Original Article

A quality of care issue: Appropriate use and efficacy knowledge of five contraceptive methods: Views of men and women living in low socioeconomic settlements of Karachi, Pakistan

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Abstract

Objective: To assess knowledge regarding availability, affordability, appropriate use and efficacy for five non-permanent contraceptive methods.

Methods: Married Muslim women and men (500 each) were randomly selected from two low socioeconomic settlements in Karachi, Pakistan. Interviews to assess their knowledge on a range of contraceptive and abortion themes were conducted. Four hundred men and 357 women were selected from this larger sample based on their knowledge of condoms, withdrawal, oral pills, injectables and IUDs.

Results: Nearly half of the sampled men (56%) and women (48%) were contraceptive users. Knowledge regarding contraception, a specific method, its availability and affordability was high. Appropriate use knowledge for condoms was 73% among men (users 78%, non-users 60%; p-value≤0.001) and 5% among women. Efficacy knowledge was generally poor.

Conclusions: Low knowledge levels regarding appropriate use and efficacy even among contraceptive users suggests, that quality of family planning services should not be limited to service delivery issues but extend to appropriate use and efficacy knowledge levels among clients (JPMA 55:363;2005).

Introduction

A critical feature that enables family planning services to be effective in meeting women, men or couples reproductive intentions, indicate the quality of services. Empirical evidence supporting the analytical hypothetical framework: improving quality of services results in greater numbers of individuals adopting contraceptives, higher continuation rates, rising contraceptive prevalence, and eventually reduction in population growth; has been shown by Jain[1] in the late 1980s. The impact of quality services, sustained fertility reductions, is the key that drives policy makers and family planning programme managers to invest scarce resources in improving services.

There exist several definitions and frameworks that embody service quality from the administrative and managerial perspective i.e. the quality assurance approach. These include the Client-Oriented, Provider-Efficient (COPE)[2,3] methodology, the Continuous Quality Improvement (CQI)[4] and the Service Quality Improvement (SQI)[5] approach. However, what these lack is an emphasis on the totality of client's experiences on completing a visit to a family planning service delivery point. These have been illustrated by the Bruce and Jain[6] framework and the International Planned Parenthood Federation's "Clients Rights and Providers Needs".[7] The salient six elements illustrated in Bruce and Jain's framework[6] include choice of methods, information given to clients, technical competence of service providers, interpersonal relations, follow-up/continuity mechanisms and appropriate constellation of services. Each of these elements includes several factors deemed essential for a comprehensive description. For example, technical competence involves such factors as competence of provider's clinical technique, the observance of standard delivery protocols and maintenance of aseptic procedures for such clinical methods as intrauterine device [IUD], implants and sterilization.

A simple description of these six elements is insufficient without addressing programmatic inputs (program effort) and outcomes (program impact), as illustrated in the Bruce and Jain framework.[6] Program efforts include the policy/political support, resources allocated and program management/structure. The impact of quality of services covers a diverse range of factors including client knowledge and contraceptive use (i.e. acceptance and continuation rates) both effecting fertility reduction, the ultimate goal of the program effort. Studies providing empirical evidence for specific factors in the quality of care framework has been published.[8-10] For example, Askew et al[8] incorporated several of the six elements while assessing the quality of family planning services in Nigeria. In addition, quasi-experimental design assessing the effect of the interpersonal relations component of the quality of care framework illustrated that service providers who had undergone a three day counseling training were significantly more effective in improving the quality of care and client compliance.[9] However, published papers specifically assessing the impact of the information-sharing element in continuation

rates, knowledge regarding appropriate contraceptive use among current users at the community level is meager suggesting the dire need for such studies, particularly in countries with high fertility levels. Such information will enable family planning programmes managers and policy makers to develop appropriate strategies designed to bring about an improvement in family planning programmes including social marketing strategies.

This paper presents the contraceptive prevalence rates reported by men and women living in low socioeconomic settlements in Karachi, Pakistan. We report on knowledge levels regarding contraceptive methods, its availability, affordability, efficacy and appropriate use among women and men.

Patients and Methods

Karachi, the capital of Sindh, is a cosmopolitan city with a population of 9.3 million[11] with representation of almost all ethnic groups of Pakistan. About 50% of the population[12] lives in low socioeconomic settlements with inadequate civic infrastructure and public health facilities though a mushrooming of private clinics, those run by non-government organizations and social marketing programmes contribute significantly to meet the family planning and health care needs of the resident population.

A survey was conducted among men and women in two urban low socioeconomic settlements in District Central, Karachi over a period of three months (June-August, 2001) to investigate quality of family planning services with regards to knowledge of various methods, its availability, affordability, appropriate use and efficacy. This was part of a larger project designed to assess gender differentials regarding knowledge, attitude and practices towards contraception and induced abortions. Our eligibility criteria included Muslim, married, in the reproductive age group irrespective of prior history of seeking voluntary termination of a unintended/unwanted pregnancy. We excluded those women or men who were divorced, separated, widowed, and not currently living with their spouse.

Sampling strategy, proportionate to size with replacement methodology was used to achieve our target sample size of 500 married women and 500 married men. Household listings from recently concluded census and other related surveys conducted in the area were used to obtain a comprehensive current listing. A member of the survey team subsequently verified the household listings prior to proceeding with household selection. Male and female respondents were not couples and were independently identified. Following the identification of eligible study participants, the interviewers obtained verbal informed consent and conducted the interview.

Structured questionnaires were developed, translated into the local vernacular (Urdu) and back-translated into English prior to pre-testing. Detailed information on basic demographics, contraceptive use and knowledge of contraceptive methods were elicited. Women and men were asked to name the contraceptive methods of which they were aware. For each method named, respondents were intensively queried regarding affordability, availability, appropriate use and efficacy for the method identified. Female and male interviewers, who had previous experience in conducting such surveys, were recruited and trained through a rigorous field-training programme. The interviewers were closely supervised to maintain quality of data and the completed questionnaires were field-edited.

Quality of Care Indicators

Information sharing is a key element for the provision of quality family planning services. Various approaches used to share information include face-to-face counseling, group counseling and mass media (electronic and print). We present results illustrating the impact of quality of information sharing using any of the above-mentioned communication strategy for two male methods (withdrawal and condom) and three female methods (oral pills, injectables and IUD). The quality of care indicators identified are end-user knowledge levels for availability, affordability, appropriate use and efficacy. The subset sample for this analysis included only those who were aware of a contraceptive method (408 men; 404 women) and excluded those who were past but not current users (91 men; 95 women). The final sub-set sample was 400 men and 357 women. Among this sub-group of men or women, questions regarding the quality of care indicators were restricted to those who were aware of the specific method. Hence, though the sample size for each method varies, these remain consistent across the quality of care indicators for each of the four methods selected for this study.

Availability: method was 'easily available in their area'.

Affordability: method was 'easily affordable' for residents of their area.

Appropriate use index: computed independently for each method based on gold standard definitions.[13]

Withdrawal: 'yes', if responses included 'removal of penis from vagina prior to ejaculation' and 'if used spermicides, or douching/vaginal washing with soap and water immediately after intercourse if penis could not be removed from vagina before ejaculation.'; else categorized as 'no', indicating inappropriate use.

Condom: 'yes', if responses included any two of the three correct responses, i.e. 1) 'condom should be put on the erect penis (condom placement)', 2) 'condom should be removed without spilling semen over the vaginal opening (condom

removal),' 3) 'condom ruptured during intercourse but used spermicides or douching/vaginal washing with soap and water'; else categorized as 'no'.

Oral Pills: 'yes', if responses included 1) 'pill is taken daily' and 2) in case of missed pills, 'take two pills the next day, avoid intercourse until the next menstrual cycle or use condoms until the next cycle.'; else considered 'no'.

Injectables: 'yes', if responses included 'taken every two or three months' and 'for missed appointments less than two weeks is fine or more than two weeks missed use either condoms or avoid sex till next menstrual cycle'; else responses were considered as 'no'.

Intrauterine Device: Appropriate use was categorized as 'yes', if response to recognizing that the IUD is in place was 'one can check for IUD thread by woman'; else responses were considered as 'no'.

Method Efficacy

Appropriate knowledge of method efficacy was computed independently for each method based on gold standard definitions.[13] Gold standard definitions for method efficacy are based on pregnancy rates resulting from common usage of a specific method. Each of the five methods was re-categorized into a 'yes' or 'no' category for 'knowledge of method efficacy'.

Withdrawal: 'yes', if the response was 'not very effective'; all other responses were 'no', indicating inappropriate knowledge. The known failure rate for withdrawal is 19% in its first year of use; gold standard definition falls under 'somewhat effective/not very effective'.

Condom: 'yes', if the response was 'not very effective'; else responses were considered as 'no'. The known failure rate for condom is 14% in its first year of use; gold standard definition falls under 'somewhat effective/not very effective'.

Oral Pills: 'yes', if the response was 'effective'; else responses were considered as 'no'. The known failure rate for oral pills is 6-8% in its first year of use; gold standard definition falls under 'effective'.

Injectables: 'yes', if the response was 'very effective'; else responses were considered as 'no'. The known failure rate for injectables is 0.3% in its first year of use; gold standard definition falls under 'very effective'.

Intrauterine Device: 'yes', if the response was 'very effective'; else responses were considered as 'no'. The known failure rate for IUD is 0.8% in its first year of use; gold standard definition falls under 'very effective'.

Statistical analysis

Standard descriptive analysis was performed including frequency distributions and calculation of means and standard deviations for continuous variables. Contraceptive prevalence estimates were calculated to reflect the relative frequency of current and past use of any contraceptive method. Associations between contraceptive use (current users vs. non-users) and specific indicators of quality of care described earlier were performed using X^2 tests; a p-value of <0.05 was considered significant. When the assumptions of the X^2 test were not met we used the Fisher's Exact test. All analyses were carried out using the Statistical Package for the Social Sciences.[14]

Results

The socio-demographic profiles of the study sample, comprising 499 married women and 499 married men, were comparatively similar except for age and education level. Men were, on average, five years older than women, and most received twelve or more years of formal schooling. The four major ethnic groups, Mohajir, Sindhi, Punjabi and Pathan, were equally represented among the sampled women and men. Knowledge of contraceptive methods was universal (men 98%; women 90%).

Ever and current contraceptive use was nearly similar to that reported for major urban Pakistan.[15] Men reported a higher current user rate (56%) than women (48%). A range of modern and traditional methods were reported. Overall, the most common male and female non-permanent contraceptive methods were condoms and withdrawal; and oral pills and injectables respectively. Condoms were more often reported by men (31%) as compared to women (23%) though equal proportions of men (19%) and women (19%) mentioned withdrawal. There were minimal differences in the user rates reported for oral pills (10%); IUD (5%) and injectables (men 9%, women 11%) by men and women.

Table 1 presents the results regarding contraceptive knowledge levels for the five contraceptive methods of interest, its availability and affordability restricted to the sub-set sample of 400 men and 357 women. Overall, men were more familiar with male methods whereas women were more familiar with female methods. There were statistically significant differences in knowledge between users and non-users. For example, among the male respondents awareness regarding condoms was higher among users (83%) than non-users (68%); whereas among female respondents awareness regarding IUDs was higher among users (54%) as compared to non-users (41%). On the other hand, knowledge regarding some contraceptives was higher among non-users than users. For example, irrespective of gender, non-users were more likely to be aware of oral pills and injectables as compared to users. Most men and women knew at least three methods; users irrespective of gender,

Table 1. Percentage distribution of knowledge regarding method, availability and affordability for withdrawal, condoms, oral pills, injectables and IUDs, Karachi, Pakistan (%).

Knowledge of…	Male		Female	
Method	Users n=278	Non-Users n=122	Users n=238	Non-Users n=119
Withdrawal	49.6	23.0‡	42.0	18.5‡
Condoms	83.1	68.0‡	60.5	42.8‡
Oral Pills	76.6	82.0	79.4	88.2*
Injectables	55.8	56.6	73.9	78.2
IUD	30.9	13.9‡	53.8	41.2*
Availability				
Condoms**	99.6	95.2*	98.6	94.1
Oral Pills††	94.8	94.0	93.7	89.5
Injectables‡‡	94.2	95.7	93.8	76.3‡
IUD¶¶	77.9	52.9	90.6	87.8‡
Affordability				
Condoms**	99.1	94.0‡	97.9	86.3‡
Oral Pills††	93.9	89.0	83.1	71.4†
Injectables‡‡	91.6	89.9	86.4	92.5
IUD¶¶	80.2	70.6	85.2	79.6

* p-value≤0.05; † p-value≤0.01; ‡ p-value≤0.001

** Male: Users=231; Non -Users=83 Female: Users=144; Non -Users=51
†† Male: Users=213; Non -Users=100 Female: Users=189; Non -Users=105
‡‡ Male:Users=155; Non -Users=69 Female: Users=176; Non -Users=93
¶¶ Male: Users=86; Non -Users=17 Female: Users=128; Non -Users=49

more often knew four or all five methods as compared to non-users. Knowledge regarding availability and affordability was nearly universal among men and women, irrespective of user status though the trend for the male respondents regarding male methods and vice versa for female respondents persisted.

Table 2. Percentage distribution of knowledge regarding appropriate use for withdrawal, condoms, oral pills, injectables and IUDs, Karachi, Pakistan (%).

Appropriate Use for …		Male		Female	
Withdrawal		Users n=138	Non-Users n=28	Users n=100	Non-Users n=22
	Yes	5.8	0.0	5.0	0.0
	No	94.2	100.0	95.0	100.0
Condoms		n=231	n=83	n=144	n=51
	Yes	77.9	60.2‡	4.9	3.9
	No	22.1	39.8	95.1	96.1
Oral Pills		n=213	n=100	n=189	n=105
	Yes	13.1	3.0‡	39.2	29.5
	No	86.9	97.0	60.8	70.5
Injectables		n=155	n=69	n=176	n=93
	Yes	12.9	5.8	17.0	12.9
	No	87.1	94.2	83.0	87.1
IUD		n=86	n=17	n=128	n=49
	Yes	8.1	17.6	18.8	6.1*
	No	91.9	82.4	81.3	93.9

* p-value≤0.05; † p-value≤0.01; ‡ p-value≤0.001

Levels of knowledge regarding appropriate use or efficacy were generally poor even among the respondents who were currently using a method with a few exceptions. For example, knowledge for appropriate use of condoms was high among all men (73%); users (78%) were significantly more likely to have the appropriate user knowledge as compared to non-users (60%). On the other hand, this knowledge was very low among all female respondents (5%) with minimal difference between user and non-user categories. With regards to female methods, women were more likely to be aware of the appropriate use for female methods as compared to men. Appropriate user knowledge among all female respondents was best for oral pills (36%) and least for IUDs (15%), differences between users and non-users was not statistically significant except for IUDs (Table 2).

Efficacy knowledge was best for IUDs and oral pills among all female respondents, with marginal differences noted between users and non-users except for condoms and withdrawal. A similar trend was observed among male respondents. It is important to note that efficacy knowledge was least for condoms and withdrawal irrespective of gender or user status (Table 3).

Table 3. Percentage distribution of knowledge regarding efficacy for withdrawal, condoms, oral pills, injectables and IUDs, Karachi, Pakistan (%).

Efficacy for:		Male		Female	
Withdrawal		Users n=138	Non-Users n=28	Users n=100	Non-Users n=22
	Yes	10.1	7.1	15.0	4.5
	No	89.9	92.9	58.0	95.5
Condoms		n=231	n=83	n=144	n=51
	Yes	11.3	6.0	16.0	9.8
	No	88.7	94.0	84.0	90.2
Oral Pills		n=213	n=100	n=189	n=105
	Yes	35.2	31.0	29.6	37.1
	No	64.8	69.0	70.4	62.9
Injectables		n=155	n=69	n=176	n=93
	Yes	32.9	31.9	28.4	23.7
	No	67.1	68.1	71.6	76.3
IUD		n=86	n=17	n=128	n=49
	Yes	36.0	47.1	43.0	44.9
	No	64.0	52.9	57.0	55.1

Discussion

A couple's desire to regulate fertility must be addressed with good quality services that enable the end-user to appropriately use the contraceptive technology to avoid unintended pregnancy. Situation analysis studies that document facility readiness and client-provider interaction[8,9] has been extensively researched but there are limited studies that assess appropriate use and efficacy knowledge at the community level. A recent study from Jordan[10] showed that knowledge of the poor efficacy for traditional methods was the main reason for traditional method discontinuation. This study, one of the first of its kind in Pakistan, assessed knowledge levels regarding the availability, affordability, appropriate use and efficacy parameters of quality of family planning services from men and women, disaggregated by user status.

The results presented here highlight the poor knowledge levels for appropriate use and efficacy among the study population with comparatively high contraceptive prevalence rates. Another intriguing aspect is the differential in contraceptive knowledge levels for knowledge of methods, availability and affordability as compared to appropriate use and efficacy. When a community adult, male or female, is aware of a method, the knowledge of its availability and affordability is high irrespective of user status whereas such knowledge with respect to appropriate use or efficacy is poor overall, with minimal differences between user and non-user status. The most likely explanation perhaps surrounds the various modes of communication. The former information couched in culturally appropriate language is widely advertised in the mass media including electronic media. For example, the advent of social marketing in 1995 with its multimedia advertising campaigns, promotions, and public relations activities created increased awareness of contraceptive methods, especially the Green Star brand and generated demand for its services and products.[16] On the other hand, information regarding appropriate use and efficacy are not only sensitive but require an active exchange of information that mass media channels do not offer. Herein lies the client-provider interaction that we feel is crucial to good quality family planning services.

The aura around informed choice connotes that a user thoroughly understands the method selected, is able to use it more effectively, consistently and safely. Much therefore depends on client-provider interaction in terms of interpersonal skills combining active listening and attending behavior. The satisfied client who consistently uses a method should be aware of the appropriate use of and efficacy for the method. Mishra et al[17] report that the major reason for discontinuing contraception is method problems and method failure. If a client is not aware of the appropriate use of any method and especially for the method of current choice then method failure, dissatisfaction and discontinuation will ensue.

The situation analysis studies largely assess quality of family planning services from the facility or provider perspective and compare the quality of care that a program intends to offer and the care that is actually being received to enable program managers to monitor and evaluate their programs.[8,9] This is an important step in raising the quality of services but the ultimate gold standard for designating that the program is in fact offering good quality services is the knowledge levels among its clientele regarding for example, appropriate use and efficacy of a method. The latter are, we believe, two significant items that enables clients to use a method effectively and consistently and hence prevent unwanted pregnancy. However, there are few studies in the international literature that specifically assess knowledge regarding appropriate use or efficacy for contraceptive methods especially as these relate to assessing comparative differences in knowledge levels between users and non-users. For example, in Colombia, inappropriate use of oral contraceptives was reported by more than half of the oral pills users within the first two weeks of use.[18] An assessment among college students in the United States revealed that only 12% of women and 9% of males used condoms appropriately. We suggest that community-based assessments of such knowledge levels should be conducted as a component of the situation analysis methodology to enable a holistic analysis of family planning programs and not restricted to exit interviews.

Overall, the trend in knowledge levels for the four parameters of quality of family planning programmes depict higher levels among users as compared to non-users, as expected. However, a few paradoxical observations with regards to contraceptive knowledge levels should be noted. For example, irrespective of gender, non-users were more likely to be aware of oral pills and injectables as compared to users. This perhaps reflect the misperceptions regarding side-effects that propel women and men to avoid using a contraceptive method altogether. Side-effects ranging from headaches to deep vein thrombosis were frequently mentioned as reasons for discontinuation among working Jordanian women.[10] Statistically significant conflicting trend was also noted for knowledge of appropriate use of IUD among men probably reflecting small numbers.

The findings from this study should be seen in the light of methodological constraints. This study is part of a larger project designed to determine gender differentials regarding contraception and abortions. Hence, the sample size is small for eliciting differentials in knowledge levels among users and non-users of five non-permanent methods, though adequate for most of the analysis presented here. Yet, a larger sample size may have increased our ability to analyze knowledge levels for individual contraceptive methods. The setting of the study was limited to two low socio-economic settlements in Karachi; therefore, the study findings may not be generalizable to men and women living in other low socio-economic settlements of Karachi or elsewhere in Pakistan. Despite these methodological constraints, the results from this study, one of the few studies that assess knowledge levels among men and women regarding appropriate use and efficacy of non-permanent methods, are still extremely informative and demonstrate the fundamental need for further research on similar parameters to substantiate the findings from situation analysis studies conducted to evaluate the quality of family planning programmes.

In summary, the results of this study provide

empirical evidence for the high knowledge levels among men and women regarding contraceptive methods, its availability and affordability and low knowledge levels regarding appropriate use and efficacy even among contraceptive users. Evaluation studies documenting quality of family planning services should not be limited to service delivery issues but extend to investigating appropriate use and efficacy knowledge levels among its clientele.

Acknowledgements

The authors would specially like to thank Dr. Hashmi for his valuable collaboration in the data collection process and Mr. Azam for his helpful advice.

References

1. Jain AK. Fertility reduction and the quality of family planning services. Stud Fam Plann 1989;20:1-16.
2. Dwyer J, Haws J, Wambwa G, Babawale M, Way F, Lynam P. COPE: A self-assessment technique for improving family planning services. AVSC Working Paper No.1. 1991. New York: AVSC.
3. Lynam P, Rabinovitz LM, Shobowale M. Using self-assessment to improve the quality of family planning clinic services. Studies in Family Planning 1993;24:252-260.
4. Buxmaum A, Vernon R, Murray N (eds.). Using CQI to strengthen family planning programs. 1993. The Family Planning Manager 2, 1.
5. Hardee K, Gould B. A process for quality improvement in family planning services. International Family Planning Perspectives 1993;19:147-52.
6. Bruce J. Fundamental elements of the quality of care: A simple framework. Stud Fam Plan 1990;21:61-91.
7. Huezo C, Diaz S. Quality of care in family planning: Clients' rights and providers' needs. Adv Contracept 1993;9:129-39.
8. Askew I, Mensch B, Adewuyi A. Indicators for measuring the quality of family planning services in Nigeria. Stud Fam Plann 1994;25:268-83.
9. Kim YM, Rimon J, Winnard K, Corso C, Mako IV, Lawal S, et al. Improving the quality of service delivery in Nigeria. Stud Fam Plann 1992;23:118-27.
10. Albsoul-Younes AM, Saleh F, El-Khateeb W. Perception of efficacy and safety as determinants for use and discontinuation of birth control methods in Muslim Jordanian women. Eur J Contracept Reprod Health Care 2003;8:156-61.
11. Statistics Division, Government of Pakistan. Available at: http://www.statpak.gov.pk/. Accessed on 11/24/2003.
12. UN Habitat Global Report on Human Settlement. The Challenge of Slums. Earthscan, London. Part IV. Summary of city case studies. 2003, pp. 195-228.
13. Hatcher RA, Rinehart W, Blackburn R, Geller JS. The essentials of contraceptive technology: A handbook for clinic staff. Baltimore, MD: John Hopkins Population Information Program, Center for Communication Programs 1997.
14. SPSS statistical software: SPSS Base 10.0 (1999). SPSS Inc: Chicago, IL.
15. Hakim A, Sultan M, Uddin F. Pakistan Reproductive Health and Family Planning Survey. 2000-01. Preliminary Report. National Institute of Population Studies. Islamabad. July 2001.
16. McBride J, Ahmed R. Social franchising as a strategy for expanding access to reproductive health services: A case study of the Green Star service delivery network in Pakistan. Washington DC: Commercial Market Strategies Technical Paper Series No. 1, September 2001.
17. Mishra VK, Retherford RD, Nair PS, Feeney G. Reasons for discontinuing and not intending to use contraception in India. International Institute for Population Sciences, Mumbai, India and East-West Center, Honolulu, Hawaii, USA National Family Health Survey Subject Reports No. 13, June 1999.
18. Potter L, Cerrio D, Wright S, Suarez P, Pinedo R, Castaneda Z. Oral contraceptive compliance in rural Colombia: daily use, personal and provider characteristics. Annual meeting of the American Public Health Association, New Orleans, Louisiana 1987 October 19-22.