 years of public and private-sector family planning provision, the performance of the family planning programme in Pakistan remains poor.

Pakistan has one of the highest figures for unmet need for family planning in the world, with 33% of women, wishing to limit or space their births but who are not using contraception (NIPS 2001). These high levels of unmet need have been attributable to a poor service provision environment and cultural norms which discourage contraceptive use (Shelton *et al* 1999; Mahmood and Ringheim 1997). An estimated 10% of the population live within easy walking distance of a government operated Family Welfare Clinics, and only half the population have adequate physical access to any type of family planning service (Sathar and Casterline 1998). During the 1990s there was some improvement in the provision of family planning services, most notably through community outreach activities such as the Village-Based Family Planning Workers Program, and the social marketing of contraceptives through media campaigns. However, the coverage and quality of family planning services in Pakistan remains poor (Sathar and Casterline 1998). Much research has focused on Pakistani women's lack of physical and personal autonomy, poor education and employment opportunities and lack of household authority, as influences on low contraceptive use (Mahmood and Ringheim 1997).

Family planning programmes are costly to implement, so it is critical to be able to determine the effect of such programs. One of the key issues raised at the International Conference on Population and Development (ICPD) in 1994, was the need to improve the monitoring and evaluation of family planning programmes using clearly defined performance indicators. The ICPD also raised the need for evidence-based evaluation to demonstrate progress towards population and reproductive health goals (Bertrand and Escudero 2002). Since the ICPD the development and use of evaluation indicators as effective markers of family planning programme performance has assumed a new prominence (eg: Bertrand *et al* 1994; Bertrand and Tsui 1995; Bertrand *et al* 1996; UNFPA 1999; UNAIDS 2000). Following the ICPD there has also been an increasing emphasis on demonstrating the accountability of both the country programmes and those of international donor agencies, many of which provide franchised reproductive health services. Demonstrating accountability of programmes should include an evaluation of the size of program effects, the impact of different types of programs and the cost effectiveness of programs. In addition, there is a need to know why programs are effective or ineffective and whether program use varies by people's characteristics and geographical area (Bauman *et al* 1994). These issues remain important in family planning evaluation.

The performance of Pakistan's national family planning programme has often been assessed by target-oriented measures with an emphasis on a reduction in birth rates and an increase in births averted (Rosen and Conley 1996). However, Rosen and Conly (1996) suggest that one of the challenges for the Pakistan Population Programme is to shift current demographically oriented evaluation efforts towards measures that better reflect a program's success in addressing the high unmet need for contraception, such as monitoring trends in contraceptive use, method composition and continuation.

The purpose of this study is to evaluate the impact of providing family planning clinics in urban poor areas of smaller, secondary cities of Pakistan. The aims of this study are twofold; first, to identify changes in knowledge, use and unmet need for family planning, and; second to identify the characteristics of users of the new clinics and services used. Pakistan presents an interesting context in which to examine the effect of family planning clinic provision given the high levels of unmet need for

family planning, the lack of adequate service provision and a cultural milieu which may inhibit contraceptive use. Measuring the impact of family planning clinic provision amongst the urban poor will also have important programmatic implications for placement of family planning services in Pakistan.

The Urban Poor

This research contributes towards investigating the impact of family planning service provision amongst a population group of increasing demographic importance. The urban poor population in developing countries are projected to increase significantly in number. The World Bank estimates that worldwide 30% of poor people currently live in urban areas and by 2035 half of the world's poor people are projected to live in urban areas, predominantly in cities of developing countries (Ravallion 2001). The greatest increases in the urban poor will be seen in smaller, secondary cities, which often have higher levels of fertility and unmet need for contraception, yet these areas are underserved in terms of access to reproductive health services compared with larger cities (PUPD 2003; Hinrichsen *et al* 2002; APHRC 2002; Harpham and Tanner 1995;). Despite this projected increase in the urban poor, little is known about the health of this group as survey instruments typically focus on comparisons of rural-urban poverty rather than differentials in intra-urban poverty (Diamond *et al* 2001). Poverty research has also neglected to investigate the health issues of populations in smaller cities of developing countries (PUPD 2003).

Pakistan provides a relevant context in which to investigate the impact of family planning service provision in urban poor areas. Pakistan is a poor country, listed at 142 out of 177 nations in the 2004 UNDP Human Development Index, and as such has the third lowest human development index in Asia (UNDP 2004). There exist distinct concentrations of urban poor residents in many large and mid sized cities in Pakistan (Fikree *et al* 2001), which comprise low income residents, rural residents seeking employment and refugee settlers. This study specifically focuses on the impact of providing family planning services in urban poor areas of mid-sized cities of Pakistan, where family planning needs are becoming an area of increasing importance, yet they remain under-researched.

Data and Methods

This evaluation used a quasi-experimental design, consisting of four study sites where new family planning clinics were to be opened (Gujranwala, Sargoda, Hyderabad and Shikarpur) and two control sites in different cities (Gujrat and Larkana). Baseline and end-line population surveys were conducted in each of the six sites to determine the impact of the family planning clinics on the local population. The key evaluation indicators measured were; knowledge of contraception, contraceptive prevalence and unmet need for family planning. Exit interviews were also conducted at the end-line stage, once the new family planning clinics were opened, to identify aspects of service use and the characteristics of service users.

Selection of Study Sites

The evaluation was conducted in the two most populous provinces in Pakistan: Punjab and Sindh. The evaluation was carried out in six mid-sized cities within which there was a distinct concentration of urban poor residents, the study was conducted within these urban poor areas. Each study site comprised the expected catchment area of the proposed new clinic, as defined by the clinic franchise; this was a two to three kilometre radius of each proposed clinic. The control sites comprised of similar sized urban poor areas within mid-sized cities.

The four study sites were located in Punjab (Gujranwala, Sargoda) and Sindh provinces (Hyderabad, Shikarpur) where new family planning clinics were to be opened by the clinic franchise. These were the only new clinics to be opened in each province at the time of the study. One control site was selected from each province (Gujrat in Punjab and Larkana in Sindh). The control sites were in different cities from the study sites. As there were no appropriate data from which to select the control sites, they were matched to the study sites by the following characteristics. Within each control site there was distinct concentration of urban poor of similar geographic size and density as the study sites, there was no franchised clinic in the city, there was a similar level of commercial/economic activity (ie: unskilled manufacturing and construction, commercial activities, cottage industry and agricultural activities) and the environmental conditions were visibly similar to the study sites. Finally, control sites also had a limited range of family planning services, as with the study sites.

In terms of economic activity, each study site typically had a concentration of commercial activity in the form of markets and small stores, some service industries, manufacturing (ie: cloth and fruit processing) and construction industries (ie: building material production). In addition, the sites also had a small semi-agricultural sector whereby families manage livestock; and various types of labour intensive cottage industries (ie: glass bangle making; industrial component parts). Each site had variable environmental conditions in terms of building condition, infrastructure and sewerage provision. The provision of family planning services within each site was limited. Typically there were numerous small private clinics and pharmacies located within the study areas where family planning was available. The Government hospital or Government-operated Family Welfare Clinic, offering free family planning services, was often located outside the study area and accessible via public transport.

Data Collection

The target population of the baseline and end-line surveys were ever-married women aged 15-45 residing within a 2-3 km radius of each clinic (in the study areas) or within a similar sized urban poor area in the control sites. A power calculation was performed to determine that the sample sizes of the baseline and end-line surveys were large enough to measure the statistical significance of at least a 5% change in the indicators measured. Baseline surveys were conducted in all six sites during 1999/2000 and comprised a sample of 5,338 ever-married women, aged 15-45. The samples were selected through cluster sampling followed by systematic random sampling of households to identify eligible respondents. First, each study site was mapped and four clusters identified which reflected variations in socio-demographic characteristics or environmental conditions within the study area. Within each cluster systematic random sampling of households was employed, selecting every 5^{th} household. From the selected households each eligible woman was interviewed in her own language (eg: Urdu, Sindhi). Where there was non-response the neighbouring household was selected. Non-response was very low and will therefore have little impact upon the findings. Approximately 2% of eligible women refused to participate in the survey. This rate was consistent over the baseline and end-line surveys and across the six study sites. The interviewer-administered questionnaire collected information on; socio-demographic characteristics of respondents; female autonomy;

fertility; knowledge, attitudes and use of contraception; family planning service use and indicators of demand for family planning. End-line surveys were conducted in 2001/2002, after the clinics had been operating for 18 months. The end-line surveys were conducted in the same manner as the baseline and comprised a sample of 5,502. The end-line questionnaire included an additional component on knowledge, use and quality of care provided at the new family planning clinic. Data from the baseline and end-line surveys were cross sectional rather than panel data.

The four new family planning clinics were opened by a leading international non-Government Organisation (NGO), and were part of a national franchise of reproductive health clinics operating elsewhere in the country. Each clinic is of similar physical size and located in its own building. The clinics comprise a waiting room with counselling area, doctor's room, operating and recovery rooms, and rooms for the clinic manager and community-based distribution workers. The core clinic staff comprised a clinic manager, a doctor, a lady health visitor, several nurse assistants, a family planning counsellor, and a small (6-8) team of community based distributor workers; other ancillary staff were also employed. Clinics were closed on Sunday and Friday afternoons, but were otherwise open from 9am to 5pm. All clinics adhered to the same service delivery protocols and provided identical services, including; contraception (pills, condom, injectables, IUD, female sterilisation), pregnancy testing, termination of pregnancy and advice on sexual health. Each clinic operated both clinic-based and outreach services through teams of community based distributors visiting households. All services provided are charged, the cost of services is less than those charged at private health facilities, and the clinics operate a subsidised treatment fund to enable poorer clients to avail services at reduced rates. The quality of care provided at the clinics is evaluated elsewhere (Hennink *et al* 2002). The clinics scored highly on the range of indicators used to assess quality, these included; supplies and equipment; facility conditions; service delivery protocols; staff training; infection control procedures; provider competence in clinical procedures, counselling and communication; and contraceptive method choice.

Client exit interviews were also conducted at the four new family planning clinics at the same time as the end-line survey. As the daily client load was small, all clients exiting the clinics over a three day period were asked to respond to an exit interview.

Two interviewers were used at each clinic. The exit interviews collected data on client characteristics, service use and quality of care; a total of 92 exit interviews were completed.

Data Analysis

Factor analysis was used to create an asset index[1] which is intended as a proxy for socio-economic status of the household (Filmer and Pritchett 1988). The asset index was created using ownership of household goods and presence of household amenities such as electricity and sanitation; and is divided into four categories; basic, low, medium and higher. The calculation for unmet need for family planning follows that described in Bertrand *et al* (1994), however variables for postpartum amenorrheic status were not collected, so this is not included in the calculation. The figures for unmet need in this study cannot be directly comparable to those from the DHS.

To isolate the effect of the new clinics on each of the key evaluation indicators (knowledge of contraception, contraceptive use and unmet need), data analysis involved first calculating the absolute difference in the percentage change from the baseline to the endline survey; then calculating the net effect by subtracting the absolute difference in the control sites from that in the study sites. However, one of the limitations of quasi-experimental designs is the non-random assignment of individuals to control or study groups, therefore a bias from the selection of sites may mean that the characteristics of the study and control populations differ systematically and affect the evaluation outcomes. These pre-measure differences cannot be attributed to random sampling error and therefore must be adjusted for to reveal the true effect of an intervention. Thus, to test the significance of each net effect the data were pooled across site and time (baseline plus endline) and logistic regression models (Agresti 1996) were fitted. Each model included terms for time of survey (baseline vs. endline), site (control vs. study) and a range of demographic and socio-economic variables at both the individual and household level, these were; age (<20,

[1] Principal Components Analysis was used to create the asset index. The variables used in the index were; whether the household has electricity, roof, wall and floor materials, household water source and the ownership of household goods (television, radio, refrigerator, bicycle, car, room cooler). The score was then divided into four equal groups labelled ‘higher’, ‘medium’ ,‘low’ and ‘basic’.

20-29, 30-39, 40+), number of births (1, 2-3, 4-5, 6+), standard of living index (basic, low, medium, high), respondent's level of education and husband's education (none, primary, middle, secondary) and respondent's and husbands employment (yes/no). An interaction between site and survey terms was then fitted to test (not estimate) the significance of each observed net effect. In effect, to test whether the differences between the control and study sites vary significantly between the baseline and endline surveys. This approach is similar to that used by Bertrand *et al.* (1987). This analysis design thus controls for biases in the characteristics of the respondents, both between sites and within sites over the baseline to end-line period. In addition, any effects of unmeasured factors that are fixed across time (eg: differences in existing family planning provision) between the study and control sites is also controlled (by pooling the data across sites and including terms for site). Analyses were performed in Excel and SPSS.

The analysis, however, is unable to account for unmeasured non-fixed effects, such as changes which may have occurred in the study or control sites over the period of the evaluation (eg: new family planning services or local campaigns). During fieldwork researchers tried to identify any such changes by contacting Government family welfare officers, family planning clinic staff and community leaders to determine whether any programmes or services were developed in any of the study areas which may have impacted on the effect of the new clinics. The results of these checks revealed no change in the local service or program environment during the 18 month evaluation period. It may therefore be reasonable to assume that any historical or exogenous change is uniform across the study sites, so biases associated with change have been effectively controlled by adjusting for biases in selection described above (Bertrand *et al* 1987; Cook and Campbell 1979).

Results

The baseline sample consists of 5,338 ever-married women aged 15-45 years, residing in the urban slum areas described above. The socio-demographic characteristics of the study sample at baseline (Table 1) reflect those typical of urban poor residents, with

low levels of education and standard of living, young age at marriage and high fertility.

Forty percent of women across all study sites had received no formal schooling, and a further 18% had completed primary school education only. Approximately one third of women had received secondary or further education. Furthermore, 37% of all women identified themselves as illiterate. The education level of husbands is higher with only 25% receiving no formal schooling, 12% educated to primary level and 49% receiving education to secondary level or above. More than half of the study sample (52%) were categorised as living at a 'basic' or 'low' standard of living. A small proportion of women were employed, typically in manual unskilled occupations such as labouring, handicrafts and in the numerous cottage industries within the study area. Women employed in professional/managerial occupations were typically teachers or school assistants. The majority of husbands were employed in manual unskilled occupations (ie: factory work, farm labourers) or non-manual occupations (ie: shopkeepers, landlords).

The mean age at marriage of women is 18 years. One quarter of women were married below the age of 16 and only 4% of all women married older than 25 years. The study sample is also characterised by high fertility and infant mortality. Women have an average of 4.4 births, but approximately one third of women had more than six births. Almost one quarter of all women experienced infant mortality, however this is as high as 40% in one study site. Almost all women (99.2%) are Muslim. The majority of women (78%) and husbands (69%) approve of contraceptive use. The contraceptive prevalence rate at baseline was 29.8% (Table 3), with the condom the most commonly used method of contraception (32%), followed by pills (14%) and female sterilisation (13%).

There exist strong similarities in the demographic characteristics of the study samples in each site, as described above. However, study samples in Larkana and Shikarpur show a poorer, more conservative profile, with both sites showing a lower standard of living index, higher proportion of uneducated women, and higher proportions of women and husbands disapproving of contraception, than other sites. In contrast, the characteristics of the Gujrat sample indicate a more educated and less socially conservative sample, relative to the other study sites. For example, the Gujrat sample

shows a higher standard of living index, higher level of education of women, higher age at marriage, lower fertility and infant mortality than other sites, and the highest approval of contraception of all the study sites.

Effect of Family Planning Clinics

Population indicators were used to measure the aggregate effect of the family planning clinics on the local population. The population indicators used in the evaluation include; knowledge of contraception, contraceptive prevalence and unmet need for family planning. Although the change fertility was also measured, it is not reported here as program impact on fertility is often only apparent after a five year period (Bauman *et al* 1994). In addition, this evaluation also identified the types of clients using the family planning clinics to identify the individual level effects of the family planning clinics. These effects are reported below.

a) Knowledge of Family Planning Methods

Eighty eight percent of women were able to name at least one modern method of contraception at the time of the baseline survey (Table 2). Male and female sterilisations were the least known methods of contraception, while the majority of women were able to identify contraceptive pills. At the end-line survey knowledge of contraception had increased to 96%. When compared to the control sites, the new clinic sites showed a statistically significant increase of almost 5% ($p<0.01$) in knowledge of modern methods of contraception. However, the greatest impact is seen in the change in knowledge of individual methods of contraception. The clinic sites experienced a significant increase in women's knowledge of female sterilisation (15%) and the IUD (7%)[2] (both at $p<0.01$). Women's increase in knowledge of injectables (6.7%) and oral contraceptives (6.1%) were smaller, but also highly statistically significant ($p<0.01$).

[2] Seven percent is the true increase as the 15% increase in the study sites , reported in Table 2, is due to a 7% *decline* of IUD use in the control sites.

b) Contraceptive Use

Changes in the contraceptive prevalence rate (CPR) and contraceptive method mix are shown in Table 3. The CPR refers to the proportion of married women of reproductive age who are currently using a method of contraception; this indicator provides a measure of population coverage of contraceptive use and the extent to which existing family planning programmes have reached the population. At the baseline survey almost 30% of women were currently using a method of contraception; 24% using a modern method of contraception. The contraceptive method mix comprised of mainly condom use (32%), oral contraceptives (14%), female sterilisation (13%) and the IUD (10%).

The new family planning clinics have shown little impact on the overall contraceptive prevalence of the population. However, there have been distinct effects on the uptake of individual methods of contraception. There are two significant changes in contraceptive method use since the operation of the new clinics. First, the condom remained the most common method of contraception and accounts for 30% of contraceptive method use; however, since the operation of the clinics condom use has declined by 7% ($p<0.05$). Second, there has been a significant rise in the use of female sterilisation by 8% ($p<0.01$), making female sterilisation now the second most common method accounting for 22% of users. The extent to which the decline in condom use represents method switching to more permanent contraception is unclear. Further changes in method composition include, a decline in pill use (4%) and an increase in withdrawal (6%), however these changes are not statistically significant.

c) Do the clinics serve the local community?

It is important to assess whether the new clinics are serving the local urban poor population or only a sub-section of this population. Table 4 uses data from the end-line population survey to compare the characteristics of the population who identified that their most recent family planning source was the new clinics, those whose most recent source was another family planning service and non-users of family planning services. This comparison shows that within the local population users of the new clinics are more likely than users of other family planning services to be younger (under 30 years, $p<0.05\%$), and from a higher standard of living ($p<0.05$); they are also more likely to use non-permanent methods of contraception. These comparisons

suggest that amongst users of family planning services, the new clinics do indeed serve a sub-section of the local community (ie: younger, richer women interested in birth spacing) and are less likely than other providers to attract poor women aged over 30 years from the clinic catchment who seek permanent methods of family planning. Not surprisingly, women who had never used a family planning service are more likely than users of the new clinic to be young (under 30 years, $p<0.10$), low parity or nulliparous (3 or fewer children, $p<0.01$); of a low or basic standard of living ($p<0.05$) and have no formal education ($p<0.05$).

d) Characteristics of Family Planning Clinic Users

The socio-demographic characteristics of users of the new family planning clinics were identified through the exit interviews. It is significant to note that no men used the clinics during the study period, therefore all data relate to female clinic users. Most clinic users (59%) had never used any family planning services prior to attending the new clinics. Women who had used a previous source for family planning were most likely to have used a Government hospital (55%) or a private clinic (35%), but stated that they intended to return to the new family planning clinics for their future family planning needs.

There exist interesting patterns in the demographic, socio-economic and geographic characteristics of clinic users. Although the small client numbers do not allow these patterns to be verified they are worthy of description. Clinic users form three distinct sub-groups. The first group comprise 75% of the clinic users and reside within the clinic catchment area. These users are young, married, low parity (<3) women of higher socio-economic status who seek temporary methods of contraception (ie: IUD, injectables) or a pregnancy test. These users are not typical of family planning users amongst the local population; therefore the clinics are mainly being used by a sub-sector of the local urban poor population in which they are located. The second group of users reside outside the clinic catchment area, are married, high parity (4+) women of low socio-economic status, who have not previously used contraception and seek female sterilisation from the clinics. The third group of users also reside outside the clinic catchment area, but are young (16-19), poor women who are separated or unmarried and used the clinic for a termination of pregnancy. This group comprised the smallest in number.

The two groups of users from outside the clinic catchment area may be described as high need groups; as they are poor yet willing to travel some distance to fee paying services to meet their family planning needs. These findings highlight that although the new clinics are located within urban poor communities, they are largely serving the needs of quite specific sub-groups of the local population.

e) Unmet Need for Family Planning

The level of unmet need for family planning refers to the proportion of women who desire to either cease or postpone childbearing, but who are not currently using a contraceptive method. Table 5 shows the impact of the family planning clinics on unmet need for family planning in each study site separately, as the pattern of effects varies by site. The baseline survey showed that all study sites experience a high unmet need for family planning. Approximately half of women in the Punjab sites (Gujranwala, Sargodha); and one third of women in Sindh sites (Hyderabad, Shikarpur) have an unmet need for family planning. In general, the unmet need for limiting births is greater than the unmet need for spacing future births; however, in the most culturally conservative site (Shikarpur), there exists similar levels of unmet need for both spacing and limiting births.

Table 5 shows that the study sites in the Punjab province experienced a statistically significant decline in unmet need for family planning; with a decline of 14% in Sargodha and almost 10% in Gujranwala (both at $p<0.01$). This decline in unmet need is largely comprised of a reduction in the unmet need for limiting births which had reduced by 11% and 7% respectively in Sargodha and Gujranwala. Although there have also been marginal decreases in the unmet need for spacing births in these sites, these change are not statistically significant. Therefore the new clinics have impacted on significantly reducing the unmet need for family planning in the Punjab study sites, particularly the unmet need for limiting births.

The effect of the new clinics in the Sindh province is less distinct than those in the Punjab. In both Hyderabad and Shikarpur there has been an *increase* in the total unmet need for family planning, although this change is not statistically significant; and a *decline* in the proportion of women able to satisfy their family planning needs.

These findings suggest that the new clinics in the Sindh province have had little impact on the family planning needs of women in these sites. In Hyderabad, however, there was a reduction in both the demand for limiting births by 11% ($p<0.01$) and unmet need for limiting births by 3%. It is possible that in the more culturally conservative study sites in Sindh province that the presence of the new clinics has contributed towards generating a demand for family planning (eg: 9% increase in demand for spacing in Hyderabad and 5% increase in demand for limiting in Shikarpur) which has not yet been translated into practice of adopting family planning methods.

Discussion

This study evaluated the impact of providing family planning clinics in urban poor communities in smaller, secondary cities of Pakistan. These settings showed up to 50% of women had an unmet need for family planning at the baseline survey. The impact of providing family planning clinics in these urban poor environments has shown a clear effect on women's knowledge of contraception, contraceptive method composition and unmet need for family planning. In addition, this study has identified important distinctions between groups of users of the new clinics.

The new family planning clinics have clearly impacted on women's knowledge of contraception, with a 5% increase in overall knowledge of modern methods of contraception, and an increase in knowledge of female sterilisation and the IUD of 15% and 7% respectively. Women's knowledge of modern methods of contraception stood at 88% at the baseline survey, a figure more comparable to knowledge levels in rural areas of Pakistan (88%) than to 'minor urban' areas (94%) (Ministry of Population Welfare *et al* 1995).

It is important to identify the components of information delivery which may have influenced the rise in knowledge of contraceptive methods. Within each study area information about family planning was not only imparted to clinic users but also to non-users through a network of outreach workers who visit households to discuss contraceptive methods and clinic facilities. Amongst clinic users, 42% stated that they had learnt of the clinic through a community worker and a further 28% through family and friends. Such informal means of information provision are likely to have

contributed to the significant rise in knowledge of contraception in the short period of this evaluation and to have influenced contraceptive uptake. Much has been written of the link between contraceptive use and contact with community based workers in Pakistan (Sultan *et al* 2002; Shelton *et al* 1999; Rukanuddin and Hardee-Cleaveland 1992). One third of women in Pakistan identified outreach workers as their source of family planning information (Ministry of Population Welfare *et al* 1995). Shelton *et al* (1999) demonstrate the dramatic influence of community based distributors on contraceptive uptake, with contraceptive use rising from 12% to 33% in a 12 month period where outreach workers were operating. A more recent study shows that women in Pakistan living in close proximity to a community-based worker were 1.74 times more likely to use a method of contraception than those who did not (Sultan *et al* 2002). These findings confirm that the role of community based family planning workers is an important ingredient in improving contraceptive knowledge and uptake. Outreach workers also provide motivation and improved access to services which may spur into action women with a latent demand for family planning. Therefore, the provision of new family planning clinics should endeavour to incorporate an outreach component in the clinic's activities to achieve greater knowledge of contraceptive methods.

In terms of contraceptive uptake, this evaluation shows that the new clinics had little impact on the overall contraceptive prevalence rate but there were important changes in the uptake of specific methods of contraception. The significant increase in female sterilisation and decline in condom use over the evaluation period, have led to a new contraceptive method mix led by the condom (albeit a smaller proportion), female sterilisation and the IUD. This change in method composition suggests that the new clinics have contributed to a general increase in method preference towards permanent (female sterilisation) and longer-term temporary methods (IUD). This implies that the provision of family planning clinics in similar areas of Pakistan will have a greater impact if they are able to provide female sterilisation and IUD procedures. Further research would be needed to fully understand the dynamics of this shift in method preference, for example if it is driven by women's preferences, husband's influence or other factors. In addition, a methodological implication of this finding is the strong need to retain variables which measure changes in method composition in addition to change in overall CPR. Such important changes in method mix may be concealed if

the evaluation is designed to only identify broader change in the contraceptive prevalence rates.

The new clinics have also impacted on unmet need for family planning; however these findings are variable by study site. In Gujranwala and Sargodha the new clinics contributed to a significant decline in unmet need for family planning (14% and 10% respectively), most of this change is comprised of declines in unmet need for limiting births. The balance of unmet need towards limiting births, rather than spacing births, is a common feature of many Asian countries (Westoff and Bankole 2000). Nortman (1982) suggests that the number of women who want no more children generally exceeds the number wanting to space births by an average of 2:1, hence more women with unmet need are likely to be birth limiters than spacers.

In Hyderabad and Shikarpur, the new clinics led to no reduction in overall unmet need but some increases in demand for family planning were observed. The demand for spacing births increased in Hyderabad (+9.3%), while the demand for limiting births increased in Shikarpur (+5.5%). It is possible that in these sites the new clinics may have contributed towards generating demand for family planning which has not transferred into uptake of methods. There may be socio-cultural factors which hinder the uptake of family planning methods in these locations. For example, in Pakistan the husband and mother in law have a significant influence over a woman's fertility and contraceptive behaviour (Fikree *et al* 2001). In data analysis reported elsewhere (Stephenson and Hennink 2004) the urban poor women in this study were shown to be ten times more likely to use a method of contraception if her husband approves of family planning; and less likely to use contraception if her mother-in-law was resident in the household. In Hyderabad and Skikarpur women reported lower levels of husband's approval of family planning and a higher proportion of women lived in the household with the mother-in-law; these factors may help to explain the lower uptake of contraception in these study sites even though women exert a demand for family planning. In addition, the administrative requirements of family planning services in Pakistan often reinforce the need for a husband's approval; in that Government and private clinics continue to require husband's written consent before conducting a tubal ligation (NGOCC 2000). Although the findings above suggest some clustering of sites in each province, these should not be interpreted as *provincial* differences (as data are

not drawn on probability samples from each province) rather as variation by study sites.

The differential impact of the new clinics on unmet need for family planning may also be interpreted in relation to levels of female sterilisation. The greatest impact of the new clinics is seen in reducing the unmet need for limiting births through the uptake of female sterilisation. The pattern of impact is such that the sites with lowest levels of female sterilisation at baseline (ie: 9% in Sargodha and 15% in Gujranwala) show the greatest decline in unmet need; while sites where levels of female sterilisation were higher at baseline (ie: 18% in Hyderabad and 25% in Shikarpur) experienced little impact on unmet need. Therefore, the initial pattern of clinic impact seen in this study may be one of sterilisation uptake. Nortman (1982) states that potential birth limiters are much more likely to use contraception than birth spacers. Therefore, the initial impact of the new clinics is greater in areas where the demand for limiting births is greater than the demand for spacing births. This implies that the placement of new clinics in areas of high demand for limiting births will show a greater initial impact on contraceptive uptake than their placement in areas where the demand for spacing is predominant.

This study has also shown that the new clinics have an impact on contraceptive use outside of the clinic catchment areas. The clinics were being used by poor women from outside the catchment who had very specific family planning needs; either they were high parity poor women seeking sterilisation or young unmarried women seeking a termination of pregnancy. This implies that some urban poor women are willing to travel some distance to access quality family planning services when they have a ‘high’ family planning need. Also suggested is poor women’s willingness to pay for these services, although some subsidies may have been given. These findings suggest that the geographic impact of the clinics is broader than their immediate catchment area, particularly for specific sub-groups of contraceptive users.

The study also shows that these clinics are not used by the urban poor population even though they are located in areas of high concentration of the urban poor. The clinic users from within the catchment area are a sub-group of the local population, who are young, low parity women of a medium/high socioeconomic status and seek non-

permanent contraceptive methods. This suggests these clinics clearly are not a source of family planning for the poorest groups, despite being located in close proximity and offering subsidised treatment.

Conclusion

Measuring the impact of family planning services is often the central component of family planning evaluation, and changes in the components of unmet need provide invaluable information for family planning program management. The socio-cultural context of Pakistan provided a challenging opportunity to identify whether unmet need for family planning can be met operationally through the provision of accessible, high quality family planning services in areas demonstrating a high unmet need and low contraceptive prevalence.

This study has shown that clinics opened in urban slum areas have a clear impact on women's overall knowledge of family planning, and an important component of knowledge increase is the use of community outreach workers. This evaluation showed that the new clinics had little impact on contraceptive prevalence, however, this masks important changes which occurred in method composition. These included an increase in permanent methods (female sterilisation) and longer-term temporary methods (IUD), while condom use declined. This highlights the importance of including variables which measure change in individual methods when conducting similar evaluations. This evaluation also showed that the impact of the clinics on unmet need for family planning is variable and may be linked to the level of sterilisation uptake at baseline, whereby low sterilisation rates lead to a greater impact of the clinics and vice versa. This may imply that clinic provision in areas of low sterilisation uptake are likely to show a greater impact on unmet need. Finally, the evaluation highlights that despite the clinics being located in urban poor areas, they are not used by urban poor women, but predominantly by young, middle-income, low parity women. However, the study also identified that some 'high need' poor women travelled long distances from outside the clinic catchment to utilise services. These clinics are therefore not a strategy for the provision of family planning for the poorest groups in the immediate clinic vicinity. Continued monitoring of the clinics will determine if the initial effects identified are sustained and whether the user base changes as the program matures.

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Table 1 ***Socio-Demographic Characteristics of Study Sample (at Baseline).***

	Punjab Province			Sindh Province			Total Sample
	Guj'wala	Sargodha	Gujrat*	Hyderabad	Shikarpur	Larkana*	
Sample Size (Baseline)	1054	1009	553	1081	1084	557	5338
Age Distribution							
16-19	2.2	2.2	1.3	3.9	2.9	6.8	3.1
20-24	15.4	14.8	16.1	12.7	15.2	20.3	15.3
25-29	22.0	24.7	22.6	23.7	23.1	25.7	23.5
30-34	20.0	21.1	20.1	21.6	20.4	17.2	20.3
35-39	20.5	18.8	21.5	22.4	21.3	22.3	20.9
40-45	19.9	19.1	18.4	15.8	17.2	7.7	17.0
Mean Age at Marriage	19.1	18.9	19.8	18.3	18.1	16.5	18.4
Average No. Births	4.4	4.5	3.8	4.7	4.5	4.9	4.4
Experienced Infant Mortality	26.0	18.6	13.3	25.7	20.9	40.1	24.1
Literacy (self reported)							
Read newspaper/letter:							
Easily	59.0	57.7	77.8	52.9	49.4	16.4	52.9
With Difficulty	10.7	7.1	5.8	9.6	11.0	4.5	8.7
Not at all	30.2	35.0	16.5	36.7	39.4	78.8	37.8
Education							
No Formal Education	32.7	36.8	16.6	42.7	41.4	78.6	40.4
Primary School	19.3	19.6	15.7	15.5	25.2	12.4	18.7
Middle School	16.9	13.2	15.7	11.4	9.4	2.0	11.9
Secondary School	20.8	21.0	30.0	17.0	10.8	2.9	17.1
Further Education	10.3	9.4	21.9	12.7	13.0	3.6	11.7
Husband's Education							
No Formal Education	25.0	25.9	13.9	27.9	21.4	41.0	25.6
Primary School	12.2	9.8	8.1	12.1	10.5	21.8	12.0
Middle School	17.5	16.0	15.9	11.9	7.7	5.6	12.7
Secondary School	29.2	31.8	32.5	21.2	15.4	12.2	24.0
Further Education	16.1	16.6	29.5	25.8	44.9	19.2	25.5
Women Employed	15.2	9.1	4.9	6.8	26.1	27.5	14.1
Husband Employed	96.5	98.2	95.8	96.2	97.2	91.0	96.3
Type Employment							
Agriculture	0.1	0.5	1.4	1.2	1.0	3.9	
Manual (unskilled)[1]	54.7	53.3	23.1	34.2	21.6	44.6	1.0
Manual (skilled)[2]	5.6	7.7	12.5	12.4	7.3	11.0	37.4
Non-Manual[3]	30.0	38.5	40.3	42.6	46.3	24.3	8.5
rofessional/Managerial[4]	6.6	9.5	9.5	8.7	23.8	15.8	34.1
Work Abroad	3.1	0.5	13.2	0.9	0.1	0.4	11.6
							2.2
Standard of Living Index[5]							
Basic	15.6	20.7	5.8	8.7	28.1	72.5	22.6
Low	25.3	33.0	17.1	38.9	30.3	18.2	28.9
Medium	34.7	27.6	31.9	40.1	28.7	7.3	30.1
Higher	24.5	18.7	42.5	12.3	12.9	2.0	18.4
Approve of Contraception							
Yes	74.8	77.4	91.1	78.3	81.2	67.7	78.3
No	16.5	18.0	6.7	15.9	18.5	28.7	17.3
Don't Know	8.7	4.7	1.4	5.8	0.3	3.6	4.4
Husband Approves of Contraception							
Yes	72.6	73.5	76.8	70.7	65.1	54.2	69.4
No	17.8	21.5	18.1	23.0	32.8	40.7	25.0
Don't Know	9.6	5.0	5.1	6.4	2.1	5.0	5.6

Notes: Data from baseline survey. * Control site. [1] Unskilled Manual occupations for Men (ie: machine operators, factory work, labouring, blacksmith, tonga drivers, vegetable market workers, farmers/fishermen). [2] Skilled Manual Occupations for Men (ie: driver, blacksmith). [3] Non-Manual Occupations for Men (ie: shopkeepers, landlords). [4] Professional Managerial Occupations for Men (ie: government employees, small hotel owners or had their own business). [5] The standard of living index is created using 14 variables of ownership; including ownership of household assets, ownership of property or business, access to household facilities (electricity, water) and condition of the dwelling.

Table 2 Changes in Knowledge of Modern Methods of Family Planning.

	Study Sites (%)		Control Sites (%)		Absolute Difference[1] (% change)		Net Effect[2] (% change)
	Baseline	Endline	Baseline	Endline	Study Sites	Control Sites	
Knowledge of Any Modern Method	88.3	96.0	88.8	91.7	7.7	2.9	4.8***
Condom	49.4	56.2	38.1	45.2	6.8	7.1	-0.3
Pill	82.7	93.3	84.1	88.6	10.6	4.5	6.1***
IUD	43.1	50.3	55.2	47.6	7.2	-7.6	14.8***
Injectable	75.5	89.4	75.2	82.4	13.9	7.2	6.7***
Female Sterilisation	28.9	46.4	36.7	38.9	17.5	2.2	15.3***
Male Sterilisation	16.7	16.0	18.8	13.2	-0.7	-5.6	4.9
No. of Cases	3755	4377	986	1125			

Note: Data from baseline and endline surveys. [1] Absolute difference refers to the percentage change from baseline to endline survey. [2] Net effect refers to the percentage change in clinic sites after accounting for the percentage change in the control sites. The significance of the calculated net effects were tested using logistic regression analyses that accounted for changes in the demographic and socio-economic characteristics of respondents and fixed differences between the study and control sites. ** $p<0.05$, *** $p<0.01$.

Table 3 Changes in Contraceptive Use

Contraceptive Use	Clinic Sites (%)		Control Sites (%)		Absolute Difference[1] (% change)		Net Effect[2] (% change)
	Baseline	Endline	Baseline	Endline	Clinic Site	Control Site	
Ever used Contraception	37.8	45.3	29.2	38.4	7.5	9.2	-1.7
Contraceptive Prevalence Rate (CPR)	29.8	35.7	20.9	26.7	5.9	5.8	+0.1
Current Use of Contraception:							
Modern Method	24.9	29.6	16.4	22.6	4.7	6.2	-1.5
Natural Method	4.9	6.2	4.4	4.1	1.3	-0.3	+1.6
Condom	32.4	30.2	19.9	24.7	-2.2	4.8	-7.0**
Pill	14.4	8.9	10.0	8.7	-5.5	-1.3	-4.2
IUD	10.5	14.0	15.6	17.3	3.5	1.7	+1.8
Injectables	7.2	6.7	8.7	8.3	-0.5	-0.4	-0.1
Diaphragm	0.4	0.3	0	0	-0.1	0	-0.1
Female Sterilisation	13.6	22.4	24.2	25	8.8	0.8	+8.0***
Male Sterilisation	5.0	0.3	0.4	0.7	-4.7	0.3	-5.0
Rhythm	0.2	0.2	0.4	0	0.0	-0.4	+0.4
Withdrawal	5.0	12.9	10	12.3	7.9	2.3	+5.6
Abstinence	9.8	3.3	9.1	1.7	-6.5	-7.4	+0.9
Breastfeeding	1.5	0.6	1.3	1	-0.9	-0.3	-0.6
Other	0.1	0.3	0.4	0.3	0.2	-0.1	+0.3
No. of Cases	1263	1562	231	300			

Note: Data from Baseline and household surveys. [1] Absolute difference refers to the percentage change from baseline to endline survey. [2] Net effect refers to the percentage change in clinic sites after accounting for the percentage change in the control sites. The significance of the calculated net effects were tested using logistic regression analyses that accounted for changes in the demographic and socio-economic characteristics of respondents and fixed differences between the study and control sites. ** $p<0.05$, *** $p<0.01$.

Table 4 Characteristics of Clinic Users Compared with Users of Other Services and Non-users.

	New Clinic Users (%)	Users of Other FP Services (%)		Non-Users of FP Services[1] (%)	
Age distribution			**		*
<20	0	0.5		4	
20-29	37	26		41	
30-39	58	49		35	
40+	4	24		19	
No. of cases	112	1569		3815	
No. of living children					***
0	0	0.3		16	
1	6	4		16	
2-3	27	28		30	
4+	67	67		38	
No. of cases	112	1568		3794	
Education					**
No formal education	27	35		42	
Primary	17	19		14	
Middle	13	13		12	
Secondary and Further	43	32		31	
No. of cases	112	1569		3815	
Standard of living index			**		**
Basic	9	11		18	
Low	25	39		28	
Medium	42	37		35	
Higher	24	24		19	
No. of cases	112	1558		3790	
Travel outside neighbourhood					*
Alone	45	49		37	
Accompanied	55	51		63	
No. of cases	112	1569		3815	
Purpose of Last FP Visit			*		
Pill	14	13.1		n/a	
Condom	6	12.4		n/a	
Injection	21	13.5		n/a	
IUD (or referral)	29	23.0		n/a	
Female Sterilization	17	28.3		n/a	
Advice on FP	1	1.8		n/a	
Advice on sexual diseases	2	0.3		n/a	
Termination of pregnancy	3	0.4		n/a	
Other	7	6.9		n/a	
No. of cases	112	1569			

Note: Data from endline household survey.[1] Never used a family planning service. Significance level compared with new clinic users column: * p<0.10, ** p<0.05, *** p<0.01. .Chi-squared test used to detect differences compared to 'all users of new clinics' column.

Table 5 Changes in Unmet Need for Family Planning by Study Sites (percentage of currently married, fecund women)

Indicators	**Sargodha** (%)				**Gujranwala** (%)			
	Baseline	Endline	Absolute Difference[1] (% change)	Net Effect[2] (% change)	Baseline	Endline	Absolute Difference[1] (% change)	Net Effect[2] (% change)
Demand for limiting[3]	44.0	37.7	-6.3	-8.8	42.8	42.1	-0.7	-3.2
Demand for spacing[4]	23.1	22.4	-0.7	-0.7	26.1	24.0	-2.1	-2.1
Total demand for family planning	67.1	60.0	-7.1	-9.5	68.9	66.0	-2.9	-5.4
Satisfaction of demand[5]	29.9	45.3	15.5	13.8**	26.4	37.9	11.5	9.8
Unmet need for limiting[6]	31.4	21.2	-10.2	-11.1**	31.7	25.5	-6.2	-7.2***
Unmet need for spacing[7]	15.7	11.9	-3.8	-3.2	19.0	15.8	-3.2	-2.6
Total unmet need	47.1	33.1	-14.0	-14.3***	50.7	41.3	-9.4	-9.8***
	Hyderabad (%)				**Shikarpur** (%)			
	Baseline	Endline	Absolute Difference[1] (% change)	Net Effect[2] (% change)	Baseline	Endline	Absolute Difference[1] (% change)	Net Effect[2] (% change)
Demand for limiting[3]	38.3	29.5	-8.8	-11.2***	23.1	30.9	7.8	5.5
Demand for spacing[4]	22.6	27.7	5.1	9.3**	28.6	24.4	-4.2	0.1
Total demand for family planning	60.8	57.2	-3.7	-2.0	51.7	55.4	3.7	5.3
Satisfaction of demand[5]	52.2	52.5	0.3	-10.2***	45.8	52.0	6.2	-4.3**
Unmet need for limiting[6]	18.7	13.5	-5.2	-3.4	12.6	12.8	0.2	2.1
Unmet need for spacing[7]	10.5	13.6	3.2	8.1**	15.5	13.8	-1.7	3.2
Total unmet need	29.2	27.2	-2.0	4.7	28.0	26.6	-1.4	5.3

Note: Data from household surveys. ** p<0.05 *** p<0.01. Logistic regression analysis accounted for demographic and socio-economic characteristics of respondents.
[1] Absolute difference refers to the percentage change from baseline to endline survey. [2] Net effect refers to the percentage change in study site after accounting for the effect in the province control site. [3] proportion of women who desire no additional births. [4] proportion of women who desire to delay next birth for at least 2 years. [5] proportion of total demand for family planning satisfied by contraceptive use. [6] proportion of women who desire to cease childbearing but are not using a contraceptive method. [7] proportion of women who desire to delay the next birth for at least 2 years but are not using a contraceptive method.