Impact of Family Planning Clinic Provision on the Urban Poor in Pakistan.

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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 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 15% increase in knowledge of female sterilisation and the IUD. Unmet need for family planning declined in the Punjab sites, while there were variable impacts on the sites in Sindh province. 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.

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; Robinson *et al* 1981). Fertility in Pakistan remains high at 5.4 births per woman, having fallen only slightly in recent years (NIPS 1998). Although knowledge of modern methods of contraception is high (94% of married women), only 17% of married women of reproductive age currently use a modern method of contraception (Pakistan Reproductive Health and Family Planning Survey 2001; Sathar and Casterline 1998). This is in sharp contrast to its neighbours, India and Bangladesh, where over 40% of couples use contraception and average family size is between 3-4 children (Rosen and Conly 1996). 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's fertility rate is estimated to exceed the ideal number of children by more than one child, indicating a large unmet need for family planning (Mahmood and Ringheim 1997). Pakistan has one of the highest figures for unmet need for family planning in the world, with 28% of women (almost six million couples), wishing to limit or space their births but who are not using contraception (Rosen and Conly 1996). 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; Razzaque Rukanuddin and Hardee-Cleaveland 1992). 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; Rosen and Conly 1996). 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; Rosen and Conly 1996). 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 (Sathar *et al* 1988; 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, Magnani, Knowles 1994; Bertrand and Tsui 1995; Bertrand, Magnani, Rutenberg 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 to urban poor residents in 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

The family planning needs of urban poor residents in developing countries is becoming an area of increasing importance for several reasons. First, there will be a significant increase in the number of urban poor, as world population growth over the next 25 years will be concentrated in the cities of developing countries, with the greatest increases occurring in Asia and Africa (PUPD 2003; Hinrichsen *et al* 2002). The World Bank estimates that worldwide 30% of poor people currently live in urban areas, by 2020 the proportion is projected to reach 40% and by 2035 half of the world's poor people are projected to live in urban areas (Ravallion 2001). Second, the most significant increases in urban growth will be seen in smaller, secondary cities rather than large urban centres. The urban poor in smaller cities typically experience a marked disadvantage in the provision of basic amenities and are underserved in terms of access to reproductive health services compared with their counterparts living in larger cities (PUPD 2003; Hinrichsen *et al* 2002). Therefore, increased poverty rates and worsening reproductive health can be expected in secondary cities of developing countries.

Third, urban poor residents, particularly those in slums and squatter settlements, experience worse levels of reproductive health than their rural counterparts (PUPD 2003). For example, infant mortality is higher in the slum areas of Dhaka than in rural Bangladesh (Harpham and Tanner 1995), and child mortality rates in Nairobi slums exceed rural rates (APHRC 2002). Furthermore, the urban poor in smaller cities often have higher levels of fertility and unmet need for contraception than those in large urban centres; unmet need for family planning is 25% in cities with less than 100,000

inhabitants, and 15% in cities with a population between 500,000 to 1 million (PUPD 2003).

Third, demographic research in developing countries typically focuses on rural-urban comparisons rather than on intra-urban differentials in health and socio-economic disadvantage. As a result little is known about the health of the urban poor and most survey instruments do not capture this sub-group (Diamond *et al* 2001). Researchers have often neglected to investigate the health and service issues of populations in smaller cities of developing countries (PUPD 2003). Furthermore, international development priorities have more recently focussed attention and resources towards improving the health of the world's poorest populations; and major health organisations have the elimination of poverty as an overarching objective (Wagstaff 2000; Diamond *et al* 2001; Falkingham and Namazie 2002). The international development targets set by the United Nations in 1996 include both the reduction of poverty and improved access to reproductive health services as explicit goals, which underscores the increasing international importance of focussing research towards investigating health needs of the world's poorest communities.

Data and Methods

This evaluation used a quasi-experimental design, consisting of four study sites where new family planning clinics were to be opened and two control sites. 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 conducted once the new family planning clinics were opened to identify aspects of service use, client characteristics and client satisfaction.

Baseline surveys were conducted in all six sites during 1999/2000 and comprised a sample of 5,338 ever-married women, aged 15-45 residing within a two to three kilometre catchment radius of the proposed new family planning clinics. The catchment areas were mapped and four clusters identified from which households were selected using systematic random sampling. Each eligible woman in the selected households was interviewed. Cluster sampling was employed to enable the range of

socio-demographic characteristics of the target population to be captured in the survey. 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 ever-married women. 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 were cross sectional rather than panel data.

Client exit interviews were also conducted at the four new family planning clinics at the same time as the end-line survey. The exit survey captured all users exiting the clinics over a three day period. The exit interviews collected data on client characteristics, service use and quality of care; and comprised a sample of 92 clinic users.

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. 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. All services provided are charged, although some subsidies exist. Each clinic operated both clinic-based and outreach services through teams of community based distributors visiting households. 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.

To isolate the effect of the new clinics on each of the key evaluation indicators, 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 may 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. To test the significance of each net effect and account for unobserved differences between the study and control sites a logistic regression model was fitted to the individual data to identify whether the survey (baseline vs. endline) by site (control vs. study) interaction remained statistically significant after accounting for age, number of births, standard of living index, education and employment. This approach is similar to that used by Bertrand *et al.* (1987). This analysis, however, is unable to account for other changes or factors that may have varied between the study and control sites; although during the fieldwork researchers identified whether any programmes or services were developed in any of the study areas which may have impacted on the effect of the new clinics. Finally, chi-squared tests were used to test for differences in the socio-demographic characteristics of clinic users by location of residence and the characteristics of clinic users compared to non-users and users of other services. Analyses were performed in Excel and SPSS.

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. 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 three categories; low, medium and high.

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[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 three equal groups labelled 'high', 'medium' and 'low'.

Study Sites

The evaluation was conducted in six mid-sized cities within which there was a distinct concentration of poor residents. The study sites were located in the two most populous provinces in Pakistan: Punjab and Sindh. The study sites in Punjab included; Gujranwala, Sargoda, and Gujrat (control site) and in Sindh; Hyderabad, Shikarpur, and Larkana (control site). The study sites reflect the variation in characteristics of the urban poor areas within the province in terms of demographic characteristics, economic activities, commercial development, and social conservatism. In terms of economic activity, each study city typically has 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 study areas also have 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 study site has variable environmental conditions in terms of building condition, infrastructure and sewerage provision. The provision of family planning services within the study sites 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.

Results

The study population 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 population 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 one 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, 39% 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 population (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 18.5 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 population 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. Approximately one quarter of all women experienced infant mortality, however this is as high as 40% in some study sites. Almost all women (99.2%) are Muslim. The majority of women (78%) and husbands (69%) approve of contraceptive use. The contraceptive prevalence rate is 29.8% (Table 3), with the condom the most commonly used method of contraception (32%), followed by pills (14%) and female sterilisation (13%).

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, unmet need for family planning and contraceptive prevalence. 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 and client satisfaction 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 and the IUD, knowledge of both these methods increased by 15% (p<0.01) at the clinic sites. Women's increase in knowledge of injectables (6.7%) and oral contraceptives (6.1%) were smaller, but also highly statistically significant (p<0.01).

b) 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 3 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 province. 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 3 shows that the clinic 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). The decline in unmet need in the Punjab 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 sites, particularly the unmet need for limiting births.

The effect of the new clinics in the Sindh province is less distinct than 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 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 sites of 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.

c) Contraceptive Use

Changes in the contraceptive prevalence rate (CPR) and contraceptive method mix are shown in Table 4. 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, significant changes in the CPR of the population would not be expected over the short time period of this evaluation. The new family planning clinics have shown an impact on the uptake of individual methods of contraception and contributed towards important changes in the contraceptive method composition of the local population. 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.

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 and are shown in Table 5. Typical clinic users are uneducated, high parity (4+), married women, aged between 20-30 years and of low socio-economic status. It is significant to note that no men used the clinics during the study period, therefore all data relate to female clinic users. The majority of clinic users have more than four children (65%) and would not like any more children (74%). Almost half of clinic users (48%) have no formal education and are of a basic/low standard of living (53%); 74% of user's husbands hold manual, unskilled occupations. The most common reasons for using the clinics were to obtain a female sterilisation (21%), pregnancy test (14%) or advice on sexually transmitted infections (14%).

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. These findings suggest that the new clinic may be attracting new family planning users, most of whom are seeking female sterilisations. Also suggested is that family planning users may be switching their family planning source, predominantly from Government hospitals to the new clinics.

There exist important variations in the characteristics of clinic users according to whether they are resident within the immediate clinic catchment area (defined as a 2-3 kilometre radius from each clinic, or less than 30 minutes travel time) or have accessed the clinic from outside this catchment area. These characteristics are shown in Table 5. Seventy-five percent of clinic users were resident within the clinic catchment area. These users are typically of a high standard of living, low parity and

used the clinics to obtain non-permanent contraceptive methods. Clinic users from within the catchment area are more likely than those residing outside it to be of medium or higher standard of living (54% and 26% respectively); although many have no formal education (42%), they are also more likely than those from outside the catchment area to have education above primary level (39% and 18% respectively). The majority of women from within the catchment area have husbands in manual, unskilled occupations; however they are more likely than those living outside to have husbands in professional/managerial employment (14% and 5% respectively). Clients from within the catchment area have fewer children than those from outside, 41% have three or fewer children compared with 9% of clients from outside the catchment. Clinic users from within the catchment are more likely to use the new clinics to obtain non-permanent methods of contraception, particularly injectables or IUD, and to seek pregnancy testing and advice on sexual health.

One quarter of clinic users were resident outside the clinic catchment area. These clinic users are more likely than those residing within the clinic catchment area to be of a 'basic' standard of living (52%). There are two distinct subgroups of women utilising the new clinics from outside the catchment area. The first group are married, high parity women (83% have 4 or more children) who used the new clinic to obtain a sterilisation (61%). Many of these women had never used any method of family planning in the past. The second group of users are smaller in number and comprise of young women (15-19) who are unmarried or separated, have no children and used the clinic for a termination of pregnancy. Although these sub-groups are evident, the small client numbers do not allow these patterns to be verified statistically.

e) 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 6 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 clinic 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

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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 are 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).

f) Client Satisfaction

The client level indicators from the exit interviews show an almost universal satisfaction with the services received from the new clinics. Almost all (99%) clients reported that they were satisfied with the services received and 98% would recommend the service to a friend. The majority of service users (78%) stated that they would return to this service again for family planning needs, 8% stated that they would not need family planning in future, and 12% were undecided about whether they would return to the facility. All those who were undecided had used the clinic for sexual health, termination of pregnancy or pregnancy testing services.

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, much higher than the national figure for unmet need of 28%. The impact of providing family planning clinics in these urban poor environments has shown a clear effect on women's knowledge of contraception, unmet need for family planning and has identified important distinctions between groups of users of the new clinics.

Women's knowledge of modern methods of contraception stood at 88% at the baseline survey, this figure is more comparable to knowledge levels in rural areas of Pakistan (88%) than to 'minor urban' areas (94%) (Ministry of Population Welfare *et al* 1995). 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 higher increases in knowledge of particular methods of contraception. Knowledge of female sterilisation and the IUD are particularly noteworthy, with an increase in knowledge of 15% in both methods attributable to the new clinics. 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 composition of contraceptive methods used; most notable were the decline in condom use and large increase in uptake of female sterilisation.

Within the study areas information about of 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 (Shah 1979; Rukanuddin and Hardee-Cleaveland 1992; Shelton *et al* 1999; Sultan *et al* 2002). 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). The role of community based family planning workers remains an important ingredient in improving contraceptive knowledge and uptake. Outreach workers provide motivation and improved access to services which may spur into action women with a latent demand for family planning.

The changes in unmet need for family planning which can be attributable to the new clinics showed variable effects by province. In the Punjab province the new clinics contributed to a significant decline in unmet need for family planning (14% Gujranwala, 10% Sargodha), most of which 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 the Sindh province sites, 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 the Sindh 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 the Sindh sites 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 the Sindh 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).

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

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little impact on unmet need. Therefore, the initial pattern of clinic impact seen in this study may be one of sterilisation uptake. This is unsurprising in a new clinic program as Nortman (1982) states that potential birth limiters are much more likely to use contraception than birth spacers. Therefore, the initial clinic impact is greater in areas where the demand for birth limiting exceeds that for spacing.

This study has also identified demographic, socio-economic and geographic variation amongst users of the new family planning clinics. Clinic users form three distinct sub-groups of the population. The largest proportion of clinic users reside within the clinic catchment area, and are young married women, of relatively high socio-economic status who seek temporary methods of contraception (ie: IUD, injectables). These users are not typical of family planning users amongst the local population; therefore the clinics are being used by a sub-sector of the local urban poor population in which they are located. The clinics are less likely to serve poor, high parity women living within the clinic catchment areas. This finding is not surprising given that fees are charged for clinic services, while Government family planning services are free of charge. The second group of users reside outside the clinic catchment area, are married, high parity, poor women who have not previously used family planning; these women received female sterilisation from the clinics. The third group also reside outside the clinic catchment area, but are young, poor women who are separated or unmarried and received a termination of pregnancy. 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 show the important geographic distribution of clinic users. It also highlights 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.

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 contributed to an increase in knowledge of family planning, and a reduction in unmet need for family planning in some areas. However, the majority of users of the family planning clinics are not the urban poor themselves, but select subgroups of the population. Also highlighted is the willingness of some urban poor to pay for quality family planning services where they have a high need for such services. 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 Population (at Baseline).

	Punjab Province			Sindh Province		
	Gujranwala	Sargodha	Gujrat*	Hyderabad	Shikarpur	Larkana*
Sample Size (Baseline)	1054	1009	553	1081	1084	557
Mean Age at Marriage	19.1	18.9	19.8	18.3	18.1	16.5
Average No. Births	4.4	4.5	3.8	4.7	4.5	4.9
Experienced Infant Mortality	26.0	18.6	13.3	25.7	20.9	40.1
Literacy (self reported)						
Read newspaper/letter:						
Easily	59.0	57.7	77.8	52.9	49.4	16.4
With Difficulty	10.7	7.1	5.8	9.6	11.0	4.5
Not at all	30.2	35.0	16.5	36.7	39.4	78.8
Education						
No Formal Education	32.7	36.8	16.6	42.7	41.4	78.6
Primary School	19.3	19.6	15.7	15.5	25.2	12.4
Middle School	16.9	13.2	15.7	11.4	9.4	2.0
Secondary School	20.8	21.0	30.0	17.0	10.8	2.9
Further Education	10.3	9.4	21.9	12.7	13.0	3.6
Husband's Education						
No Formal Education	25.0	25.9	13.9	27.9	21.4	41.0
Primary School	12.2	9.8	8.1	12.1	10.5	21.8
Middle School	17.5	16.0	15.9	11.9	7.7	5.6
Secondary School	29.2	31.8	32.5	21.2	15.4	12.2
Further Education	16.1	16.6	29.5	25.8	44.9	19.2
Women Employed	15.2	9.1	4.9	6.8	26.1	27.5
Husband Employed	96.5	98.2	95.8	96.2	97.2	91.0
Type Employment						
Agriculture	0.1	0.5	1.4	1.2	1.0	3.9
Manual (unskilled)[4]	54.7	53.3	23.1	34.2	21.6	44.6
Manual (skilled)[5]	5.6	7.7	12.5	12.4	7.3	11.0
Non-Manual[6]	30.0	38.5	40.3	42.6	46.3	24.3
Professional/Managerial[7]	6.6	9.5	9.5	8.7	23.8	15.8
Work Abroad	3.1	0.5	13.2	0.9	0.1	0.4
Standard of Living Index[8]						
Basic	15.6	20.7	5.8	8.7	28.1	72.5
Low	25.3	33.0	17.1	38.9	30.3	18.2
Medium	34.7	27.6	31.9	40.1	28.7	7.3
Higher	24.5	18.7	42.5	12.3	12.9	2.0
Approve of Contraception						
Yes	74.8	77.4	91.1	78.3	81.2	67.7
No	16.5	18.0	6.7	15.9	18.5	28.7
Don't Know	8.7	4.7	1.4	5.8	0.3	3.6
Husband Approves of Contraception						
Yes	72.6	73.5	76.8	70.7	65.1	54.2
No	17.8	21.5	18.1	23.0	32.8	40.7
Don't Know	9.6	5.0	5.1	6.4	2.1	5.0

Notes: Data from baseline survey. * Control site. [1] Unskilled Manual Occupations for Women (ie: labouring, handicrafts or sewing machinists). [2] Skilled Manual Occupations for Women (ie: shop assistant). [3] Professional/ Managerial Occupations for Women (ie: teachers). [4] Unskilled Manual occupations for Men (ie: machine operators, factory work, labouring, blacksmith, tonga drivers, vegetable market workers, farmers/fishermen). [5] Skilled Manual Occupations for Men (ie: driver, blacksmith). [6] Non-Manual Occupations for Men (ie: shopkeepers, landlords). [7] Professional Managerial Occupations for Men (ie: government employees, small hotel owners or had their own business). [8] 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, Logistic regression analysis accounted for demographic and socio-economic characteristics of respondents. ** $p<0.05$,   *** $p<0.01$.

Table 3   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***

Indicators	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.

Table 4   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, Logistic regression analysis accounted for demographic and socio-economic characteristics of respondents. ** $p<0.05$,   *** $p<0.01$.

Table 5   Socio-Demographic Characteristics of Clinic Users by Location of Residence

	All Users of New Clinics (%)	Users residing within catchment area[1] (%)	Users residing outside catchment area (%)	
Age Distribution				
<20	4	1	13	
20-29	36	37	30	
30-39	52	52	52	
40+	6	8	0	
Don't know	2	1	4	
Marital Status				
Married	97	99	91	
Never married	1	0	4	
Separated / Divorced	2	1	4	
No. Living Children				
0	3	1	9	
1	10	14	0	
2 -3	21	26	9	
4+	65	59	83	
Missing	1	1	0	
Want Any More Children				***
Yes	26	33	4	
No	74	67	96	
Education				
No formal education	48	42	65	
Primary School	19	19	17	
Middle School	16	18	9	
Secondary and Further	18	21	9	
Husband Employment Type				
Agriculture	6	6	5	
Manual (unskilled)	74	71	84	
Non-manual	7	8	5	
Professional/managerial	12	14	5	
Missing	9	5	4	
Standard of Living Index				*
Basic	34	28	52	
Low	19	18	22	
Medium	29	30	26	
Higher	18	24	0	
Method/Service Received				
Pill	3	4	0	
Condom	6	6	4	
IUD	6	6	4	
Injectables	8	9	4	
Female sterilization	21	7	61	
Termination of pregnancy	7	6	9	
Pregnancy test	14	18	4	
Problem with method	6	7	0	
Advice on STI	14	16	9	
Other	9	10	4	
Missing	6	9	0	
Total No. of Cases	90	67	23	

Note: Data from client exit survey. [1] Clinic catchment area defined as 2-3 kilometre radius of clinic or less than 30 minutes travel time. *$p<0.10$, ** $p<0.05$, *** $p<0.01$. Chi-squared test used to detect differences compared to 'all users of new clinics' column.

Table 6 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.