ORIGINAL ARTICLE

Factors Influencing the Choice of a Public or Private Health Institution for Childbirth in Chandigarh

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Abstract

Background: Knowledge of factors affecting the choice of place for delivery may help in developing a user friendly maternity program. Hence, this study aimed at finding out factors influencing women's choice about the type of health institutions for delivery. **Materials and methods**: A cross sectional study was conducted in selected communities of Chandigarh city in India during 2010-11. A consecutive sample of 300 women (150 in public and 150 in private institutions) who had delivered a baby in previous three months were interviewed using a pre-tested interview schedule. Chi square test was used to find association of socio-demographic, maternal, and institutional factors with the type of institution selected for delivery. **Results:** Women from lower socio-economic status delivered more frequently in public sector institutions (47.3%) than in private institutions (16.7%) ($p<0.01$). In private institutions 30% of the women were delivered through Caesarean Section compared to 17.3% in public institutions ($p<0.05$). Physical infrastructure was better in private institutions. Cost was lower in public (Rs. 4,630) than in private institutions (Rs 21,676). Most women were satisfied with quality of care received in public and private institutions. However, some reported that public institution staff needs to be more polite. Quality of infrastructure in health facility, quality of care, and socio-economic status were associated with the choice of institution for delivery. **Conclusions:** Public sector health institutions are a major source of maternity care in Chandigarh, hence, care providers should be trained in handling clients gently. Regulations for adherence to protocols, e.g., indications for Caesarean Section and fee structure etc. need to be implemented in private institutions

Key Words

Child birth; Determinants; Private Health Institution; Maternity; Quality

Introduction

Pregnancy is a very apprehensive state in the life of every woman. In addition to the stress due to the physiological changes, vulnerability to complications always raises a need for safe place for confinement. Increasing the delivery rate in health institutions is one of the main strategies adopted in India for decreasing the maternal mortality ratio. According to the Coverage Evaluation Survey (CES) conducted in 2009, 47% of the women had delivered in public health institutions whereas 26% women delivered in private institutions, although wide variation exists in institutional delivery rate between and within the states of India. (1) Institutional delivery rate in Chandigarh union territory of India stood at 76% in 2007-2008. (2)

Several factors play a role in choosing the place for safe delivery. Factors influencing choice of institution for delivery operate at multiple levels - individual, household, community, and state and may vary from region to region within the country.

Aims & Objectives

To ascertain factors which affect choice of public or private institution for childbirth in Chandigarh city of India.

Material and Methods

A cross-sectional study design was adopted. The study areas were Indira Colony in Mani Majra town, and Sector 38, Sector 40 and Sector 41 in Chandigarh city. List of the eligible women along with their addresses were obtained from the registers maintained by the Auxiliary Nurse Midwives (ANMs) and Anganwadi Workers (AWWs) of the respective areas.

Sample size was calculated taking education of the women as the primary explanatory variable for choosing the place of delivery because education plays an important role in decision making.3 According to National Family Health Survey conducted in Maharastra, among those who had less than primary level education, 28% and 15% women had delivered at public and private institution respectively.4 Assuming that 30% of the women who deliver in public and 15% of the women who deliver in private institutions have less than primary education, a sample size of 133 each for women who deliver at public and private institutions was arrived at considering power of 80% and alpha error of 5%. Considering some refusals, a sample size of 150 was estimated for each group.

For developing the interview schedule, four Focus Group Discussions (FGDs) were conducted with 6-8 women who had delivered in public and private institutions in the urban areas of Chandigarh. Questions in interview schedule were also included from National Family Health Survey (NFHS-3), District Level Health Survey (DLHS-3) and National Sample Survey Organization (NSSO) reports.5,6,7 For determining the socio-economic status of the women modified Kuppuswamy scale was used.8 Affordability of the services were assessed by asking the source for meeting out the expenditure, if the expenses were met by income or saving it was considered affordable, but if met by borrowing or other means it was taken as unaffordable.

Women who had delivered within previous 3 months were interviewed using a semi-structured pre-tested interview schedule by the investigator (TK) at their residence, consecutively according to date of delivery till the desired sample size was attained. Out of the 300 women, 150 had delivered in public and 150 in private health institution. Data was collected between 1st July 2010 and 30th June 2011.

Statistical Analysis: The primary response variable was the type of institution for delivery (Public vs Private). The explanatory variables were demographic and socio-economic characteristics, past obstetric history, perceived quality of care, complications during pregnancy, physical infrastructure of health facility, and attitude of the staff of the health facility etc.

The quality of care score was computed using the questions on 'listening to complaints', 'politeness of care providers', 'presence of staff 24X7 in the labour room', 'hand washing by the care providers', 'check-up during 48 hours in postnatal period', advise by care providers about exclusive breast feeding, immunization, spacing, exercises, nutrition, medication on discharge from hospital and follow-up care. A positive answer to the question was given a score of one. The sum of scores for each of the positive answers was computed as the quality of care score. The highest score was 12 and the lowest score was 0. Then, a ranking system was developed to categorize quality of care as 'poor', 'moderate' and 'good' if the score ranged between 0-4, 5-8, and 9-12 respectively. The physical infrastructure score was computed by using the questions on the presence of emergency calling bell, television, air-conditioner or room heater and public telephone. Presence of the item was given one point and absence was given 0 point. The sum of these points were the score on physical infrastructure. The maximum score was 4 and the minimum score was 0. Then ranking of poor, moderate and good were if the score was 0-1, 2-3, and 4 respectively.

For analysis of data SPSS version 15 was used. Chi square and Student's t test were used to compare distributions of categorical and quantitative explanatory variables respectively, i.e., socio-demographic characteristics, healthcare, and institutional characteristics between the type of institutions (public vs private) chosen for delivery.

Results

There were a total of 1781 deliveries in the study area during the study period. Out of these, 219 (12.2%) were home deliveries; 1398 (78.5%) women delivered in public health institutions and 164 (9.2%) delivered in private institutions. A total of 300 consecutively sampled mothers who had delivered a baby in previous three months were interviewed; 150 had delivered in public and 150 in private institutions.

Most (73.3%) of the women recruited in the study were in the age group of 20 to 29 years belonging to Hindu religion (83.7%). Majority of them were from general caste (58%) belonging to joint family (68%) and 90% of them were literate. High school was the most common qualification attained by their spouse (21.7%). Most (81.3%) of the women were house-makers while the husbands (33.7%) were mainly unskilled workers. Majority of the families (70%) had monthly income of less than 19,575 Indian Rupees.

The socio-demographic characteristics of the respondents according to the type of health institution used for delivery are presented in Table 1. Choice of the type of health institutions used for delivery was not statistically different between the women belonging to various religions and castes. However, education of the women, occupation of the husband, and socio economic status were significantly lower in women who delivered in public compared to those who delivered in private institutions ($p<0.001$). Mean age of those who delivered in private institutions (27.3 ± 4.1 years) was significantly higher than those who delivered in public institutions (25.1 ± 3.9 years) ($p<0.001$). Main reasons for choosing the private or public health institutions for delivery are summarized in Figure 1.

The number of previous pregnancies and history of high risk pregnancy did not differ significantly according to the type of the health institution used for delivery. Those who delivered in private facility had their previous baby also delivered in a private institution. Same holds true for those who delivered in public facility (Table 2). Those who had received ANC in public facility, mostly delivered in public facilities (93.3%), but some (34.7%) of the women who had delivered in private facility had availed ANC in public facility. Normal vaginal delivery was significantly more common in public facility while assisted deliveries and lower segment caesarean section (LSCS) deliveries were conducted more frequently in private facility (Table 2). Doctors attended the delivery more frequently in the private facility whereas the attendance by nurse was more in public facility. A few births were attended by traditional birth attendant (TBA) in private facility as there are private facilities run by TBA also.

As shown in Table 3, the promptness in attending to the patients on admission was more common in the private institutions. Women's perception of the staff attitude including responding to their needs was significantly better in the private as compared to the public institutions. A higher percentage of those who delivered in the private institutions reported that health providers had addressed their needs to their satisfaction. Politeness of the health provider too was experienced more often by those who had delivered in private institutions. The practice of hand washing by the health providers before internal examinations, blood pressure measurement, frequency of check-up per hour was significantly higher in private institutions ($p<0.01$). There was no significant difference in the postnatal follow-up advice on discharge between public and private facility.

Most of those delivered in private facility had reported receiving better quality of care than those who delivered in public health institutions ($p=0.001$). The availability of the physical infrastructure was significantly more in the private than the public institutions ($p<0.001$). However, most of the respondents reported quality of services to be just right or good in public health facility also (Figure 2).

The cost of delivery in private institutions was significantly higher than the public institutions. The mean expenditure per childbirth in public and private institutions was Rs. 4,630 and Rs 21,676 respectively ($p=0.001$). Most of the deliveries in public institutions were self-financed from personal income (79.3%) compared to 60% in private facility. Twenty percent of the women who delivered in public institutions and 25% of those who delivered in private institutions had to borrow money to pay for the delivery expenditures. Few women (14.9%) who had delivered in private health facility were also paid by insurance but none of those who delivered in public institutions had insurance.

Discussion

Childbirth is an important event, not only in a woman's life but also for the whole family. So the place of delivery is chosen very carefully. Women do

not land up in a public or private health institution for delivery by chance alone. Several factors are considered by woman and her family in choosing an institution for delivery, i.e., public or a private health institution (Figure 1). Those who choose to deliver in public facility are more likely to be from lower to middle class, perceive its quality-of-care to be 'good' despite its physical infrastructure rated as 'moderate or poor'. Other studies have also reported that those who have money use private institutions while those belonging to the lower socio economic class use public institution. (8, 9) This is also evident from NFHS-3 data which shows that about 60% of those belonging to highest wealth index go to private institution for delivery. (4,5)

Women tend to deliver in the same place from where they had sought antenatal check-up. But there were some women (34.7%) in our study especially those belonging to lower socio- economic status who chose to have antenatal check-up from public institution but preferred to have delivery in private setting. They felt that multiple check-ups and laboratory investigations during the long antenatal period would be expensive in private sector; moreover, government run health posts where facility for free antenatal check-up were available were nearer to their home. Some people chose private institutions for antenatal care to save waiting time in the Out-Patient Department (OPD) area because in private facilities they are given the opportunity to consult the doctor by taking prior appointment. This is especially true when both husband and wife are working. The appointment system of consultation makes antenatal check-up much easier and convenient for busy people.

In private institutions, deliveries were conducted more often by doctors but in public institutions this was done more often by nurses. The low doctor patient ratio in public institutions may be is one of the reasons for this practice. There were some Trained Birth Attendants who have started private facilities for deliveries. Only five women in this study had delivered in such facilities. One such facility was in Chandigarh while the rest three were in the villages of Uttar Pradesh. Commercialization of medicine in private institution can be suspected as higher rate of Lower Section Caesarean Section were done in private institution as is also reported in other studies. (11, 12)

Chandigarh being a relatively small city, women can reach to a public or private health facility in a matter of few minutes. Hence, distance was not considered an important factor by the women in this study for choosing a place for delivery as was the case in the study by Kesterton in rural areas. (13) Though the past obstetric history did not play a significant role, but previous place of delivery was strongly associated with the place of delivery in subsequent pregnancy. There is tendency of repetition in the place of delivery with respect to the previous confinement. This points out the importance of 'familiarity' while selecting the place of confinement. Familiarity which can be put as continuity in the dimension of quality of care may be playing a significant role, though there is no doubt that the expertise of the physician could also be an important factor as some women switched from public to private facility.

The opinion about the public doctors were mixed as some felt that the doctors were soft, polite while some also opined that they were unapproachable as they hardly get to see them. They were visible only during the rounds to the delivery facility. Contrary to this almost all the private institutions had nurse station in the ward and the doctors made themselves available at a short notice. This gave them a sense of security in such a moment where the pain does not give any space to the mind other than the anxious apprehension and the only desire is to get relief from it as immediately as possible. Other studies also report similar findings. (13,14)

Affordability in terms of the money spent on delivery was better in public sector (79.3%) as compared to those who delivered in private sector institutions (59.5%). According to National Sample Survey Organization the average expenditure per childbirth in public and private facility among urban population was Rs. 994 and 5480 respectively in 2004. (6) Most of the deliveries in public institutions were self-financed from their income compared to private facility. There were some families who borrowed money for delivery among those who delivered in public as well as private. There were families who were not able to afford delivery in the private institution but still opted for it. The reason cited was: "Even in government hospital expenses are involved as we have to do investigations and buy medicines from outside the hospital, if it is operation it is more expensive so at the end it is the expenses in public hospital and private hospital are more of less same". The privilege of meeting the delivery expenses through Insurance was observed only among the

deliveries in private institutions. Only those who have money can buy insurance in India. Now the government of India, under the Janani Shishu Suraksha Karyakram (JSSK) has started providing free/cashless services that include medicines and investigations in all the public institutions in India. Strong association of economic factor and place of delivery have been seen in other studies also. (8,14)

Quality as per the ISO 9000 Standards is a relative term. If the implicit characteristics of a service fulfil the need of the customer it can be considered as high quality. This means that it can be subjective as well as objective. (14,15) It must be stressed that the technical quality need not be necessarily better in private institution. (14,15) The prompt care on hospitalization was better seen in private than in public sector institutions. Needs were addressed better in private institution such as listening to the complaints of the patients. Politeness of the staff was observed more frequently in private institutions. Many of the mothers have bad opinion about the public sector staff. Some of them had declined to have childbirth in public institution especially due to the rude attitude experienced by them in the public hospitals earlier.

Hand washing before internal check-up by the service providers was more frequent in those who delivered in private institutions. It may also be true that better educated women could be more alert and observant in this matter than their less educated counter parts who delivered in public institutions. The frequency of monitoring the patient were more intense in private than in public institutions. In some private institutions, doctors sat next to the women. Some of the doctors who run the maternity centre resides in the facilities and monitor them at interval of every 10 to 15 minutes. It gave a sense of security to the women. The private hospitals were also better equipped than the public facilities. The importance to the continuum of care in post-natal period were given equal importance in both the public and the private institution except for exercises and nutrition which were more frequently advised in private institution deliveries.

It was interesting to note that most of the mothers had perceived the services in the public institutions also as 'good' or 'just right' (Figure 2), and most lower socio-economic class women preferred public institution, may be because these being less costly. They do not think these to be of 'bad' quality. It seems public sector to a large extent is meeting the need of lower segment of the society.

Though many studies have explored the reasons for choosing home or institution for delivery, the reasons for choosing a public or private institution for delivery had not been studied earlier especially those that have included quality aspects. (16,17) This is one of the few studies that have explored comprehensively various factors that determine the selection of a place for institutional delivery.

The quality score and ranking in this study were based on the reports from the clients after their experience of using a particular health facility for delivery. The observations of the health care providers and facilities could have provided objective measure for quality of care but during the limited time and resource available for this study it was not possible to include an observation component. Since the sample for this study was selected from the field practice area of Community Medicine Department of an Institute, the results may not be generalizable to the entire Chandigarh, however, the study has robust internal validity.

Conclusion

To conclude, the cost of service, quality of care, and quality of physical infrastructure of the health facility seem to be the major consideration while choosing a health facility for childbirth. Most of the 'low to middle' socio-economic class women choose a public health institution despite their 'poor to moderate' physical infrastructure as they consider these to be more affordable and of 'good or just right' quality.

Recommendation

Following measures could improve maternity care in Chandigarh. The physical infrastructure should to be improved in public sector health institutions. Training of the public health care providers especially the lower grade staff on interpersonal communication skills and handling the clients gently should be undertaken. Regulations for adherence to protocols, e.g., for monitoring delivery and for indication of Lower Segment Caesarean Section and fee structures etc. need to be implemented in both the private and public sector institutions. An observational study to assess the differences in quality-of-care between the public and private sector health institution may be carried out using objective criteria.

Relevance of the study

The study is relevant in the present day where user friendly services are gaining popularity.

Authors Contribution

All authors have contributed equally in the study.

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Tables

TABLE 1 SOCIO- DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS OF STUDY POPULATION

Characteristics	Place of Delivery		P value
	Public N=150 n (%)	Private N=150 n (%)	
Age group (years)			<0.001
≤ 19	4(2.7)	3(2.0)	
20-24	78(52.0)	34(22.7)	
25-29	45(30.0)	63(42.0)	
30-34	18(12.0)	44(29.3)	
≥ 35	5(3.3)	6(4.0)	
Religion			0.1
Hindu	128(85.3)	123(82.0)	
Muslim	5(3.3)	2(1.3)	
Sikh	14(9.3)	24(16.0)	
Christian	3(2.0)	1(0.7)	

Caste			0.09
General caste	83(55.3)	91(60.7)	
Schedule caste	39(26.0)	27(18.0)	
Schedule tribe	3(2.0)	1(0.7)	
Other backward caste	25(16.7)	31(20.7)	
Type of family			0.4
Nuclear	54(36.0)	43(28.7)	
Joint	96(64.0)	107(71.3)	
Educational status of the mothers			<0.001
Illiterate	27(18.0)	3(2.0)	
Primary	16(10.7)	4(2.7)	
Middle	33(22.0)	16(10.7)	
High	31(20.7)	24(16.0)	
Intermediate/diploma	19(12.7)	27(18.0)	
Graduate	15(10.0)	31(20.7)	
Post-graduate	9(6.0)	45(30.0)	
Occupation of the husband			
Unemployed	2(1.3)	6(4.0)	
Unskilled	72(48.0)	29(19.3)	
Semi-skilled	32(21.3)	13(18.7)	
Skilled	19(12.7)	33(22.0)	
Clerical/Shop/farm	15(10.0)	26(17.3)	
Semi-professional	3(2.0)	21(14.0)	
Professional	7(4.7)	22(14.7)	
Socio-economic class			
Upper	6 (4.0)	22 (14.7)	
Middle	73 (48.7)	103 (68.7)	
Lower	71 (47.3)	25(16.7)	

TABLE 2 MATERNAL CARE BY PLACE OF DELIVERY

Maternal Care	Place of delivery		p-value
	Public facility N=150 (%)	Private facility N=150 (%)	
Place of Antenatal Care			<0.001
Public	140 (93.3)	52 (34.7)	
Private	9 (6.0)	92 (61.3)	
Both	1 (0.7)	6 (4.0)	
Place of delivery in previous childbirth			<0.001
Public	66(44.0)	34 (22.7)	
Private	12 (8.0)	38 (25.3)	
Home	8 (5.3)	4 (2.7)	
Not applicable	64 (42.7)	74 (49.3)	
Mode of delivery			0.02
Normal vaginal delivery	117 (78.0)	95 (63.3)	
Assisted delivery	7 (4.7)	10 (6.7)	
Lower Segment in Caesarean Section delivery	26 (17.3)	45 (30.0)	
Birth Attendant			<0.001
Doctor	89 (59.3)	135 (90.0)	
Nurse	61 (40.7)	10 (6.7)	
Traditional Birth Attendant	0 (0)	5 (3.3)	

TABLE 3 HEALTH INSTITUTION FACTORS BY PLACE OF DELIVERY

Factors	Public facility N=150 (%)	Private facility N=150 (%)	p value
Time lag between first check up and admission (minutes)			< 0.001
≤ 5	106 (71.1)	126 (84.0)	
6-10	8 (5.4)	13 (8.7)	
≥ 10	35 (23.5)	11(7.3)	
Hand washing before internal check up			<0.01
Yes	85 (56.7)	127 (84.6)	
No	65 (43.3)	23 (15.4)	
Intravenous fluid			<0.006
Yes	122 (81.2)	140 (93.3)	
No	28 (18.6)	10 (6.7)	
Blood pressure measurement			<0.04
Yes	146 (97.3)	150 (100.0)	
No	4 (2.7)	0 (0.0)	
Frequency of check-up per hour by doctor			<0.01
Once or less	86 (58.9)	33 (23.4)	
Twice to thrice	54 (37.0)	99 (70.2)	
Four or more	6 (4.1)	9 (6.4)	
Attitude of care providers by place of delivery			
Needs addressed	50 (33.3)	72 (48.0)	0.01
Needs not addressed	100 (66.7)	78 (52.0)	
Staff politeness			
Yes	112 (74.2)	139 (92.7)	<0.01
No	38 (25.4)	11 (7.3)	
Continuum of post-natal care advice and place of delivery			
Breast feeding	137 (91.3)	135 (90.0)	0.6
Immunization	130 (86.7)	128 (85.3)	0.7
Birth spacing	67 (44.7)	67 (44.7)	0.1
Bathing and clothing baby	77 (51.3)	94 (62.7)	0.05
Birth spacing	67 (44.7)	67 (44.7)	1.0
Exercises	32 (21.3)	59 (39.3)	0.002
Nutrition	75 (50.0)	112 (74.7)	<0.001
Medication on discharge	142 (95.3)	139 (92.7)	0.34
Follow up Care	107 (71.3)	117 (78.0)	0.1
Ranking of the quality of care by place of delivery			
Poor	0 (0.0)	0 (0.0)	0.001
Moderate	16 (10.7)	2 (1.3)	
Good	134 (89.3)	147(98.7)	
Ranking for physical infrastructure			<0.001
Poor	106(70.7)	35(23.3)	
Moderate	39(26.0)	54(36.0)	
Good	5(3.3)	61(40.7)	
Physical infrastructures			
Public telephone	6(4.0)	39(26.0)	<0.001
Television	6(4.0)	70(46.7)	<0.001
Emergency bell	15 (10.0)	67(44.7)	<0.001
Air conditioner/heater	36(24.0)	97(64.7)	<0.001

Figures

FIGURE 1 REASONS FOR CHOOSING A PLACE OF DELIVERY (MULTIPLE RESPONSES)

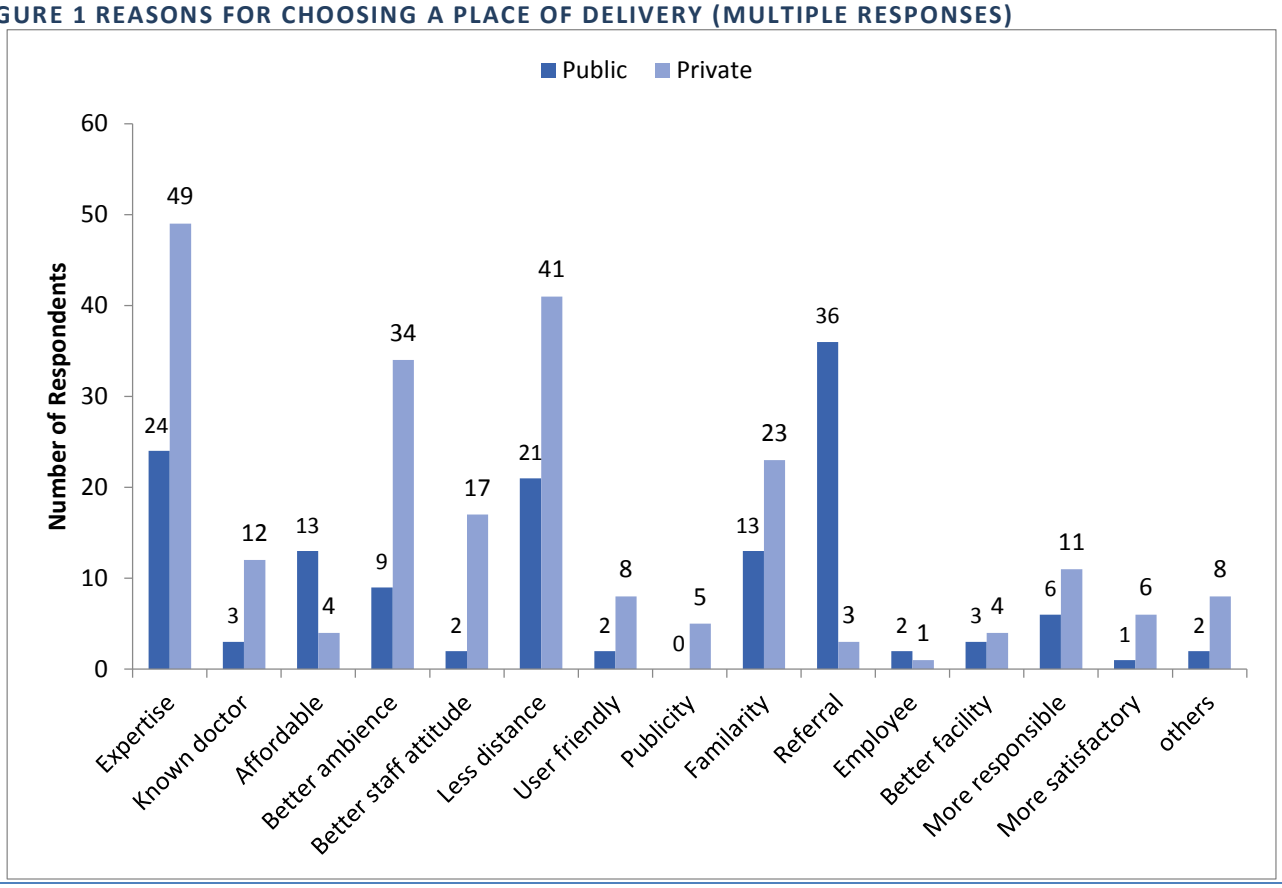

FIGURE 2 OPINION OF RESPONDENT ABOUT QUALITY OF SERVICES