

Financial Sustainability of Government-NGO Partnership in Health Sector: A Case Study from Pakistan

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Abstract: This paper aims to investigate financial sustainability of NGO-Government Partnerships (also termed as Public Private Partnership) based on stated preference method, e.g., Contingent Valuation Method (CVM). Data was collected from a case study, Rural Health Centre (RHC) Shagram located in Chitral, a remote district in Khber Pakhtunkhwa province of Pakistan. Results show that majority of the beneficiaries of the facility agree to pay user charges for the services provided by RHC increased by 95% resulting in 102% self-sufficiency for the center. Adopting a more conservative approach based on the assumption that some of the current beneficiaries may not avail the facility due to increased fee, however, reveals that only 76% of sustainability can be achieved. The 24% deficit, Rs. 2.5 million in monetary terms, RHC will have to bridge from one source or the other, be it continuation of the partnership with Aga Khan Health Services Pakistan (AKHSP) or increased funding from government side to bridge the gap.

Key words: NGO-Government partnership in health sector • New Public Management (NPM) sustainability • NGOs • Willingness to Pay (WTP) • Contingent Valuation Method (CVM) • Stated Preferences

INTRODUCTION

Governments all over the world in general and in developing and poor countries in particular, over the past many decades, have been trying to strike a balance between scarce resources and their allocation over a long list of demanding areas. Starting from the advent of New Public Management (NPM) idea, the process has led them to reduce their expenditure in many areas, especially in public service provision, which were predominantly considered to be the basic functions of a state. Among other areas, the provision of health care services has been a target of this process. While backing out as the sole provider of primary and secondary health care to their citizens, governments in developing and poor countries have left the space open for other economic players to bridge the gap. As a result private for-profit and non-profit and non-government organizations (NGOs) have been witnessed to increase their presence in health care provision during the last decades.

Governments in resource poor countries have always been under enormous pressure to meet the health care

demands of their increasing population. In the majority of these countries people have been mostly relying on private for profit sector to meet their health needs which further deteriorates the already poor health care system in those countries. On one hand scientific and technological advancement in the developed world has made possible treatment of diseases which were previously considered incurable, e.g., HIV, Cancer and Tuberculosis; on the other hand about half of the deaths in sub-Saharan Africa still occur due to curable diseases [1]. Lack of resources and poor infrastructure are some of the factors which hinder their treatment.

Primary health has always been an issue of major concern for the world community. Alma-Ata Declaration 1978 was a commitment towards providing basic health services to all the human beings as it was accepted to be their basic right [2]. A renewed commitment came from the world community in the form of Millennium Development Goals where health is placed in the centre of importance. All these efforts have created a quite different scenario for the governments of poor and developing countries where now they are not alone to combat the daunting issues of

healthcare for their citizens, rather a number of other actors have joined hands with them. Non-governmental Organizations (NGOs) working in the provision of health services have risen to the forefront in many cases. Though reluctant in the initial years, governments have accepted their supportive role in their efforts for the betterment of general public. Today we witness increasing number of instances where Governments and NGOs join in a cooperation named as “Government-NGO partnership”.

This quite recent form of cooperation between governments and NGOs in the area of public service provision has attracted great amount of interest from academicians and researchers, many of them have tried to delve into the possible organizational arrangements, outcomes, effects and durability [3]. One of the main concerns has been how long can this relationship live and what should be the contributions from the partners.

Somewhat related to the aforesaid concern has been the sustainability of the projects undertaken under the label of Government-NGO partnership and that is the main concern of this research as well. A health care center, Rural Health Centre Shagram, operating in joint collaboration of the Department of Health (DoH) of the Khyber Pakhtunkhwa (formerly named as North-West Frontier Province) provincial government of Pakistan and Aga Khan Health Service Pakistan (AKHSP) is the case study for this research.

Aga Khan Health Service (AKHSP), a subsidiary of Aga Khan Development Network (AKDN) - an international NGO - is one of the most comprehensive private not-for-profit health care systems with its presence in most part of the developing world including Central and South Asia and East Africa. In 2006, the Department of Health of the provincial government of Khyber Pakhtunkhwa, Pakistan and AKHS Pakistan signed an agreement to operate the Rural Health Centre Shagram jointly for an initial pilot period of two years. As the pilot project was evaluated to be highly successful, in July 2008 the agreement was extended and the project is still running successfully.

However, it is yet not clear what strategies will be adopted after the AKHSP withdraws its funding. One option can be the sustainability of the centre based on the income generated from user charges. User fees are consistently set, even for the most highly subsidized services, which ultimately aims at broadening access to its services. Nevertheless, the willingness of the beneficiaries to pay full rates for the charges after the partnership expires is a question.

Taking this as a point of departure this study tends to measure financial sustainability of RHC Shagram

derived from the willingness to pay of the people for services provided by the Aga Khan Health Services Pakistan after the withdrawal of support from the later. The results may be translated into two scenarios which form the hypotheses for this research. These two hypotheses are as under:

Hypothesis 1: People’s contribution measured through their willingness to pay will make RHC Shagram fully sustainable.

Hypothesis 2: People’s contribution measured through their willingness to pay will make RHC Shagram partially sustainable.

Literature Review

New Public Management and Non Government Organizations (NGOs) in Public Service Provision:

The last three decades have witnessed a paradigm shift regarding the role of public administration in modern society. “Public sector management in the twenty-first century will only to a limited extent be a continuation of the way the public sector has been managed in the twentieth century”[4]. Extensive changes in the theory of public management in the second half of the twentieth century, especially the last two decades, have left the standard governance approach outdated [4]. As a result of government failures public administration reform agenda took place in most of the OECD countries from the late 1970s [5]. This reform agenda, dubbed as New Public Management (NPM), captures most of the structural, organizational and managerial changes taking place in the public services of these countries and a bundle of management approaches and techniques are borrowed from the private sector [6].

NPM style reformed agenda is seen to be dominated by a number of themes as described by political scientists. *First*, government should focus on core and strategic issues, leaving other responsibilities to sectors that can perform them in a better and efficient manner. Saying that in other words, government should play the role of ‘steering’ rather than of ‘rowing’. *Second*, public sector operations should be managed on principles of business management in order to enhance their efficiency. *Third*, the mode and efficiency of services have been given enormous priorities in this model [6]. “Common to all the public sector reform efforts is the attempt to employ such new governance mechanisms in the public sector that go beyond the traditional institutions of governance such as the bureau and the public enterprise and they employ or imitate market institutions of governance” [7].

NPM has had tremendous impact upon the developing world. Starting in 1980s and especially during 1990s, many countries embarked upon some kind of public sector reform, either out of their own will or directed by international financial institutions and donor agencies. NPM is by now quite multidimensional concept covering a variety of phenomena. Some countries have tried one or two of them; others have adopted all of them: decentralization, privatization, incorporation, deregulation and reregulation, the introduction of executive agencies, internal markets or the use of purchaser-provider split, as well as tendering/bidding schemes [4]. In the new paradigm of NPM, although business was given the prominent place but, to some extent, NGOs were seen as having a supplementary role. Also they were thought to have comparative advantage in working with the poor or underprivileged segments of societies [8].

The developments associated with NPM and the resultant New Policy Agenda provided a greater space to the NGO sector to play their role in variety of areas. Countries sandwiched between the rising demands for public services on the one hand and depleting financial resources on the other hand, had no other option but to accept, though hesitantly in some cases, the new role given to NGO sector. This trend was further expedited by the donor agencies who perceived NGOs as a substitute of the *state* in service provision [9]. Another factor, as a consequence of the New Policy Agenda, which has encouraged the promotion of NGOs in service provision, has been the fact that NGOs are regarded as instruments of democratization [10].

According to Farrington, *et al.*, (1991) there have been three broad motives for the attention paid to NGOs. *First* is the quest for a new institution, more efficient than the state, to achieve the orthodox goals of development. *Second* factor relates to its perception as an alternative development, thereby challenging existing models. This perception itself rose from the perception that development should be participatory, empowering the poor, among other things. And *third* attraction of NGO sector was its association with sustainable development [10]. Policy statements from United Nation (UN) Secretary General, Mr. Kofi Anan and World Bank played a catalytic role to promote NGO sector's involvement in development [10]. Their role diversified and expanded. Once they were looked at with scepticism by governments, but then they started to supplement government's efforts to eradicate poverty and provide the citizens with better living conditions. In some areas governments started to consider them as partners on the path of development. But not everyone seems optimistic about the enduring

nature of the importance that NGO sector has recently acquired. Expressing this pessimism, Uphoff (1995:17) remarks that "the [the new world order] which suggests a new role of (sic) NGOs could prove to be constructed of the same [optimism and rhetoric of a previous one] and not much longer lasting" [11]. Nevertheless, it has been witnessed over the past three decades that more and more governments, especially in Africa and Asia, have been giving way to the NGO sector.

Government-NGO Partnership in Health Sector: NPM led paradigm shift in public sector management has produced a dramatic change in the thinking of what *governance* means, what government is supposed to deliver and most importantly how to allocate the scarce resources for the provision of public-good. From 1980s to the early 1990s the role of the state was redirected towards "steering" from that of "rowing" [12]. This resulted into the expansion of public services delivery agents to include the private sector and NGOs. Since the beginning of the new millennium the role of the state and of the citizens has been evolving to encompass the notion of partnerships for public service. The exploration of partnership has growing at a fast pace and increasing examples are noted, particularly at the local levels of government [12].

Health sector lends a suitable space for collaboration between government and NGOs. Governments in developing and poor countries have consistently failed on issues of health care, e.g., access, coverage and quality, mainly due to lack political will, inefficient management and lack of resources. On the hand, NGOs with their expertise and scope of work have the potential to plug in the gaps. To achieve the targets of MDGs, visible improvement in quality, coverage and efficacy of medical care would require strengthening of government health programs and at the same time would necessitate collaboration with NGOs [13]. The importance of collaboration between government and NGOs has been recognized by international development organizations time and again. All this entails the need to clearly define the roles and responsibilities of the parties, the timeline for the "deliverables" and also the plan towards sustainability [13].

The Research Context

Health Care System in Pakistan: Pakistan's health sector is characterized by inadequate health resources in terms of personnel, infrastructure and per capita health expenditure, contributing to high mortality and poor health outcomes. The physician: population ratio

(2000-09) was only 8 per 10, 000 populations and for the same number of people there were only 4 nurses and midwives together and 6 hospital beds. This abysmal state of affairs becomes more evident when we compare the above figures with those of lower middle income countries where a segment of 10, 000 people have 10 physicians, 14 nurses and midwives and 39 hospital beds. Pakistan's under-five mortality rate was 89 in 2008 and its maternal mortality ratio in 2007-08 was 276 per 100, 000 live births, both higher than the average for lower middle income countries [14].

Health sector in Pakistan has predominantly been financed from private out-of-pocket expenditure by households which accounted for around 70% of the total health expenditure in 2007. Government's contribution to the total outlay was only 26.5% in 2007 while other sources, mainly donors' funding through NGOs, accounted for 3.5% in the same year [15]. There is also a large informal sector, including traditional birth attendants who conduct a significant number of deliveries. The formal private health sector includes of small and medium sized-hospitals and maternity homes as well as government employed physicians and paramedics running clinics after office hours. The not-for-profit sector in health consists mainly of NGOs providing family planning and other reproductive health services [15].

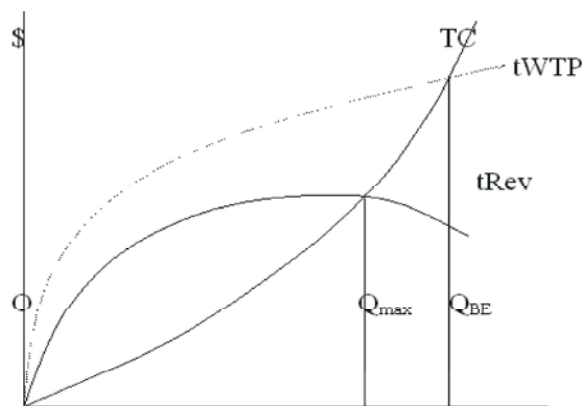
Rural Health Center (RHC) Shagram Chitral: AKHSP has been working in Chitral since 1987 in collaboration with local communities, the government and other Aga Khan Development Network (AKDN) institutions. Adopting a village based approach; AKHSP has focused to find out sustainable ways of financing and delivering primary health care in the high mountain valleys. The project in focus, Rural Health Centre (RHC) has been one of the initiatives where AKHSP joined hands with the District Health Department to provide quality primary health care to the populace of a remote valley, i.e., Torkhow.

Torkhow, habitat of around 35, 000 people, situates at about 120 km away to the Northwest of Chitral town in KPK province. In 2001 the provincial government constructed a Rural Health Centre (RHC) at village Shagram to cater for the needs of the local community. However, RHC Shagram, despite repeated efforts, could not be functionalized completely due a number of reasons including the non-availability of female health care providers. To overcome this problem the Department of Health of KPK government and AKHSP entered into an agreement to operate the health centre as a pilot project.

Methods: Data for this case study was collected from both primary and secondary sources during 2011 and 2013. Researcher administered questionnaire survey was conducted in upper Chitral to enhance the validity of the data. The questionnaire was pre tested with 10 members in one village organization (VO) of Mayyar village and subsequent changes were made to it. Secondary data was obtained with regard to the health centre's financial status, mainly about user charges, income and expenditure. The budgetary allocations of both the partners, DoH and AKHSP, are of special importance for the financial analysis. These records were retrieved from the centre's various reports, AKHSP regional office and also from DoH office.

Rural Health Centre Shagram mainly serves three population centers/valleys, though some rare cases also come from outside areas. Households residing in these three valleys, i.e., Shagram (925 households), Rech (485 households) and Khot (866 households), constituted the target population for this research. A total of 113 households were interviewed which constitutes around 5% of the target population. This included 24 respondents were from Rech, 43 from Khot and 46 from Shagram. Probability sampling was not possible due to lack of resources and time and also data on household numbers was hard to get from census office. Hence non-probability, quota sampling technique, was used in selection of households out of the total target population.

Measuring Financial Sustainability of the Case Study: Financial sustainability of the RHC Shagram means the revenues collected through user fee will be sufficient to meet the expenditures. Total costs were calculated from the hospital records. Total revenues, as mentioned above, is the product of number of patients times user fee. Both the curves are shown as under;



Source: McVeigh 1994

Fig. 1: WTP and sustainability

In Figure 1, for the services from O to Qmax the revenues are more than the cost, the health service can be financially self-supporting. Beyond Qmax, every unit of service will incur more cost than revenue. But the framework would allow us to note the amount of subsidy which will be needed for the services provided ahead of Qmax.

Contingent Valuation Method (CVM): Two approaches have been in use to evaluate projects, especially related to public goods; indirect approach and direct approach. The *indirect approach* draws conclusion from actual behavior while *direct approach* draws conclusions from responses to hypothetical questions. Contingent Valuation Method (CVM) belongs to the latter category [16]. In simple terms, CVM is a questionnaire based tool used to estimate individual's value for some un-priced good or service. Within the questionnaire, a respondent is typically asked what would be her maximum willingness to pay (WTP) for the provision or improvement of a good or service. But underlying this superficial simplicity is a complex theoretical underpinning drawing on multidisciplinary work especially from economics and psychology and, to some extent, from political theory (public choice) [17].

The CV method, which has been widely used as a nonmarket valuation method in areas of environmental cost-benefit analysis and environmental impact assessment, is now increasingly applied in other areas of economics such as health economics, cultural economics and transportation safety [18]. In recent years CVM has been extensively used to elicit individuals' preferences for the basic infrastructural projects, e.g., water supply and sanitation. CVM's advantages having wider potential application than previously available valuation techniques have been widely recognized [17], at the same time there are others who question it as not being a proper method of estimating the nonmarket values [18] But there are empirical evidences that say that with proper attention given to the design, sampling and other stages of the CVM analysis, its measurements will be close to reality.

There are four major elicitation techniques to ask WTP questions in CV surveys; the bidding game, payment card (PC), open-ended (OE) and dichotomous choice (DC). The research under discussion used OE technique to get people's WTP. To control for the potential biases the open ended question was preceded by a brief explanatory statement. The statement, after describing the situation, provided respondents with three options in case the user fee is set higher than the present one for each of the selected five services, (a) not to go for

the particular treatment in case of need, (b) go to other towns, Booni or Chitral and (c) agree to pay even more what was stated earlier. Respondents who agreed with the last option had to tell their maximum WTP for the service in question. For those who opted for first and second options the interview ended at this stage.

As time and cost constraints did not allow to measure WTP against all the services provided by RHC, a sample of five services were selected for the study. Apart from being representative, the other criteria of selection of these services was their share in total earnings of the unit; they together contributed more than 50% income to the centre. The services included (1) *Consultancy*, (2) *Gynecology: SVD* (3) *Ultrasound*, (4) *Bed*, (5) *Dental extraction*. This survey tried to systematically assess what maximum payment for the selected services the beneficiaries are willing to pay in order to retain the health centre. That maximum payment became basis for the calculation of total earning for the unit. Once total earning was calculated it was compared with the total cost to come up with sustainability ratios.

Various predictor variables were incorporated into the questionnaire to check their influence over WTP values. These variables/factors were selected based on theoretical and economic logic identified by researchers working with CV surveys. The assumption was that if these predictor variables are found to systematically influence WTP in either way, positive or negative, but in conformity to economic theory or sensible expectations then we can be sure of the results' validity. Otherwise they would be considered to be nothing more than some random figures. Multicollinearity test was run to check for any possible collinearity among the predictor variables. Based on the results those variables were removed where correlation coefficient was more than the threshold level of 0.5. The predictor variables which were included in the questionnaire included (1) Respondent's income, (2) Education, (3) Gender, (4) Availability of health facility, (5) Number of household members, (6) Illness in the family (7) Perception about RHC services, (8) Frequency of hospital visits.

Linking CVM to Financial Sustainability Analysis of RHC: It has been observed time and again that development projects do function as long as the promoters are there with their financial contributions. Quite often when the seed funding, which is for a time period usually ranging from 3 to 10 years, is consumed problems start with the continuation of the programs. The issue is more relevant with projects of health care facilities, e.g., RHC Shagram, as the services are needed

on continuous basis. Once improvements in health are achieved it is not unlikely that problems will appear again. The only solution could be the presence of the facility over a long period of time rather on a permanent basis. One possible solution to the problem could be the transfer of costs to users in the form of user charges. But before any decision is made a thorough investigation needs to be done to find out how much of the costs should be transferred to the beneficiaries to ensure the sustainability of the health facility. Also it depends on the value which the beneficiaries attach to the services provided by the project, the treatments in case of RHC Shagram. CVM is used to measure the value and the consequent willingness to pay of the public for services of the health centre.

The Case Study

Descriptive Analysis

Socio- Economic Characteristics of Respondents/ Households: Out of the total 113 questionnaires filled 95 were found to be valid after excluding the NO (non-agreeing respondents) responses; 82 were male while only 13 were female. As discussed in methodology we were basically interested to get the opinion of people who were either household/family heads or earning members though in their absence a non-earning member was also considered. As women are seldom allowed to decide on matters related to family's budget in the area unless they earn themselves, all female respondents in this research are earning-women.

With respect to age, respondents in the sample range between 23 and 75 years with an average age of 39 years. As the survey tried to target mostly three age groups, e.g., lower middle, middle and upper middle, around 97% of the sample rests in these three categories, 81% of them are recorded to be married and only 19% are living single life. In terms of education 84% were literate and 16% were illiterate.

The income ranges between Rs. 2, 000 as minimum and Rs. 166, 000 as maximum and the average being Rs. 28, 904 which is quite low compared to Rs. 113, 048 as country average figure. The minimum monthly expenditure amount is recorded to be Rs. 4, 700 and the maximum as Rs. 59, 000 with an average of Rs. 15, 500. The figures give a rosy picture as the saving rate is concerned; on average respondents save about 42% of their income. This figure may be a bit inflated because respondents may not have been able to recall some of the petty expenses which occur frequently in everyday life. Also, some unexpected

and quite heavy expenditure occur but they cannot be included into the overall calculation as they happen irregularly and in different forms.

A large number of respondents, 63%, indicated that they had health facility in their vicinity but only 5% of the respondents reported to avail secondary healthcare service at present time, the rest were getting only primary care. Another important point to note is that 74 % were satisfied with the current situation in their vicinity.

Some 88 people out of 95 stated that they or their family members had visited RHC while 7 people had never been to the hospital, neither any of their family members had been there. When asked about the service at RHC, the responses were positive. 3% opined the services to be excellent, 77% rated them as good and 20% as bad.

WTP Analysis: Respondents' WTP was solicited basically with two questions in each of the five services/treatments selected for this study. In the first question (WTP1) respondents selected one single amount out of an array of amounts given as a *payment card*. In the follow-up question (WTP2) they had to state their maximum WTP against an open ended question. In this section the nature and behavior of WTP responses is discussed with values given in Table 1.

The figures in the above table indicate how the people responded towards two WTP questions in each of the five selected services. Looking into the minimum WTP we find out that in majority of cases, i.e., four out of five, it is less than the current price of that service. Only in case of *consultancy* it is more than what is currently charged by RHC. The trend may reflect the fact that the population comprises of some very poor people, as poor as with Rs. 2, 000 monthly income mentioned earlier in economic indicators. These are may be those people who need the services of RHC, also they do agree to the idea of paying more for the self sustainability of it but at the same time they do not have enough income to pay more than the current price.

This raises an interesting question as to why the minimum WTP related to consultancy in both, WTP1 & WTP2, cases is above the current price. It may be attributed to two facts: *firstly*, it is a common practice in the region in general and in government hospitals in particular to consult a doctor and get prescription without any diagnostic tests. So the people, in this case, might considered that if they pay the consultation fee they could get doctor's opinion in the form of prescribed medicines and their problem could be solved.

Table 1: WTP analysis (amounts denoted in Rupees)

		Consultancy	SVD	Ultrasound	Bed charge	Dental
Current user fee		60	820	270	145	150
WTP 1	Average	113	1080	315	168	187
	Minimum	80	400	100	120	120
	Maximum	260	1800	500	300	310
	St. deviation	43	176	61	27	28
% increase (decrease)		88	32	17	16	25
WTP 2	Average	197	1446	398	214	228
	Minimum	85	850	270	150	140
	Maximum	500	4000	800	500	500
	St. deviation	112	441	96	51	53
% increase (decrease)		228	76	47	47	52

Source: survey data

Secondly, it may be because of the relatively small amount (Rs. 60) of current consultation fee that people are ready to pay more than for it. But the low WTP1 in all other cases may be the result of strategic bias as expected to come with CV studies. Some people might be thinking at the time of interview that if they stated low WTP it may persuade the authorities to lower the user charges. It may be recalled here that the CV survey questionnaire contained a scenario part describing the current and prospective future course of affairs for RHC. Every effort was made by the interviewer to have the respondents understand the situation before answering WTP questions and thus reduce possible biases. To reduce the effect of starting point bias and range bias a second open ended question (WTP2) was asked in each case. Immediately before the second question once again the respondents were reminded of the situation with brief but pin-pointed options. It may be inferred from the figures given in table 1 that respondents took the scenario more seriously than before and did not try to behave strategically. Also the open ended question may have minimized starting point bias as well.

Another important figure to be noticed from the table is the percentage of increase when mean values from WTP1 and WTP2 are compared to the present user charges. For WTP1 this increase is the highest in case of consultancy (88%), followed by SVD (32%). Dental, Ultrasound and Bed charge respectively increase by 25%, 17% and 16%. But the increase is dramatic from WTP2 figures; mean value is as high as 228% of the current user fee for consultancy. The mean WTP value for SVD is 76% more than the current fee, for Dental extraction it is 52%. Both Ultrasound and Bed charge get an equal increase of 47% over their current fee.

The pattern of increase in two WTP amounts for each service gives a meaningful insight into the importance/worth people attach to individual services. The tremendous increase in WTP for consultancy gives

the impression that people of the area are more worried about the presence of doctors, the logic discussed in earlier lines. In the same way they give more importance to the existence of Gynecology facilities (SVD) than Ultrasound and Bed facilities. Dental service stays in the middle. This may be a good starting point in the future if the centre considers to close any of its units which are not optimally used, or to add a service which is needed and highly valued by the people of the area. WTP statistics in this section reveal that people are ready to pay the price for those services which stay high on their preference list.

Suggestions for Improvement of RHC Facilities/ Services: In response to the open ended question for suggestions for the improvement of facilities and services at RHC Shagram not all but quite a good number of respondents expressed their opinions. Different opinions were clubbed together to give a precise view of the wishes of the people as in Table 2.

The open ended question resulted in a variety of suggestions, but most of them seem to be impractical in the sense that either they are out of the context or not possible because they need a huge investment and routine maintenance. Some 18 people stated that there should be more doctors, e.g., surgeon, child specialist, heart specialist, etc. They might don't know that posting a heart specialist requires heavy investment to pay for heavily paid doctor and to buy expensive machines and equipments. In the same way increase in staff would also increase the expenditure from RHC side. Also, 20% of them desired to have canteen and accommodation facilities which are outside the sphere of hospital administration, though the management may educate and persuade other people to establish such facilities near the hospital. There are other things which can be rectified or improved, as some 10% of the respondents ask to improve staff behavior towards patients.

Table 2: Suggestions for improvement of RHC services

Suggestion	Number	%
Accommodation facility for attendants	4	8
Additional doctors, e.g., child specialist, eye specialist, ECG, etc.	11	22
Canteen facility should be provided	6	12
Ambulance service should be improved	4	8
Number of beds should be increased	3	6
Number of staff should be increased	3	6
Staff behavior should be improved	5	10
Surgeon should be posted	7	14
Others	7	14

Source: survey data

Table 3: Multivariate regression: Predictor variables vs. outcome variable

Predictors	WTP----Services				
	Consultancy	SVD	Ultrasound	Bed	Dental
Constant	142.215 (.000)	1821.056 (.000)	375.501 (.000)	170.061 (.000)	203.145 (.000)
Income			.001 (.019)		
Education	5.219 (.007)			1.942 (.018)	2.244 (.009)
Avail. of health facility		-172.185 (.016)	-32.422 (.056)	-23.770 (.011)	
Illness in family	-41.069 (.076)				
Gender		-202.253 (.022)			
Number of HH members				3.293 (.018)	
Freq. of hospital visits		-48.9111 (.010)			
Percept. about RHC service	Good			15.654 (.093)	
	Bad				
R ²	0.126	0.145	0.128	0.21	0.083
Adjusted R ²	0.103	0.111	0.105	0.17	0.071
F	5.556	4.297	5.658	5.238	7.117
Sig	0.006	0.007	0.005	0.001	0.009
n=95					

p=5% Source: survey data

Multivariate Regression: Multivariate regression analysis was run to check the validity of the WTP results. The regression results are given in the following.

As given in the table Consultancy has an R² of 12.6% with significant p value, which means the mentioned percent of change in outcome variable, WTP for consultancy in this case, is caused by the predictor variables. *Education* and *illness in family* are the two significant predictors. The positive correlation of education with stated WTP is as per the prediction but the negative sign of illness in family may be due to the fact that in this situation respondent needs a health facility on regular basis, especially when it is chronic. So they might be thinking that they will not be able to pay higher amount as they have to visit the hospital frequently.

R² for SVD is 14.5% with p value at 5%. Three variables, i.e., *availability of health facility*, *gender* and *frequency of hospital visits*, are negatively influencing the outcome variable significantly. Gender with negative sign

perfectly fits into the prediction and logic as women are expected to value SVD more than the male respondents. In case of Ultrasound, *availability of health facility* is significant predictor and with R² of 12.8%. Bed Service has got three significant predictors, *education*, *availability of health service*, *number of household members*. Finally, it is Dental extraction facility which has got an R² of 8.3% which is significant. The signs of the coefficients are mixed but they conform to economic theory as expected and they all are significant.

Results from multivariate regression as validity test are good enough to substantiate the results which were collected from the field survey. The only surprise is that income is not playing as important role as it is expected to do in CV studies. It may be due to the fact RHC is the only health facility providing comprehensive primary and secondary health facilities in the area. Secondly, RHC services, even with increased user charges, might be much cheaper as compared to travelling to down town.

DISCUSSION

Sustainability with WTP: Earnings as measured by WTP results tend to increase by 95% overall for the five selected services. Stating another way it means that if user charges are increased on par with WTP, 95% increase would occur in income from those services. Now, assuming that the same increase is applied on user charges for all the services provided by RHC the total per year income of the centre would be Rs. 9, 294, 461 (4, 766, 390*195/100). How far this income from user charges together with contribution of DoH can go towards sustainability of RHC is given in the following table.

Table 4: Sustainability with WTP (amounts in PKR)

Operating income from WTP	9, 294, 461
DoH contribution	1, 516, 500
Total income	10, 810, 961
Less: total expenses	10, 594, 220
Operating surplus/(deficit)	216, 741
Operating self sufficiency	102%

Source: AKHSP report + survey data

RHC can earn Rs. 9.3 million annually from user charges increased on par with WTP results, i.e., 95%. The contribution from government health department when added to income from user charges gives RHC a total annual income of about Rs. 10.8. This amount is enough to meet RHC's total annual expenses of Rs. 10.6 million and leaves the centre with a small surplus of Rs. 0.2 million. Stating it in a different way we can say that both sources, own income and contribution from DoH, total to the tune of 102% against the total expenditure. So, for the time being we can say that if RHC is going to increase its user charges on par with results from WTP2 (95%) then it can sustain itself even if contribution from AKHSP is withdrawn.

Increase in User Charges: Would RHC Be Able to Maintain its Patients' Flow and Total Income?: Economic logic says that demand for a good depends on its price. But this theorem is conditional upon the good of being a 'normal good'. We tried to measure how much demand for the services of RHC depends on their price and its consequent impact on overall income and sustainability. Each service out of the five services in this study attracts a certain average number of patients at a given price (current user fee) every month. Calculation of RHC's annual income explained earlier was based on the current annual patients flow. But, as WTP average amounts are

higher than the current user fee in all the five cases, increased user charges may lead RHC to have less number of patients each month than what it is getting with current user fees. Consequently, the overall income may fall, negatively affecting the sustainability ratios calculated earlier with average WTP2 values.

Looking into the individual WTP values of respondents we find that many of them are paying less than the average amount. In other words those people do not agree with the increase (95%) in user charges, consequently they may not visit RHC. Based on percentage of respondents who have agreed to pay equal or more than the average WTP actual number of patients who will be visiting RHC each month is calculated. This number is less than the average monthly number of patients which RHC is getting with current user charges. The revised calculation shows that with WTP values implemented as user charges total yearly income would increase by 38%, much less than what was predicted by average WTP, 95%. With less number of annual patients RHC is able to meet only 76% of its expenses, both from user charges and government contribution.

CONCLUSION

The study was an attempt to investigate the financial sustainability of RHC Shagram on the basis of income generated from user fees and contribution of DoH in case AKHSP withdraws its funding to the centre. The study solicited peoples' willingness to pay (WTP) for the services of RHC through a Contingent Valuation survey. This, in turn, produced the figures on the prices which beneficiaries are ready to pay for different services at RHC. These results from WTP indicate that they agree to pay on average 95% over what they are paying at present. Income would be almost doubled if this increase is applied to user charges by RHC. This income collected from beneficiaries, together with contribution from Government's Department of Health (DoH), makes the centre 102% sustainable thus leaving it with a surplus of Rs. 0.2 million.

A close look into the figures from demand-side perspective (number of patients) revealed that not all of the respondents were willing to pay the average WTP amount applied in sustainability analysis. Taking into consideration only those people who were willing to pay the average WTP amount or more it is revealed that RHC will be able to generate 62% of its total income from user charges. Together with government's contribution, this income will meet 76% of the overall expenses. The figure,

though a good improvement over the current position, 52%, gives the impression that even with increased user charges on par with WTP2 results the Centre will not be able to financially sustain itself without funding from AKHSP.

In conclusion, it is believed that RHC can find a good space to stretch its resources by increasing user charges as evidenced from WTP results and subsequent sustainability analysis. Making a judgment with certainty I would say that the 24% deficit, Rs. 2.5 million in absolute terms, RHC will have to bridge from one source or the other, be it the continuation of the present partnership arrangement with reduced dependence on AKHSP or increased funding from government side.

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