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Maternity and Child Health Care Services Delivered by Public Health Centers Compared to Health Cooperatives: Iran's Experience

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Reform programs in some developing countries are focused in transferring these services to nongovernmental organizations or groups. In this WHO grant study our aim was to implement and evaluate the efficacy of a new model for transferring state service delivery governance to nongovernmental groups and studying if they can be efficient in field of child and maternity health services compared to public health centers. In this comparative study a total of 1000 households were selected systematically from the population covered by 9 health centers transferred to cooperatives and 18 current public health centers. Data were collected during a three months long study period and analyzed by SPSS 10 statistical package. Chi-Square and t-tests were used to analyze data. Overall health care coverage was higher for either cooperative or public health centers compared to private sector physicians ($p = 0.005$). Around 88.8% of under 6 years aged children were under coverage of health services provided by health centers in both groups and no difference was found. There was no statistically significant difference in quality of child health care services in declaring the date of health care visit and follow up in due time. There was no difference between the groups in perfect filling child growth cards but the ability of mothers in interpreting child growth cards was statistically higher for the population covered by cooperative health centers ($p = 0.02$). Growth status of children based on growth percentiles were relatively similar in two groups. Some health indices of target groups covered by public and cooperative health centers such as family planning, child health cares, perinatal cares, and the numbers of households covered by health volunteers were studied. The results showed that in all of these fields cooperative health centers had better rates. Observed differences were statistically significant (family planning: $p = 0.03$, infant health care: $p = 0.03$, 1-6 years old children cares: $p = 0.009$). The proportion of those women owning a vaccination record (card) was higher in population covered by cooperative health centers ($p = 0.004$). The rate for performing a cervical smear examination during the national program for cervical cancer screening was higher for the women covered by cooperative health centers ($p = 0.01$). No difference was found between the knowledge level of women covered by cooperative health centers about the importance of cervical examination when compared with public health centers. We conclude that in the field of target group children's health care and maternity health services, cooperatives sector not only acts as well as public sector meeting the standards of the program, but also has got a better function in some areas. This can be assumed as an achievement for the policy of transferring the health services to cooperative health centers along with ongoing governmental supervision.

Key words: Health cooperatives, privatization, health reform, health services, health service quality, Iran

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INTRODUCTION

State domination on health service delivery centers is going to be a major challenge during health sector reform programs. But it must also be taken into account as stated in a world health report, that there is no necessary connection between public money and public provision, although traditionally most governments have spent most or all of their health funds on their own providing institutions. Both because of the move towards decentralization and because giving public facilities a monopoly on public resources removes any competitive stimulus to efficiency or more responsive service, there is an increasing split in some countries between purchasing and provision of services. While the theoretical benefits of introducing more competition and regulation as substitutes for direct public provision are clear, evidence on the success of such arrangements is still scanty. Developing countries often lack the resources and experience to regulate contractual arrangements between health care purchasers and providers and to enforce the delivery of the services agreed upon in the contract when these services are perceived to be a low priority by the provider. Without such controls there is great potential for waste and even fraud (Busel and Woxman, 2001).

It is often argued that the efficiency and quality of private sector health services is higher than the public sector, however throughout the developing world the government remains the largest single provider of health care. The need to improve efficiency, increase quality, reduce costs and meet internal and external demands made on provider health care units, presents huge challenges for low and middle-income countries.

Taking into account that many consumers, irrespective of socio-economic status have used or intend to use private sector services; it raises the question of whether governments should make greater efforts to negotiate with the private sector in order to improve access, quality and efficiency of health services. Contracting mechanisms combined with quality assurance programmes could lead to improvements in technical/clinical quality, as well as maintaining high levels of consumer satisfaction (Doyle *et al.*, 1998).

Some people may think that the main problem with public health services is shortage of resources, but in Nepal, for example, the Government made substantial investments in basic health care; yet utilization remained low because of clients' negative perceptions of public health care (Lafond, 1995). Some papers discuss a referral shift from public to private health providers just because of poor services of public health provision (Guldner and Rifkin, 1993). In recent years the World Bank and other donors have been advising developing countries to ensure that limited resources not only have an optimal

impact on the population's health at affordable cost but also that health services are client-oriented (De Geydnt, 1995; Calnan *et al.*, 1994; Williams and Schutt-Aine, 1995).

Nevertheless reform programs in some developing countries are focused in transferring these services to nongovernmental organizations or groups. A specific idea experienced by some countries is the idea of health cooperatives. In the United Kingdom, the first general practitioner co-operatives were set up in the early 1980s, but it was not until the late 1990s that social, cultural and health service changes produced a climate which favoured their development (Hallam and Reynolds, 1999). In Denmark in 1992, major national structural reform resulted in the development of a network of local co-operatives (Christensen and Olesen, 1998).

Glynn *et al.* (2004) findings also provides reassurance that rural general practitioners concerned about the impact on patient satisfaction of out of hours care provided by a co-operative. In Iran based on state constitution a ministry is established as ministry of cooperatives. But the first health cooperatives were established in East Azerbaijan northwestern Iran, counting to be nine at the start of this study. Prior to this time two sectors were responsible for health and medical service supply in Iran. The first and most prominent one was public health sector owning a vast network of health houses, health centers, general hospitals, specialized hospitals and so on employing 250000 personnel. Public health sector is responsible for a great majority of preventive health services using a subsidizing system as well as most of medical and hospital services. Private health sector was active in private clinics and hospitals and very inactive in case of preventive health services. Cooperatives are new alternative for public health sector in delivering preventive health services. East Azerbaijan (centered by Tabriz) is the leading province of Iran in establishing Cooperative Health Centers (CHCs). Financed by WHO we conducted a comparative study to compare quality of health services delivered by public and cooperative health centers and this study discussed the quality of child and maternity health services in cooperative and public health centers.

MATERIALS AND METHODS

Study design and population: In this comparative study, functioning of two group cohorts of public and cooperative health centers were compared in field of family health focused on maternity care and child health care services. Study population was the population receiving health services by 18 public health centers and the population covered by nine health centers transferred to cooperatives called as cooperative health centers.

All nine cooperatives were entered to study and two public health centers for each of these cooperative health centers were selected based on socioeconomic similarities to make the comparisons acceptable.

Method of transferring health service delivery to CHCs: Each CHC is responsible for delivering preventive health services to a population ranging from 9000 to 17000 people. These services include vaccination, maternity and child health care, family planning, environmental health and outpatient visits. This is started with an annual census followed by periodic visits and health care delivery based on protocols designed by ministry of health.

All health care costs are provided by governmental subsidization as a capitation based payment method for each service package through contracts between provincial health department (center) and CHCs. Amount of per-capita payment for each service package can differ with regard to quality of services evaluated by provincial and district health center experts every six months. This means that if health cooperatives could deliver better and quality services they earned more money. Most given preventive health services in each service package are predefined as free of charge services and service recipients don't pay for them. For some services not defined as free services, CHS charge service recipients directly but on governmentally established tariffs.

Payment to CHCs by government in this contracting system is done every three months. All ongoing costs of health center are covered by cooperatives themselves,

except for vaccines, some preventive health drugs and surveillance data sheets.

Stages for establishment of a health cooperative: First of all an advertisement was publicized containing conditions of transferring to those who possessed required qualifications as follows:

- A) Iranian citizenship
- B) Having at least 7 members as follows:
 - Two general practitioners preferably one male and one female.
 - Two midwives or family health graduates with at least two years of academic education.
 - One midwife with four years of academic education
 - Environmental health expert with 2-4 years of academic education.
 - A male nurse with 2-4 years of academic education.
- C) Lacking a current occupation neither in public nor private sector
- D) Upper age limit of 30 years for males and 35 years for females.
- E) Owning the certificate for completing post educational obligations and permanent medical license (for general practitioners).

Any team applying for establishing a health cooperative which meets the above mentioned criteria undergoes a process as described in following steps to start its participation in health service delivery as a health cooperative (Fig. 1).

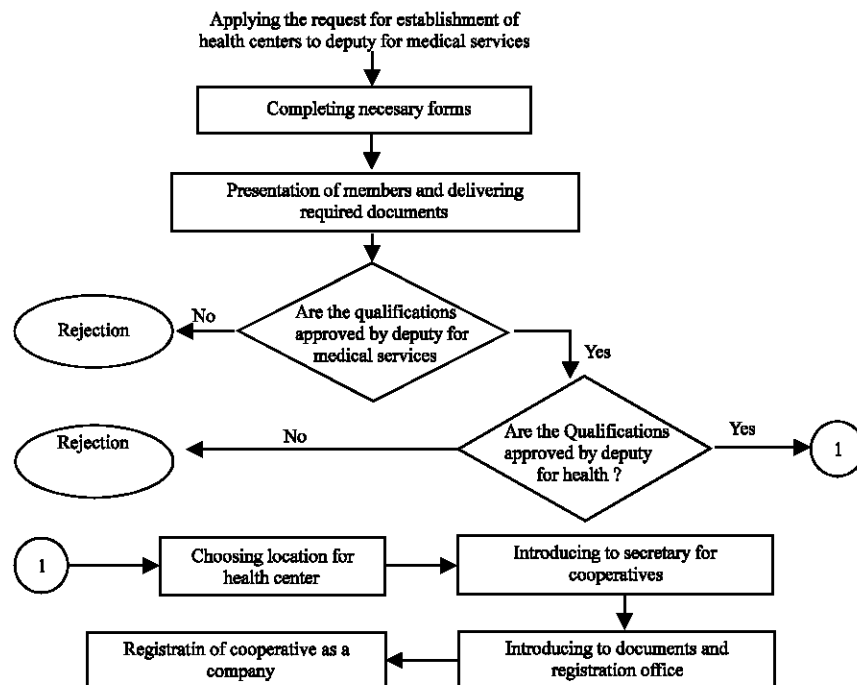


Fig. 1: Flowchart for stages of a health cooperative establishment

Data collection and analysis: To compare the health services delivered by CHCs and public health centers, a total of 1000 households were selected systematically from the population covered by 9 health centers transferred to cooperatives and 18 current public health centers. Data were collected during a three months long study period using special questionnaires designed and analyzed by SPSS 10 statistical package. Chi-Square and t tests were used to analyze data.

RESULTS

There was a similar distribution of different age groups for the target group children and no statistically significant difference observed between cooperative and public health centers. A summary of some comparisons made between CHCs and PHCs in health service quality indices is given in Table 1 and more details are given later.

There was no statistically significant difference in quality of child health care services in declaring the date of health care visit and follow up in due time ($p = 0.4$). There was no difference between the groups in perfect filling child growth cards but the ability of mothers in interpreting child growth cards was statistically higher for the population covered by cooperative health centers ($p = 0.02$). Growth status of children based on growth percentiles were relatively similar in two groups ($p = 0.5$).

Knowledge of mothers about their children health care was compared between cooperative and governmental health centers which is presented in Table 2. No statistical difference was shown to exist.

There was not much of a difference in breast feeding program function between the groups. Some health indices of target groups covered by public and cooperative health centers such as family planning, child health cares, perinatal cares, and the numbers of households covered by health volunteers were studied. The results showed that in all of these fields cooperative health centers had better rates.

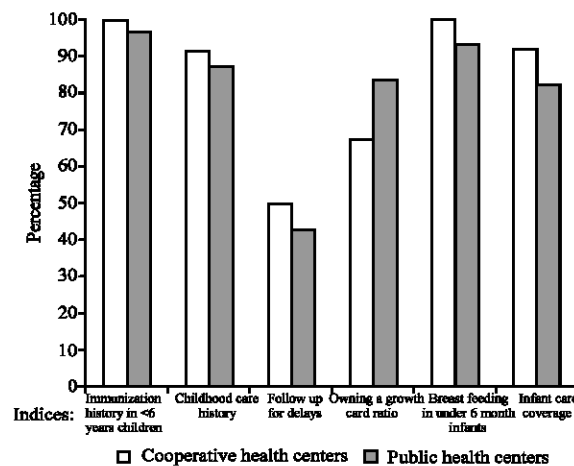


Fig. 2: Main child health care indices in CHCs and public health centers

Fig. 2 and 3 are comparative graphs for main maternity and child health care indices in CHCs and public health centers.

The proportion for those women owning a vaccination record (card) was higher in population covered by cooperative health centers ($p = 0.004$). The rate for performing a cervical smear examination during the national program for cervical cancer screening was higher for the women covered by cooperative health centers ($p = 0.01$). No difference was found between the knowledge level of women covered by cooperative health centers about the importance of cervical examination when compared with public health centers ($p = 0.08$).

Women covered by cooperative health centers had higher knowledge about family planning methods ($p = 0.005$). No difference was identified about using different family planning methods and willingly selection of family planning methods and satisfaction with the related services or type of method.

Table 1: A summary of health service quality comparisons among some family health services between CHCs and PHCs

	CHCs had significantly better indices than PHCs	PHCs had significantly better indices than CHCs	Both PHCs and CHCs were similar with no significant difference
Child health care services	Ability of mothers in interpreting child growth cards, Infant health care coverage, 1- 6 years children care coverage	Owning a growth chart	Child care follow up in due time, Perfect filling child growth cards, growth status of children based on growth percentiles, Knowledge of mothers about their children health care
Maternity health care services	Proportion for those women owning a vaccination record, The rate for performing a cervical smear examination, higher knowledge about family planning methods		
Client satisfaction	Higher knowledge about family planning methods, Cleanliness of health center, Friendly attitude of personnel, Giving sufficient and suitable education, Dedicating sufficient time for each service, Timely availability of services, Acceptable waiting time for receiving services, Security of the place of receiving services, Perfect equipments		

Table 2: Knowledge of mothers about their children health care in population covered by CHCs and public health centers

Knowledge item		Cooperative health center		Governmental health center		p-value
		Frequency	Percent	Frequency	Percent	
Preparation of ORS solution	Knowing	42	5/52	54	47	NS
	Not Knowing	38	5/47	61	53	
Maintenance of ORS solution	Knowing	26	5/32	32	8/27	NS
	Not Knowing	54	5/67	83	2/72	
Reason of iron droplet consumption	Knowing	10	37	30	60	NS
	Not Knowing	17	63	20	40	
Reason of multivitamin droplet consumption	Knowing	12	5/37	18	36	NS
	Not Knowing	20	5/62	32	64	

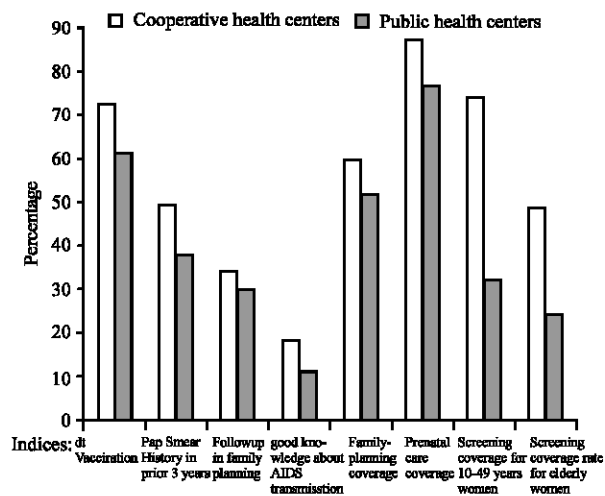


Fig. 3: Main maternity health care indices in CHCs and public health centers

A similar function on different aspects of vaccination such as mean of the number of cold chain process defaults and part of vaccination was noticed, indicating the suitability of cooperative health centers' structure for providing primary health care services.

A positive history of pap smears conducted by women in prior 3 years was compared between cooperative and public health centers, which showed a statistically higher percentage in cooperative centers equal to 49.3% (141/286) compared to 38% (155/408) in public health centers ($p < 0.01$).

Present study showed a higher customer satisfaction rates for cooperative health centers than public health centers in following fields:

- Cleanliness of health center ($p = 0.04$)
- Friendly attitude of personnel ($p = 0.009$)
- Giving sufficient and suitable education ($p = 0.01$)
- Dedicating sufficient time for each service ($p = 0.001$)
- Timely availability of services ($p = 0.01$)
- Acceptable waiting time for receiving services ($p = 0.009$)
- Security of the place of receiving services ($p = 0.002$)

- Perfect equipments ($p = 0.005$)
- Overall satisfaction with services ($p = 0.003$).

In summary mean likert score (1-5) for satisfaction of service recipients was 4.14 ± 0.6 (mean \pm SD) in cooperative health centers and it was 3.9 ± 0.63 (mean \pm SD) in cooperative health centers difference for mean satisfaction score was statistically significant ($p = 0.005$).

DISCUSSION

In 1993 the World Health Assembly called on WHO to mobilize and encourage the support of all partners in health development, including nongovernmental organizations and institutions in the private sector, in the implementation of national strategies for health for all (Buse and Waxman, 2001). In many countries as well as Iran, private sector has shown to be quite effective in case of curative health services. And in some countries it has been shown to be active in delivering preventive health services either. For example in USA 57% of childhood vaccinations are done by private sector and in a study in Dhaka 62% of all vaccinations were provided by private sector. In India more than 90% of vaccinations are provided by public facilities (Khan *et al.*, 2004; LeBaron *et al.*, 2002; Peters *et al.*, 2002).

In an Indian study by Howard, it was shown that with the exception of measles vaccination, predicted probabilities of the receipt of vaccinations and prenatal care do not differ based on the type of provider at which children and women sought curative care. Children and pregnant women in households who used private care were almost twice as likely to receive preventive care from private sources, but the majority obtained preventive care from public providers (Howard and Roy, 2004).

Many governments are experimenting with strategies to engage the private sector to improve child health. Bustreo *et al.* (2003) suggests that improving the impact of child health programmes in developing countries requires a more systematic analysis of how to engage the private sector most effectively McPake *et al.* (1994) contracting is an effective way for private sector participation which along with quality assurance plans,

can lead to quality improvement in health services and increased client satisfaction. This is a strategy used by many public organizations in developed countries (McPake *et al.*, 1994).

Present study had compared quality of preventive health services delivered by public and cooperative health centers as well as patient and client satisfaction in both groups. In a study in china it was shown that health clinics transferred to private sector had less willingness to give preventive care compared to public health clinics. Individual indicators of quality including capital inputs in clinics and educational background of health workers didn't differ according to clinic ownership status. There was no difference in mean number of medical equipments used in both types of clinics. The mentioned study couldn't find any difference in over treatment rate between groups. Because of data collection limitations the above mentioned study in china quality evaluation doesn't seem to be expansive enough as it has been discussed in its research (Meng *et al.*, 2000).

Our study showed a higher customer satisfaction rates for cooperative health centers than public health centers in many fields. In a study in Sheffield assessing the role of general practitioner cooperatives, it was shown that although GPs had a higher satisfaction but a higher customer satisfaction was not gained (Pickin *et al.*, 2004). Another study in UK by Glynn *et al.* (2004) has shown that family doctor cooperatives had led to increased patient satisfaction providing out of hours care.

In our study many of features of child health service indices were better and at least in some fields similar in cooperative health centers compared with public health centers. In a review of the last 20 years of experience in child health programmes, Although international institutions and governments in developing countries have concentrated on working with and through the public sector, an increasing amount of data highlights the private sector's critical influence on child health in developing countries, including the health of poor children. Evidence is also emerging that it is possible for governments in low-income countries to achieve better child health outcomes by working with the private sector (Bustreo *et al.*, 2003).

It must be taken into account that production of health services by different providers with a different range of skills wont be achievable except when a systematic coordination exists and this is why public private mix strategy is an important one (Perrot *et al.*, 1997). The health cooperatives' experience in our study although is a public private mix type through contracting, but has its own specifications which makes it somehow different from other experiences around the world and in many cases quite successful.

- Contrary to GP cooperatives in UK, in Iran's experience a considerable variety of health personnel with different types of skills work together not just physicians or nurses.
- In our experience health services delivery of which is transferred to cooperatives is focused mostly on preventive health care.
- Although some preventive health services like vaccination are being accomplished by private sector in many countries, but in Iran's experience health services delivered to cooperatives are to be provided in an integrated form and each cooperative is responsible for providing all given preventive health needs of a family covered by that cooperative such as family planning, planned child cares, maternity cares, health education, vaccination and so on.
- As each health cooperative is responsible for providing health services to a given local population based on a contract and is responsible for preventive health needs of that population, this can be considered a form of decentralization either.
- Cooperatives can only apply to contract health service delivery of predetermined populations which enables the government for prioritizing.
- The subsidizing and payment system in our experience is different from a fixed subsidization and per capita payment in that amount of payment can differ depending on quality of services as evaluated periodically by provincial health department. Management process inside each cooperative can be quite effective because of two reasons: first that health cooperatives are not large scaled and have small number of personnel and second that all of the personnel in a health cooperative are responsible for their practice directly affecting their income by improving the quality of their service.

CONCLUSIONS

It may be concluded that in the field of target group children's health care and maternity health services, cooperatives sector not only acts as well as public sector meeting the standards of the program, but also has got a better function in some areas.

This can be assumed as an achievement for the policy of transferring the health services to cooperative health centers along with ongoing governmental supervision.

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REFERENCES

- Bustreo, F., A. Harding and H. Axelsson, 2003. Can developing countries achieve adequate improvements in child health outcomes without engaging the private sector? *Bulletin of the World Health Organization*, 81: 886-895.
- Busel, K. and A. Waxman, 2001. Public-private health partnerships: A strategy for WHO, *Bulletin of the World Health Organization*, 79: 748-754.
- Bustreo, F., A. Harding and H. Axelsson, 2003. Can developing countries achieve adequate improvements in child health outcomes without engaging the private sector? *Bull. World Health Organ.*, Vol. 81 No. 12.
- Calnan, M. *et al.*, 1994. Major determinants of consumer satisfaction with primary care in different health systems. *Family Practice*, 11: 468-478.
- Christensen, M.B. and F. Olesen, 1998. Out of hours service in Denmark: evaluation five years after reform. *BMJ*, 316: 1502-1505.
- De Geydnt, W., 1995. *Managing the Quality of Health Care in Developing Countries*. Washington, DC, The World Bank.
- Doyle, V., H. Castro, Z. Rojas and P. Sandiford, 1998. Public vs private sector in Central America: Consumer perception of quality. Paper presented at the 3rd International Conference on Strategic Issues in Health Care Management. Scotland, UK: St Andrews University, April 1998. San José: Instituto Centroamericano para la Salud; <http://icas.net/publications.html>.
- Glynn, L.G., M. Byrne and A.W. Murphy, 2004. Effect of rurality on patients' satisfaction with out of hours care provided by a family doctor cooperative. *Rural and Remote Health* 4 (online): 320.
- Guldner, M. and A. Rifkin, 1993. *Sustainability in the Health Sector, Part 1: Vietnam Case Study*. London: Save the Children Fund.
- Hallam, L. and M. Reynolds, 1999. *General practice out of hours cooperatives. Twenty four hour primary care*. Oxfordshire: Radcliffe Medical Press.
- Howard, D.H. and K. Roy, 2004. Private care and public health: do vaccination and prenatal care rates differ between users of private versus public sector care in India? *Health Services Res.*, 39: 2013-26.
- Khan, M.M. S.H. Khan, D. Walker, J. Fox-Rushby, F. Cutts and S.M. Akramuzzaman, 2004. Cost of delivering child immunization services in urban Bangladesh: A study based on facility-level surveys. *J. Health, Population and Nutrition*, 22: 404-412.
- Lafond, A.K., 1995. Improving the quality of investment in health: lessons on sustainability. *Health Policy and Planning*, 10: 63-76.
- LeBaron, C.W., B. Lyons, M. Massoudi and J. Stevenson, 2002. Childhood vaccination providers in the United States. *Am. J. Public Health*, 92: 266-470.
- McPake, B., B. Ngalende and E. Anda, 1994. Contracting out of health services in developing countries. *Health Policy and Planning*, 9: 25-30.
- Meng, Q., X. Liu and J. Shi, 2000. Comparing the services and quality of private and public health clinics in rural china. *Health Policy and Planning*, 15: 349-356.
- Peters, D.H., A.S. Yazbeck, R.R. Sharma, G.N.V. Ramana, L.H. Pritchett and A. Wagstaff, 2002. *Better Health Systems for India's Poor*. Washington, DC: World Bank.
- Pickin, D.M., A. O'Cathain, M. Fall, A.B. Morgan, A. Howe and J.P. Nicholl, 2004. The impact of a general practice co-operative on accident and emergency services, patient satisfaction and GP satisfaction. *Fam Pract*, 21: 180-2.
- Perrot, J., G. Carrin and F. Sergent, 1997. The contractual approach: New partnerships for health in developing countries, WHO.
- Syed, S.A., 2000. Public and private hospitals in Bangladesh: Service quality and predictors of hospital choice. *Health Policy and Planning*, 15: 95-102.
- Williams, T. and J. Schutt-Aine, 1995. Meeting the needs, client satisfaction studies: A simple, inexpensive way to measure quality. *Forum*, 11: 22-24.
- World Health Report, 2001, pp: 94-95.