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# Poverty, vulnerability, and provision of healthcare in Afghanistan

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# Poverty, vulnerability, and provision of healthcare in Afghanistan

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## Abstract

This paper presents findings on conditions of healthcare delivery in Afghanistan. There is an ongoing debate about barriers to healthcare in low-income as well as fragile states. In 2002, the Government of Afghanistan established a Basic Package of Health Services (BPHS), contracting primary healthcare delivery to non-state providers. The priority was to give access to the most vulnerable groups: women, children, disabled persons, and the poorest households. In 2005, we conducted a nationwide survey, and using a logistic regression model, investigated provider choice. We also measured associations between perceived availability and usefulness of healthcare providers. Our results indicate that the implementation of the package has partially reached its goal: to target the most vulnerable. The pattern of use of healthcare provider suggests that disabled people, female-headed households, and poorest households visited health centres more often (during the year preceding the survey interview). But these vulnerable groups faced more difficulties while using health centres, hospitals as well as private providers and their out-of-pocket expenditure was higher than other groups. In the model of provider choice,

time to travel reduces the likelihood for all Afghans of choosing health centres and hospitals. We situate these findings in the larger context of current debates regarding healthcare delivery for vulnerable populations in fragile state environments. The ‘scaling-up process’ is faced with several issues that jeopardize the objective of equitable access: cost of care, coverage of remote areas, and competition from profit-orientated providers. To overcome these structural barriers, we suggest reinforcing processes of transparency, accountability and participation.

## **Introduction**

There is an ongoing debate among academics, policy makers, and practitioners regarding access to healthcare in low-income countries. Existing literature has examined associations between *demand* for healthcare and *quality* of service based on structural characteristics such as the existence of a service and number of available medical staff (Alderman & Lavy, 1996; Lavy & Germain; 1994). Some authors have studied the effect of quality variables: availability of drugs (Akin, Guilkey & Deaton, 1995; Denton et al., 1991; Lavy & Germain, 1994; Mwabu, Ainsworth & Nyamete, 1993), number of staff (Akin et al. 1995; Lavy & Germain, 1994), or level of skills (Hotchkiss, 1993). Thus in Mali, Mariko (2003) looked at the impact of quality of care on health status of all patients and showed that availability of drugs, training, and sensitivity of medical staff had a positive effect on utilisation of public and non-profit facilities. Few studies, however, have investigated the *impact* of client perception of health services.

Our paper focuses on choice of provider for vulnerable groups and their perceptions regarding healthcare delivery. Measuring user satisfaction, the effect of quality on healthcare outcomes, and the choice of provider, can be well documented through client

surveys (Lavy & Quigley, 1993; Thomas, Lavy & Strauss, 1992, Mwabu et al., 1993; Sahn, Younger & Genicot, 2003). However, research is limited regarding how individual and household characteristics, health services structure, and cost of care, will impact perceptions of the relevance of the healthcare system especially through household based surveys. We agree with Glick (2009) that satisfaction ratings of clients in facility-based surveys are biased, and that subjective perceptions regarding the process (behaviour of practitioners, attitude of staff) can even be more strongly biased. There is little evidence of equitable access for the poor and disadvantaged, especially in fragile states (Filmer, Hammer & Pritchett, 2000; Patouillard, Goodman, Hanson & Mills, 2007). We examine, for Afghanistan, how people from different social and economic backgrounds value the actual delivery of healthcare services, using data from a national household survey on disability.

Contracting health services delivery to non-state providers has become a widespread approach to implementing health services in developing countries (Bhushan, Keller & Schwartz, 2002; Diallo, Ndiaye & Rakotosalama, 1999; La Forgia, Mintz & Cerezo, 2004; Palmer, Strong, Wali, and Sondorp, 2006). Setting-up a basic healthcare system in a conflict-affected fragile state, which lacks the capacity to implement public health policies, especially those aimed at reducing inequalities, complicates an already intricate global health issue (DFID, 2005; Loevinsohn & Harding, 2005; Soeters, Habineza, & Peerenboom, 2006). Basic healthcare services include primary level services such as health posts, comprehensive health centres, community health centres as well as outpatients departments in district hospitals (Doherty & Govender, 2004). The overarching goal of contracting for primary healthcare delivery is to provide equitable,

effective and efficient access. Studies show that contracting out primary healthcare can address 90% of anticipated local healthcare needs (World Bank, 1994).

In 2002, seconded by a joint mission of donors (USAID, European Commission and World Bank) as well as WHO, UNICEF, and other development partners, Afghanistan's Ministry of Public Health (MoPH) developed a Basic Package of Health Services (BPHS) to address major health needs of the population. The BPHS is tailored to provide accessible, low cost, good quality healthcare, through health posts, basic health centres, comprehensive health centres and district hospitals. It covers seven priority health concerns: maternal and newborn health, child health and immunization, public nutrition, communicable diseases with concentration on tuberculosis and malaria, mental health, disability, and essential drugs. The system relies upon the principles of competition and performance-based contracting. Thus the MoPH contracted 27 non-government organisations (NGOs) covering 31 of the 34 provinces of Afghanistan to implement the BPHS (Loevinsohn & Sayed, 2008; Strong, Wali & Sondorp, 2007); it retained responsibility for service delivery in the remaining 3 provinces (MoPH, 2003). The MoPH retained overall stewardship of the health sector, defining priorities, monitoring, coordinating, and evaluating implementation of healthcare provision (MoPH, 2005).

Over recent years in Afghanistan, the focus has been on provision of cost-effective services, which have the greatest impact on major health problems in both rural and urban settings. Promoting equitable access meant combating discrimination in the delivery of care, effectively giving priority access to the population groups in greatest need (women, children, persons with disabilities, and those living in most severe poverty; MoPH, 2007). For example, many facilities charging user fees have exemptions for poor

patients (MoPH et al, 2006). Alongside the BPHS, the private sector is composed of unregulated for-profit providers, both formal and informal, including clinics, medical practitioners, health practitioners, pharmacies, and small drug retailers. The cost of care can be high and the quality unpredictable, reflecting insufficient training (Sabri, Siddiqi, Ahmed, Kakar & Perrot, 2007).

Access to health care is of particular importance in Afghanistan, because the health challenges for fragile states are significant. Decades of conflict have increased poverty, further aggravated by several droughts since 2001. Health indicators such as the maternal, infant and under five mortality rates are among the highest worldwide (Bartlett, Mawji, Whitehead, Crouse, Dalil & Ionete & Salama, 2005). There has been, of course, some improvement in access to healthcare, education, and safe drinking water (Beall & Schutte, 2006; WFP & MRRD 2004). Presently, eighty two percent of Afghans live in districts where primary care services are delivered by NGOs (Loevinsohn & Sayed, 2008). But this does not guarantee effective access: shortages of qualified health personnel, scarcity of finances, violence, and absence or deficiency of health infrastructure, especially in remote areas, remain major constraints (Bristol, 2005; Morikawa, 2008; Sabri et al., 2007).

Prior to our research, there has been periodic evaluations of the BPHS, assessing the outcomes of healthcare contracting arrangements, the determinants and client perceptions of quality of BPHS services (Hansen, Peters, Viswanathan, Rao, Mashkoor & Burnham, 2008; Hansen, Peters, Edward, Gupta, Arur, Niayesh & Burnham, 2008). Previous authors documented an improvement in many indicators of quality of care between 2004 and 2006, reflected in increased numbers of new female outpatients, care deliveries, and

exemptions for poor patients. Yet, they also reported that cost was mentioned as the main barrier to seeking care by the poor living in the catchment area of the facility (Steinhardt, Waters, Rao, Naeem, Hansen and Peters, 2009). Overall, they concluded that widespread improvements in service delivery had been made since 2002.

In this paper, we go a step beyond such an analysis, to determine the extent to which health service delivery contracted to non-state providers has improved access for vulnerable groups nationwide, and whether this represents local preferences. We examined local *choice* between all available providers, including traditional providers. Individuals who chose to visit traditional healers (called *tibi unani*) also visited elderly women (*dais*), mullahs and imams or a shrine for martyred Afghans who fought against the Soviets (*ziarat*). We also explored local *perceptions* regarding modern healthcare delivery: whether Afghans, especially vulnerable groups, value the BPHS provided by the MoPH as compared to the private sector. We investigated associations between provider choice and the characteristics of respondents and households, after adjustments for covariates such as providers' attributes. Furthermore, we explored factors underlining local perceptions of healthcare, and estimated their influence on provider choice. This approach is useful for policy makers, as it compares effective use against perceived utility. It thus contributes to a better understanding linked to effective healthcare provision.

## **Methods**

### *Study design*

We undertook a national cross-sectional multistage cluster sample survey on disability between December 2004 and August 2005. We used a three-stage cluster sampling corresponding to the division of Afghanistan in 34 provinces, 397 districts, and more than 30,000 villages. This provided a sample representative of all households in Afghanistan (Figure 1). We set a limit of statistical significance ( $\alpha = .05$  with 95% confidence intervals), and assumed a prevalence of disability of 8%, a 10% precision and an estimated design effect of 2, to calculate a sample size of 3926 households. We selected 175 clusters, which yielded 5250 households to account for possible overestimation of disability prevalence as well as security constraints.

#### Figure 1: Sampling stages

At the first stage of sampling, 121 districts were systematically selected with a population proportional to size method, on the basis of the 2003-2004 population pre-census, and projections of the 1979 census for the 4 provinces that had not been covered due to security issues. At the second stage, 175 clusters were randomly selected among all sections of towns and villages per district. At the third stage, 30 households per cluster were randomly selected; four clusters could not be assessed due to security constraints. A total 5130 households were surveyed.

All 5130 heads of households were interviewed as well as a randomly-selected comparison sample of 958 disabled and 1738 non-disabled respondents. If willing to participate, respondents provided written or verbal consent. The rate of refusal was very low (0.1%). Several non-responses, mainly in urban areas, were due to non-availability of a respondent after several visits (0.3%).

The study was launched, designed, monitored, and evaluated in partnership with a large group of experts and stakeholders (January 2004-December 2006). Core issues from focus groups and semi-structured interviews provided the central themes of the quantitative survey tool developed in situ. This enabled us to question prior assumptions and to obtain a more nuanced understanding of healthcare accessibility choices among vulnerable individuals and their families. We structured questionnaires into six modules screening for: (i) activity limitations and functioning difficulties; (ii) health condition and access to healthcare; (iii) level of education and access to school; (iv) access to labour market; (v) livelihood and income; and (vi) self-perception (around perception of well-being), awareness, marriage and social participation. Survey instruments, translated into Dari and Pashto with iterative back-translation, were tested and piloted in both rural and urban areas.

The survey was carried out by a group of 5 international researchers, 15 local trainers, 24 supervisors, and 112 interviewers. Training took place in 6 major cities, lasted one month and was carried out by a number of specialists working in the field of health, education and disability in Afghanistan. Trainers were medical doctors with previous experience of large-scale surveys. Interviewers, recruited locally for security purposes, were high-school educated; they were trained on survey concepts and goals, disability issues, interview techniques, mine risk awareness, and security information, followed by review, examination and debriefing in local languages. The study received ethical approval from the Committee on Human Research of the Johns Hopkins Bloomberg School of Public Health and from the Ministry of Public Health of Afghanistan.

#### *Assessment of variables*

## Outcome variables

We measured three main outcomes, for a recall period over the 12 months preceding the interview: (i) choice regarding healthcare providers (six possibilities: no or self treatment, BPHS health centre, hospital, private provider, traditional provider, or a combination of these); (ii) perceived availability (healthcare modern facilities within reach of residence); and (iii) perceived usefulness (utility of care received at these facilities) (Table 1).

Table 1: Description of variables

## Explanatory variables

We evaluated four types of *explanatory variables*: characteristics of respondents, characteristics of household head, household socioeconomic profile, and features of the healthcare provider (Table 1). This is consistent with existing literature that has showed that perception linked to health status, care, and access is influenced by demographic and socioeconomic factors (Mwabu, Ainsworth & Nyamete, 1993), as well as by gender and cultural factors (Shengelia, Tandon, Adams & Murray, 2005). We did not include need for care per se.

First, we controlled for different aspects of vulnerability linked to the respondent: age, sex, disability status, and education. We hypothesised that the vulnerabilities of older people, female heads of household, disabled, and uneducated individuals had significant impact on healthcare provider choice and perceived availability and usefulness of care. (Akin, Griffin, Guilkey, and Popkin 1986; Akin et al., 1995; Ching, 1995; Ellis, McInnes, and Stephenson, 1994; Paul, 1992; Bakhshi & Trani, 2007).

Second, we used different variables pertaining to the characteristics of the household head: sex, marital status, ethnic origin, education level, and employment status.

Vulnerability and poverty are multidimensional constructs, closely linked to household circumstances, while the unemployed are among the priority groups targeted by the Ministry of Public Health (2005a). Ethnic minorities (Aimaq, Hazara, Turcoman, Uzbek, among others) face more difficulties in accessing some health care providers than Pashto, the largest single ethnic group in Afghanistan.

Third, we analysed findings according to the household size, residence area, and wealth, characteristics reflecting household socioeconomic status (a well-known determinant of provider choice; Dzator & Asafu-Adjaye, 2004; Morey, Sharma & Mills, 2003) and relevant indicators of poverty and vulnerability status (Patouillard et al., 2007). Measures of household wealth were based on reported ownership of goods and assets, rather than income. Asset quintiles were calculated as a proxy of wealth status, using principal-components analysis, deriving the asset quintiles from the first factor of the analysis (after Filmer & Pritchett, 2001; McKenzie, 2005).

Lastly, providers' attributes were appraised by degree of remoteness using the time required to travel to the nearest facility, perception of availability, and usefulness of the range of modern healthcare providers (health centres, hospitals, private clinics), as well as median costs of care (following Akin et al., 1995; Ellis et al, 1994, Litvack and Bodart, 1993; Morey et al., 2003; Schwartz Akin, and Popkin, 1988). We assessed the effect of major out-of-pocket expenditures and adjusted the model according to the median amount of fees, drugs, transportation and other miscellaneous costs (including food, cost to escort someone) calculated per cluster and provider type. Difficulties reported during

visits included difficulties linked to payment, those linked to access (no transportation), and those linked to treatment (absence of medication, small number of doctors, negative attitude of staff, and absence or inadequacy of equipment).

*Model specification*

We modelled determinants associated with choice of healthcare provider (Waters, 2000; Wiseman, Scott, Conteh, McElroy & Stevens, 2008; Yip & Berman, 2001). This approach follows random utility theory where the patient is assumed to choose the provider believed to have the highest utility. The patients' decision based on their utility maximization is expressed by:

$$U_{nj} = F(Q_{pj}, C_j, D_j, S_{np}) \tag{1}$$

Where  $Q_{pj}$  represents the characteristics of the health provider,  $C_j$  the cost of the treatment,  $D_j$  the time necessary to reach the provider,  $S_{np}$  the socio-economic characteristics of patient  $n$ . In linear form, the utility function is:

$$Unj = \alpha Q_{pj} + \beta C_j + \chi D_j + \delta S_{np} + \varepsilon_j + \mu_j \tag{2}$$

With  $\alpha\beta\chi\delta$  parameters to be estimated by the econometric model and  $\varepsilon_j, \mu_j$  respectively the error due to the specification of the utility function and the error resulting from the fact that the factors in the model cannot explain completely  $U_{nj}$ . Multinomial discrete choices models are the most appropriate to estimate more than two alternatives.

The choice of three possible types of models is determined by the assumption made on the errors terms  $\varepsilon_j, \mu_j$ . While the multinomial probit has the advantage of allowing all types of correlations between error terms, this model makes it difficult to estimate as well

as to interpret up to six alternatives. For the multinomial logistic and the nested multinomial logistic, errors are considered uncorrelated if the decision about whether or not to seek treatment and the decision about choice of provider are made simultaneously. We tested the level of correlations between possible alternatives using a generalised Hausman test and concluded that the multinomial logistic model was an appropriate choice (data not shown).

### *Analyses*

We present the relative importance of the different providers in the provision of healthcare, the level of difficulties faced during visits, and the out-of-pocket expenditures across vulnerable groups (Figures 2 to 4). We tested for differences in proportions using Pearson  $\chi^2$  test with the correction of Rao and Scott to account for survey design. This paper uses three regression models to establish the determinants of (i) the decision to choose a provider, (ii) perception of availability, and (iii) usefulness of modern healthcare providers, using multinomial logistic regressions with odds ratios and 95% confidence intervals. We applied probability weights to correct for oversampling of persons with disabilities. We also adjusted for complex sampling design using Taylor's linearized variance estimation.

## **Results**

### *Access, difficulty, and expenditure*

We highlight the main findings of healthcare usage, disaggregated by wealth status, gender of household head, and disability status. We observed significant differences in the burden of healthcare according to levels of poverty and vulnerability.

Figure 2 shows that private providers were predominantly used by all Afghans. Individuals in the poorest wealth quintile were significantly more likely to visit a health centre ( $p < .001$ ) but less likely to visit a hospital ( $p < .001$ ) than were individuals in the wealthier quintile. There was no discernible difference in the likelihood to visit a private provider or a traditional provider. Female household heads used health centres more often, while male household heads visited private providers more often ( $p < .05$ ). Respondents with disabilities tended to seek more treatment, especially in the private sector, than non-disabled but did not have privileged access to health centres.

Figure 2 Utilisation rates by provider type, wealth quintile, disability condition and gender of household head

Overall, poor and vulnerable people faced more difficulties while using healthcare providers: this was true for the poorest quintile and for people with disabilities for all providers (Figure 3). By way of contrast, female headed households did not report more difficulties.

Figure 3: Difficulty rates by provider type, wealth quintile, disability condition and gender of household head

Furthermore, out-of-pocket expenditure was significantly greater for the poor and the vulnerable. A higher proportion of individuals in the poorest quintile, relative to the wealthiest quintile, situated themselves in the highest quintile of expenses for use of health centres. Similarly, people with disabilities were more often in the highest quintile of expenses than non disabled, whatever the provider. This was not the case for female-headed households (Figure 4).

Figure 4: Expenditure rates by provider type, wealth quintile, disability condition and gender of household head

*Multivariate analysis: Choice, availability, and usefulness of healthcare providers*

After controlling for other covariates using multinomial logistic regression, vulnerable groups showed different levels of association with healthcare providers (Table 2). First, individuals with a physical disability and those with intellectual disabilities were more likely to visit health centres (respectively 2.1 and 2.5 times) and hospital (3.3 and 4 times) than non-disabled people. Second, there were no differences in the likelihood of seeking care between poorest and wealthiest individuals. Third, female-headed households were 3 times less likely to use private providers than male-headed households. The lack of formal education of a household head entailed less access to private, traditional, as well as multiple providers. Lack of accessibility of health centres and hospitals were associated with a higher likelihood to choose private providers. Time required to travel to a health provider also reduced the likelihood of choosing health centres and hospitals. Finally, median cost was not a significant barrier *per se* for any type of provider choice, all variables corrected.

Table 2 Multinomial logistic estimates of seeking healthcare (model 1)

Interestingly, in the second model looking not at probability of seeking healthcare but at probability of considering healthcare providers useful (table 3), distinct patterns of availability were also observed. Health centres were perceived as being more available than private providers by minority ethnic groups, poorer people, and rural households after correction for all other predictors. Individuals with a mental or intellectual disability

perceived hospitals, but not health centres, to be more available than private providers. Yet, people in all four poorer quintiles reported that hospitals were less available than private providers. Out-of-pocket expenditure and inaccessibility (transportation problem) both negatively impacted local perceptions of availability of hospitals over private providers.

Table 3 Multinomial logistic estimates of perceived availability of provider  
(model 2)

In the last model (Table 4), the probability of considering health centres more useful than private providers was significantly predicted by gender (1.7 times greater likelihood among men), physical disability (1.5 times greater than non-disabled), minority ethnicity (1.6 times greater than Pashto), lack of education of the household head (1.1 time higher than educated head), rural residency (2.1 times greater than urban centres) and level of poverty (about 2 times greater for wealth quintiles two to four compared with the least poor quintile). Usefulness of hospitals over private providers was determined by gender and mental or physical disability. On the other hand, difficulty of access linked to expenses and transportation reduced the likelihood to consider hospitals more useful than private providers.

Table 4 Multinomial logistic estimates of perceived usefulness of provider  
(model 3)

## **Discussion**

This paper provides evidence for a range of factors influencing choice of provider and local perceptions of the Basic Package of Health Services in Afghanistan. This

contributes to the ongoing debate on equitable access to healthcare in complex and fragile states.

The contracting-out of healthcare in Afghanistan has yielded some positive outcomes. Our results demonstrate that the aim to meet the needs of vulnerable groups - female-headed households, children, the poor, the uneducated, people living in remote areas, and disabled persons (MoPH, 2005) has been partially achieved. They suggest that disabled people and poorest households visited health centres more often than other groups. All groups visited private providers more often than any other provider; and costs of healthcare do not directly influence the provider choice.

There is a positive perception of health centres among people with physical disability, those from less educated (per year of schooling, OR 0.94 95%[0.89-0.98]) and poorer households (1.94 [1.04-3.61]), those in remote areas (2.18 [1.15-4.11]), and of a minority ethnicity (1.58 [0.92-2.70]). Although these vulnerable groups do not always show tangible health outcomes, they perceived the healthcare process as being fair (Wailoo & Anand, 2005). This constitutes a considerable achievement, bearing in mind the on-going conflict and environment constraints in which the BPHS has been implemented.

Yet the choice of provider shows more complicated patterns than initially anticipated – this points to persisting challenges of service implementation. We review below (i) the low access of vulnerable groups; (ii) coverage of remote areas; (iii) high out-of-pocket expenditures; and (iv) competition from an unregulated private sector and traditional providers.

First, although poorest households accessed healthcare centres more frequently than the richest ones, there was a general low level of overall use. For instance, only 18.5% of

female household heads used health centres during the recall period, a fact that echoes findings about women in Burkina Faso (Sauerborn, Nougara & Latimer, 1994), Egypt (Ellis et al., 1994), Ghana (Lavy & Germain, 1994), Kenya (Mwabu, Ainsworth & Nyamete, 1993), Mali (Mariko, 2003), and Tanzania (Sahn et al., 2003). Lack of female staff, cost, and cultural norm combine to explain low access. In rural areas, tribal customs still forbid women to leave home without a male relative escort. A possible solution might be in the implementation of a programme like the Lady Health Workers in Pakistan, which trained thousands of female community health workers (Garwood, 2006).

Despite increased coverage, rural areas still lack BPHS facilities. This is a common finding, consistent with results from Tanzania, for example, where any quality care received by the poor in rural areas is lower than in urban areas (Leonard & Masatu, 2007). As many of our respondents in remote areas pointed out, people who fall ill during the winter, when villages are blocked in by snow, will either recover or die. To cover remote areas, the MoPH requested subcontracted NGOs to establish sub-centres and increase the number of community health workers (MoPH, 2007). This strategy requires a pledge of greater funding (Ameli & Newbrander, 2008).

A high level of out-of-pocket expenditure constitutes another barrier for choosing BPHS facilities (The Lancet, 2005). Disabled people and those in the poorest wealth quintile face higher expenditures while visiting BPHS facilities or hospitals than non-disabled and people in higher wealth quintiles. A possible explanation is their higher likelihood of choosing private, traditional and multiple providers where out-of-pocket expenditure is relatively higher than BPHS facilities. Furthermore, need for health treatment is more

widespread among these vulnerable groups. Having difficulty accessing and paying for care offered by hospitals is an issue in many countries, for example Nigeria (Akin et al. 1995), Kenya (Mwabu et al., 1993) and Tanzania (Tibandebage & Mackintosh, 2005). Afghanistan has not reduced out-of-pocket healthcare spending at par with other developing countries that have contracted healthcare delivery (Bloom, Bhushan, Clingingsmith, Hong, King, Kremer & Loevinsohn & Schwartz, 2006; Bhushan, Keller & Schwartz, 2002; Leonard & Masatu, 2007). We would argue that more effort needs to be taken to ensure that out-of-pocket expenses are addressed simultaneously with other access issues (such as distance, quality of care) for the most vulnerable groups. Moreover, private sector providers remain crucial players in providing healthcare. Wealthier households, as well as those headed by educated persons, tend to seek care in better equipped, private clinics where doctors have a second medical practice after they finish their shift at the public hospital. But in the private sector, poorer Afghans only have access to small retailers and practitioners with partial medical training. Overall, quality of healthcare in the private sector remains uneven (Sabri et al., 2007). Our findings suggest that the likelihood of choosing the private sector diminishes with higher perception of availability and usefulness of health centres and hospitals.

Additionally, Afghans rely heavily on traditional providers, but not exclusively. Out-of-pocket expenditure for such care is often lower than for other providers. Patients tend to prefer modern medicine whenever available and when there are risks of complications, for instance in childbirth delivery (Kartinen & Diwan, 2002). Modern medicine and traditional cures are used concurrently for two reasons. Firstly, more conservative households in both rural and urban areas turn to traditional practices for illnesses. Some

people believe that mental illnesses and intellectual disabilities are curse of God (Trani, Bakhshi, Noor & Mashkoor, 2009). Secondly, wealthy households use traditional and religious providers in addition to western clinicians because they can afford both, and will use any avenue they hope might prove effective.

### *Gaps in the Current System*

Our findings point to a series of gaps in the current system where changes might be introduced and monitored as part of subsequent work. For example, much more trained female staff are needed for equitable access (Hansen, Peters et al., 2008) and some efforts have been already made to increase their number (Ameli & Newbrander, 2008).

However, new staff will only lead to limited gains without other improvements. For example, access to drugs at the lowest possible price is essential to reduce out of pocket expenditure as people use informal retailers when BPHS facilities cannot provide medication (Richards, 2007).

The integration of competent private providers, such as medical doctors in private clinics, into the contracting process for delivering agreed health interventions, is one way of increasing coverage and quality (as shown in Sudan; Habbani, Groot & Jelovac, 2006).

Similarly, including private providers with less skills and traditional or religious health providers in the health-system strengthening strategy especially in remote areas is a pioneering way of promoting skills substitution, particularly for simple and straightforward procedures and interventions (Hongoro & McPake, 2004), especially if their skills continue to be built and there is vigilant oversight (Sabri et al., 2007).

Resorting to these through community-based health awareness and immunisation campaigns and referring people to public health services is a first step. Provision of

training for traditional healthcare providers has been suggested for instance, for birth attendants in Afghanistan (Amowitz, Reis, Iacopino, 2002).

Finally, reinforcing accountability through empowerment and feedback from users including the most vulnerable encourages efficiency (Gwatkin, Bhuiya & Victora, 2004). It also helps build a governmental infrastructure within Afghanistan that has implications beyond the health sector. The National Solidarity Programme offers a successful example of participatory development programme: it is community-led through tribal or village councils (*shuras*) that have a say in the choice, implementation, and monitoring of projects. Similarly, regulation of the healthcare system by users generates better utilisation by developing trust in the system (Rosenbaum, Rodriguez-Acosta & Rojas, 2000). The *shuras* are already responsible for dealing with community issues resolving conflicts, and aware of local needs. Such *shura-e-sehi* (community health committees) can ensure that vulnerable groups do not fall through the cracks of the health system. Unfortunately, the paucity of such bottom-up strategy is as a major failure of international efforts in Afghanistan (Fair & Jones, 2009). The deteriorating security and corrupt political systems have and will continue to make the situation worse, as top-down policies are not sustainable in such a climate.

### *Conclusion*

Access to healthcare of vulnerable people is an important issue for policy makers and international donor agencies. Our results indicate that the health policy makers in Afghanistan have partially reached their goal: the most vulnerable groups used public health services *at par* or in some cases more than other users. However, our regression model does not show privileged access for all vulnerable groups, after adjustment for

other factors. Difficulties such as inaccessibility, cost, shortage of medication, absence of doctors, negative attitude of staff, and shortcoming or inadequacy of equipment remain barriers to access.

These findings underscore the complexity of designing and delivering a package of health services for the most vulnerable citizens in a fragile state situation. However, our findings also indicate that such an intervention can provide positive outcomes through coordinated efforts of government and NGO actors, despite structural difficulties on the ground. They suggest that to scale up, reduce cost, increase quality, and ensure sustainability of the healthcare system require more resources, especially if meant to meet the needs of vulnerable groups. Whether this expansion of services is best achieved through the current subcontracting system, integrating more local NGOs and the private sector, or through public services under the oversight of the Ministry of Public Health, remains to be investigated.

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Figure 1: Sampling stage of the survey in Afghanistan (2005)

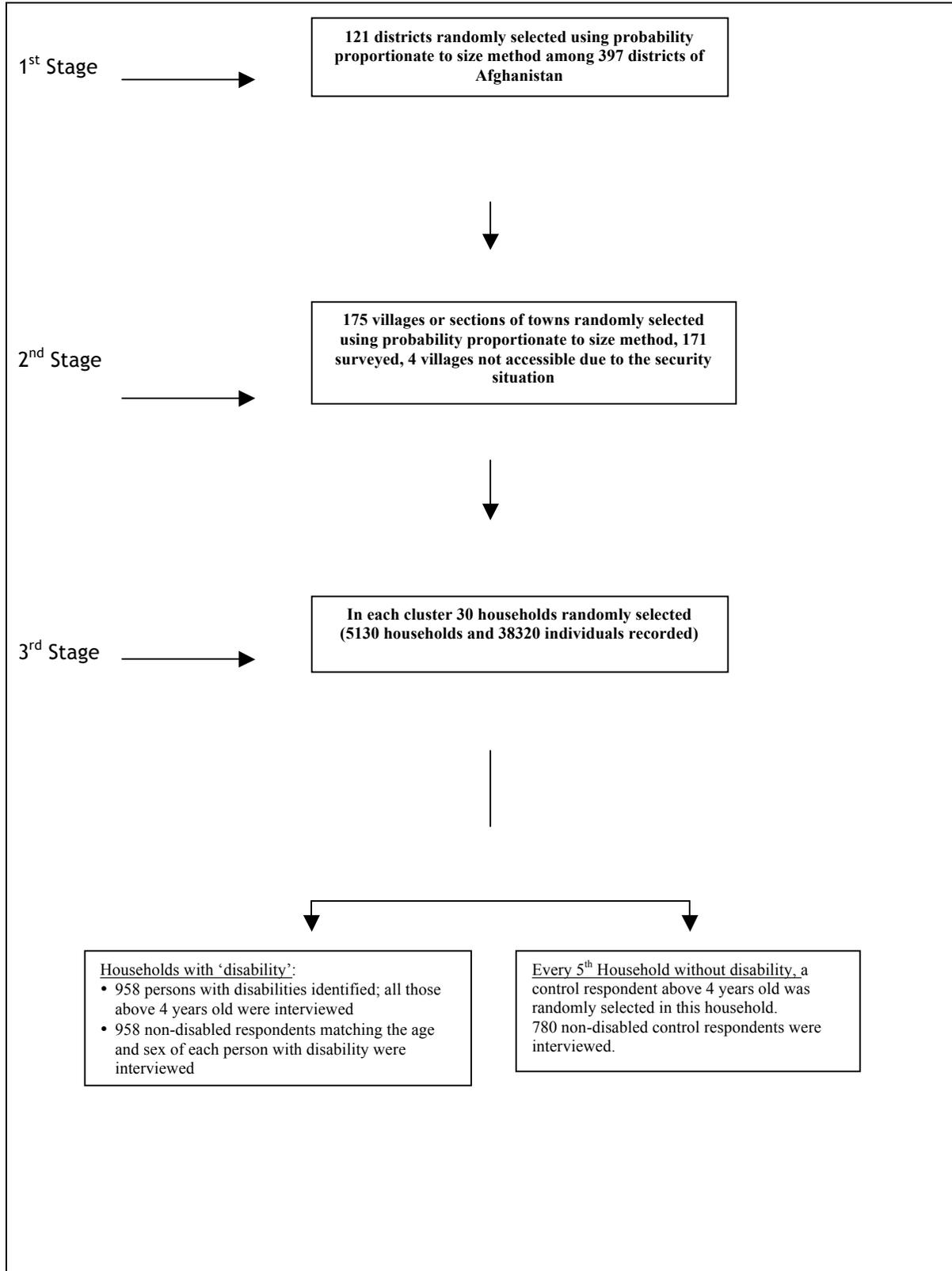


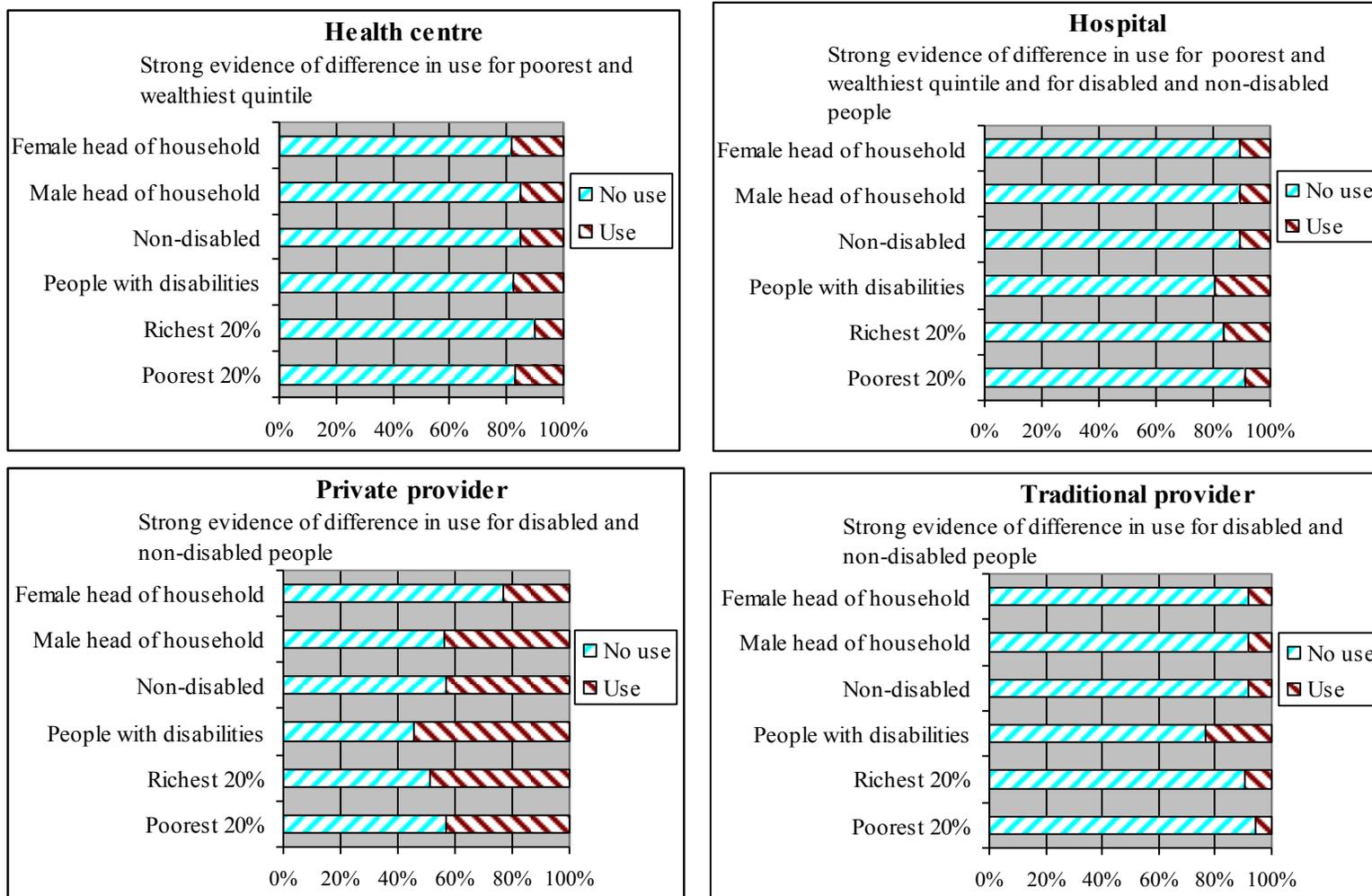


Table 1: Variables description, for use in 3 regression models

Variable	Operational definition
<b>Dependent variables</b>	
Probability of choosing a provider	Probability of choosing a provider among six options: (i) self treatment (ii) health centres, run by NGOs and monitored by MoPH through the BPHS; (iii) hospitals, at district and provincial levels; (iv) for-profit unregulated private providers (v) traditional providers, that encompasses bonesetters, healers, <i>tibi unani</i> practitioners, Mullahs; (vi) finally a combination of modern and traditional providers.
Availability of provider	Probability of finding available any of three types of providers: BPHS facility, hospital, and private provider.
Usefulness of provider	Probability of finding useful any of the three above mentioned types of providers.
<b>Explanatory variables</b>	
<b>Patients characteristics</b>	
Gender	Gender of respondent (male=0, female=1)
Age	Age of the respondent in years
Education	Years of schooling of the respondent
Disability	Disability status is composed of 4 categories (non disabled=0, physical impairment=1; sensory impairment=2; mental illness/intellectual impairment=3). It was measured using the 27 items of the screening tool. The instrument consisted of five sections relating to specific aspects of physical, sensory, learning, psychological, social and behavioural difficulties, as well as episodes of crises, epilepsy and seizures.
<b>Household head characteristics</b>	
Gender	Gender of household head (male=0, female=1)
Married	Civil status of the household head (not married=0, married=1)
Ethnic group	Ethnicity of the household head in 3 categories (Pashto=0, Tajik=1, Other ethnicity=3)
Education	Years of schooling of the household head
Employment	Situation on the labour market of the household head (not working=0, working=1)
<b>Household characteristics</b>	

Size	Number of residents living in the household
Residence	Place of residence (major towns=0, villages and district centres=1)
Asset index	Indicator of wealth status composed of five quintiles (least poor quintile=0, poorest asset quintile=1, poorer asset quintile=2, poor asset quintile=3, less poor asset quintile=4)
<b>Provider characteristics</b>	
Travel Time	Time requested to reach the closest facility in hours
Payment difficulty	Difficulty faced to access the facility due to lack of financial resources (no difficulty=0, difficulty=1)
Access difficulty	Difficulty faced to reach the facility because of lack of transportation (no difficulty=0, difficulty=1)
Difficulty of treatment	Difficulties faced to be treated at the facility (no difficulty=0, difficulty=1). This encompasses absence of medication, small number of doctors, negative attitude of staff, and absence or inadequacy of equipment.
Median BPHS cost	Median level of out-of-pocket expenditure faced to access and use health centres in a given cluster. It includes amount paid for fees, medication, transportation, other expenditures such as food or care taker
Median hospital cost	Median level of out-of-pocket expenditure faced to access and use hospitals in a given cluster. It includes the same type of expenditures as above.
Median private provider cost	Median level of out-of-pocket expenditure faced to access and use private providers in a given cluster. It includes the same type of expenditures as above.
Median traditional provider cost	Median level of out-of-pocket expenditure faced to access and use traditional or religious providers in a given cluster. It includes the same type of expenditures as above.

Figure 2 Utilisation rates by provider type, wealth quintile, disability status, and gender of household head

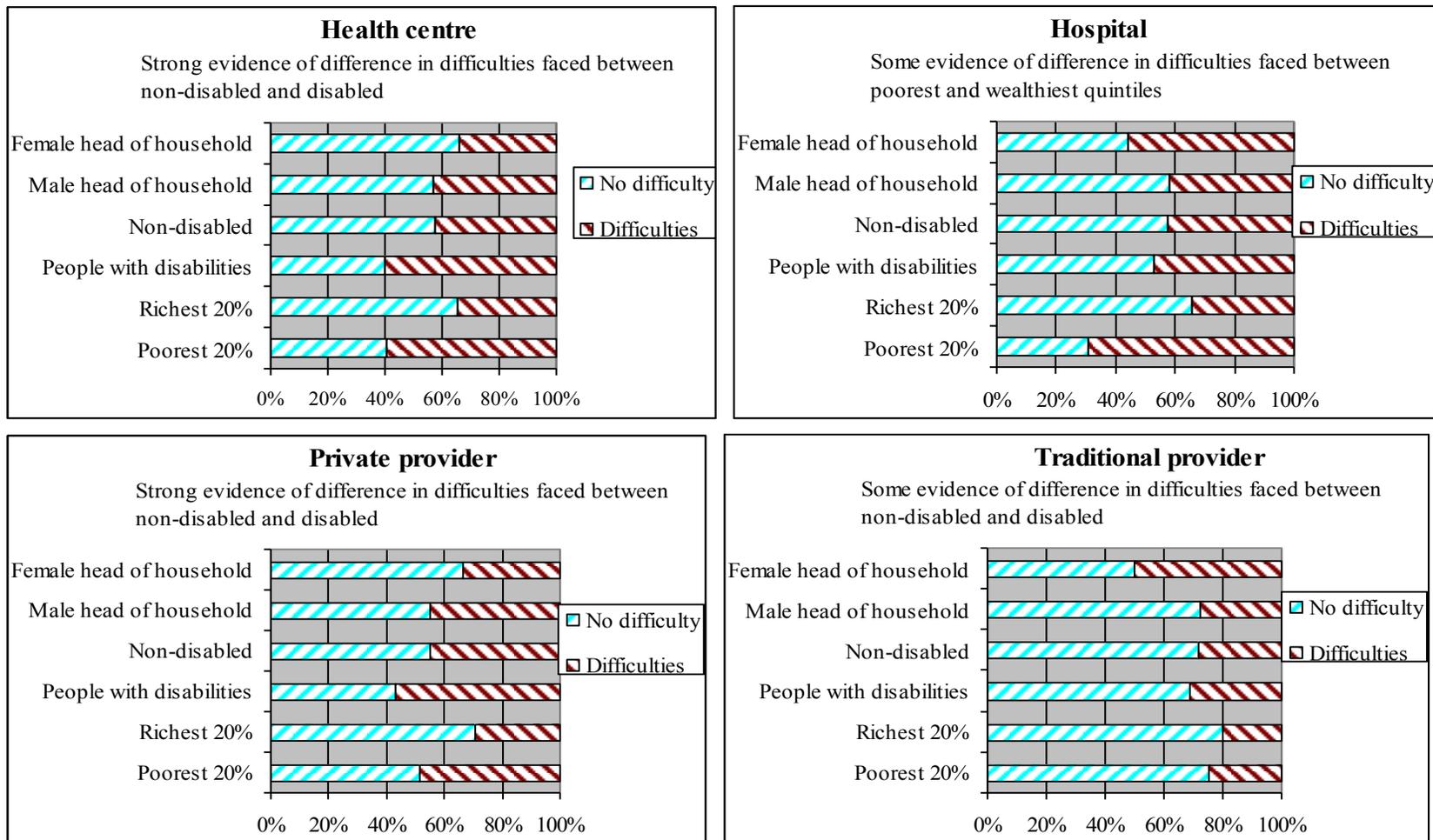


Note: N=437 for health centre; 360 for hospital; 1236 for private provider; 416 for traditional provider.

Pearson  $\chi^2$  test (Rao and Scott correction):  $P < 0.05$  for gender of head of household and use of hospital, as well as use of private provider. No evidence of difference for health centre and traditional provider.  $P < 0.001$  for disability condition and use of both hospital, private, and traditional provider. No evidence of difference for health centre.

$P < 0.001$  for wealth quintile and use of health centre or hospital. No evidence of difference for other providers.

Figure 3 Difficulty rates by provider type, wealth quintile, disability status, and gender of household head



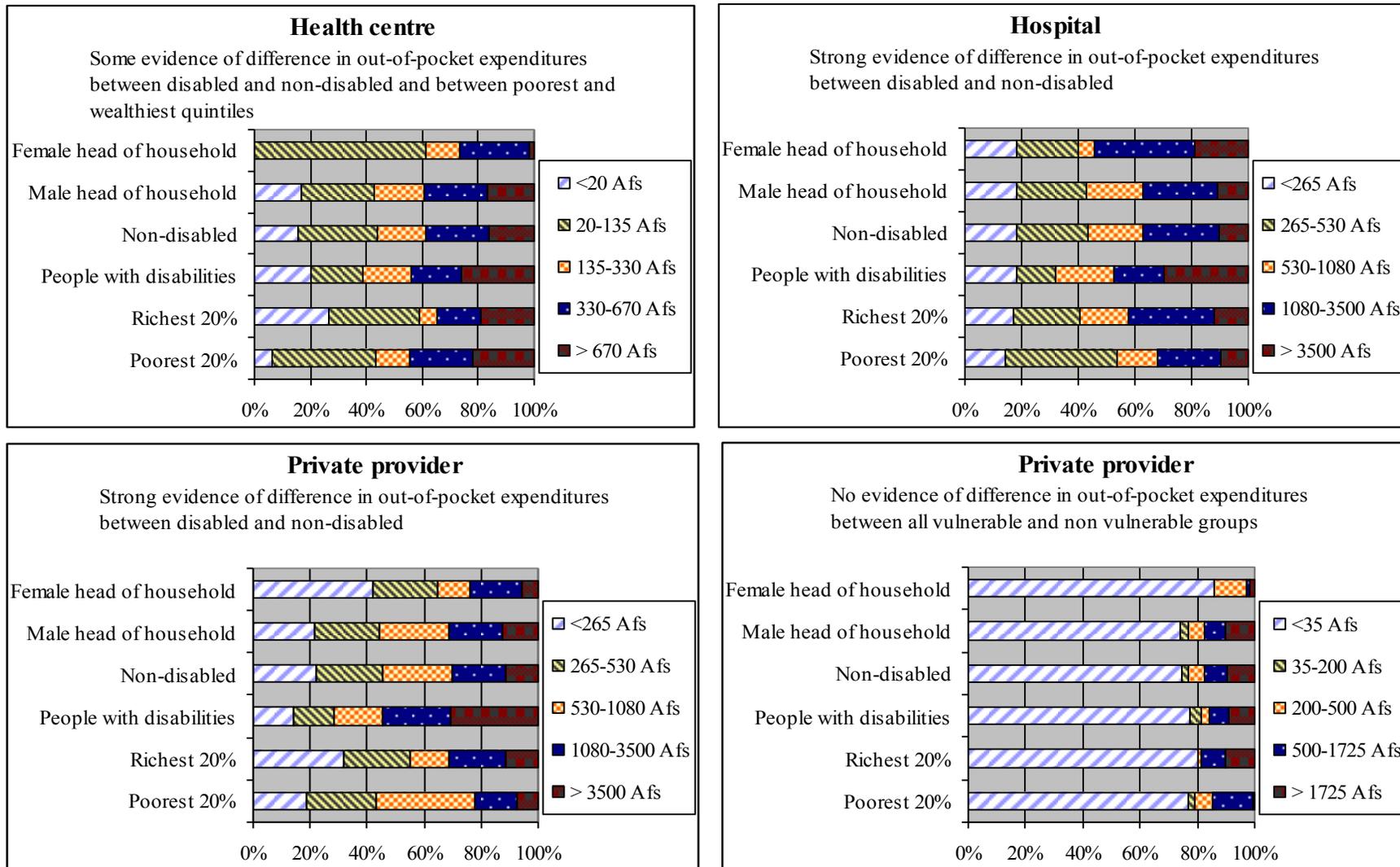
Note: N=437 for health centre; 360 for hospital; 1236 for private provider; 416 for traditional provider.

Pearson  $\chi^2$  test (Rao and Scott correction): No significant differences for gender of head of household and difficulties faced in any provider.

$P < 0.001$  for disability condition and difficulties faced in private provider;  $P < 0.01$  for difficulties faced in health centre;  $P < 0.1$  for difficulties faced in hospital. No evidence of difference for traditional provider.  $P < 0.05$  for wealth quintile and difficulties faced in hospital, private and for traditional provider. No evidence of difference for health centre.

The same pattern holds for an analysis by degree of difficulty.

Figure 4 Expenditure quintiles by provider type, wealth quintile, disability status, and gender of household head



Note: At the time of the survey 1 USD= 50 Afs. N=437 for health centre; 360 for hospital; 1236 for private provider; 416 for traditional provider. Darker colours indicate higher expenditure levels. Pearson  $\chi^2$  test (Rao and Scott correction). No significant differences for gender of head of household and expenditures faced in any provider.

P<0.001 for disability condition and expenditures faced in hospital and private provider; P<0.05 for expenditures faced in health centre. No evidence of difference for traditional provider.

P<0.05 for wealth quintile and expenditures faced in health centre and private provider. No evidence of difference for hospital and for traditional provider.

Table 2 Multinomial logistic estimates of *choice* among providers (model 1)

	Health centres		Hospital		Private provider		Traditional provider		Multiple provider	
	OR	(95%CI)	OR	(95%CI)	OR	(95%CI)	OR	(95%CI)	OR	(95%CI)
<b>Patients characteristics</b>										
Female (ref. male)	0.95	0.60-1.50	1.06	0.55-2.03	0.79	0.55-1.13	0.77	0.32-1.83	0.55*	0.28-1.0
Age	1.01	0.99-1.02	1.00	0.98-1.02	1.02***	1.00-1.03	1.01	0.98-1.02	1.03***	1.01-1.0
Education	0.95	0.86-1.04	0.96	0.83-1.09	0.99	0.92-1.06	0.80***	0.68-0.93	0.98	0.88-1.0
Physical (ref. non disabled)	2.10**	1.16-3.77	3.28***	1.78-6.04	1.77***	1.23-2.54	2.10	0.75-5.82	2.10***	1.19-3.7
Sensory	0.91	0.45-1.78	1.57	0.77-3.16	1.13	0.73-1.73	1.75	0.65-4.71	2.05**	1.00-4.1
Mental illness/Intellectual disability	2.46***	1.40-4.31	3.94***	2.02-7.68	2.85***	1.97-4.10	11.1***	5.91-20.9	5.01***	2.97-8.4
<b>Head of Household characteristics</b>										
Female (ref. male)	0.69	0.17-2.65	1.63	0.46-5.76	0.33**	0.12-0.85	1.46	0.11-18.0	0.40	0.07-2.1
Married (ref. not married)	0.37**	0.15-0.84	1.53	0.55-4.19	0.82	0.40-1.68	0.77	0.13-4.43	0.52	0.15-1.7
Tajik (ref. Pashto)	1.06	0.57-1.97	0.81	0.40-1.62	0.72*	0.50-1.04	1.43	0.53-3.80	0.84	0.42-1.6
Other ethnicity	0.72	0.34-1.49	0.63	0.28-1.43	0.79	0.46-1.34	1.99	0.60-6.59	0.70	0.35-1.3
Years of schooling	1.03	0.97-1.08	0.97	0.88-1.05	1.06**	1.01-1.10	1.18***	1.08-1.28	1.09**	1.00-1.1
Working (ref. not working)	1.04	0.53-1.98	1.76	0.79-3.88	1.06	0.66-1.67	2.57	0.62-10.5	1.38	0.64-2.9
<b>Household characteristics</b>										
Size	1.01	0.95-1.06	1.03	0.94-1.13	0.98	0.95-1.01	0.91*	0.81-1.02	0.99	0.92-1.0
Rural residence (ref. urban)	0.49*	0.23-1.05	0.47	0.15-1.45	0.96	0.58-1.56	1.50	0.41-5.36	0.79	0.35-1.7
Poorest wealth quintile (ref. least poor)	2.02	0.82-4.94	0.80	0.31-2.02	1.01	0.58-1.74	1.22	0.32-4.49	0.81	0.32-2.0
Poorer wealth quintile	1.70	0.74-3.89	0.82	0.32-2.04	1.17	0.66-2.07	0.66	0.15-2.82	0.36*	0.12-1.0
Poor wealth quintile	1.90*	0.89-4.06	1.50	0.62-3.57	1.15	0.67-1.97	1.34	0.40-4.43	0.94	0.36-2.4
Less poor wealth quintile	2.46**	1.14-5.29	0.68	0.29-1.54	1.09	0.64-1.83	1.11	0.25-4.82	1.35	0.49-3.6
<b>Provider characteristics</b>										
Travel time	0.71***	0.56-0.87	0.71*	0.49-1.03	0.94	0.84-1.03	1.15	0.96-1.36	0.86	0.71-1.0
BPHS cost (ref. below median cost)	1.14	0.66-1.95	1.10	0.54-2.22	1.06	0.73-1.52	0.68	0.31-1.48	1.17	0.67-2.0

Hospital cost (ref. below median cost)	0.99	0.59-1.65	0.81	0.43-1.51	0.94	0.65-1.33	0.60	0.24-1.49	0.77	0.44-1.3
Private provider cost (ref. below median cost)	1.00	0.60-1.64	0.69	0.33-1.44	0.88	0.60-1.27	0.92	0.39-2.13	1.12	0.64-1.9
Traditional provider cost (ref. below median cost)	1.02	0.60-1.70	0.92	0.45-1.87	1.22	0.85-1.73	0.63	0.26-1.48	1.06	0.63-1.7
Health centre available (ref. private provider)	6.48***	2.82-14.8	0.80	0.34-1.87	0.42***	0.28-0.62	0.49*	0.22-1.05	1.27	0.57-2.8
Hospital available	0.28**	0.10-0.80	2.17*	0.86-5.48	0.34***	0.19-0.56	0.90	0.28-2.85	0.75	0.32-1.7
Health centre useful (ref. private provider)	2.49**	1.12-5.50	2.66	0.74-9.50	0.64**	0.42-0.95	0.59	0.24-1.40	0.66	0.30-1.4
Hospital useful	1.39	0.56-3.42	3.73**	1.12-12.3	0.46***	0.30-0.69	0.12***	0.04-0.33	0.57	0.28-1.1

Significant at the \*\*\*1% level ( $p \leq 0.01$ ). \*\*5% level ( $p \leq 0.05$ ). \*10% level ( $p \leq 0.10$ ).

**Base choice is no care or self treatment.**

Table 3 Multinomial logistic estimates of perceived *availability* of provider (model 2)

	Health centre		Hospital	
	OR	95%CI	OR	95%CI
<b>Patients characteristics</b>				
Female (ref. male)	1.00	0.74-1.34	0.69**	0.48-1.00
Age	1.01	0.99-1.01	1.00	0.99-1.01
Education	1.07*	1.01-1.15	1.07*	0.99-1.16
Physical (ref. non disabled)	0.82	0.60-1.11	1.35	0.89-2.03
Sensory	0.92	0.64-1.29	1.08	0.65-1.78
Mental illness/Intellectual disability	0.86	0.62-1.17	1.41*	0.96-2.05
<b>Head of Household characteristics</b>				
Female (ref. male)	0.89	0.36-2.17	1.19	0.31-4.47
Married (ref. not married)	0.97	0.54-1.73	1.47	0.50-4.23
Tajik (ref. Pashto)	0.98	0.57-1.66	1.16	0.68-1.96
Other ethnicity	1.97**	1.13-3.43	1.30	0.61-2.73
Years of schooling	0.99	0.94-1.04	1.00	0.94-1.05
Working (ref. not working)	1.11	0.73-1.68	0.86	0.51-1.42
<b>Household characteristics</b>				
Size	1.00	0.96-1.04	1.00	0.94-1.05
Rural residence (ref. urban)	3.08***	1.56-6.06	1.24	0.60-2.53
Poorest wealth quintile (ref. least poor)	1.62*	0.91-2.87	0.47**	0.22-0.98
Poorer wealth quintile	1.86**	1.03-3.33	0.39***	0.19-0.77
Poor wealth quintile	1.50	0.80-2.79	0.43**	0.19-0.94
Less poor wealth quintile	1.08	0.60-1.94	0.55*	0.29-1.04
<b>Provider characteristics</b>				
Travel time	1.03	0.89-1.18	1.04	0.87-1.23
Money problem	0.91	0.53-1.54	0.43***	0.22-0.81

Transportation problem	0.83	0.54-1.26	0.62*	0.36-1.06
Problem to be treated	1.30	0.61-2.76	1.57	0.60-4.11
BPHS cost (ref. below median cost)	0.76	0.47-1.21	1.42	0.79-2.54
Hospital cost (ref. below median cost)	0.59**	0.36-0.94	0.67	0.39-1.13
Private provider cost (ref. below median cost)	1.17	0.73-1.88	0.94	0.52-1.66
Traditional provider cost (ref. below median cost)	0.89	0.55-1.44	0.82	0.48-1.37

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\*\*\* Significant at the 1% level ( $p \leq 0.01$ ). \*\* Significant at the 5% level ( $p \leq 0.05$ ). \* Significant at the 10% level ( $p \leq 0.10$ ).

Base choice is private provider

Table 4 Multinomial logistic estimates of perceived *usefulness* of provider (model 3)

	Health centre		Hospital	
	OR	95%CI	OR	95%CI
<b>Patients characteristics</b>				
Female (ref. male)	0.60***	0.42-0.85	0.46***	0.31-0.66
Age	1.00	0.98-1.00	1.00	0.99-1.01
Education	1.05	0.97-1.13	1.02	0.94-1.09
Physical (ref. non disabled)	1.49**	1.07-2.05	1.44**	0.99-2.08
Sensory	1.16	0.74-1.79	0.91	0.56-1.45
Mental illness/Intellectual disability	0.85	0.60-1.20	1.32	0.93-1.87
<b>Head of Household characteristics</b>				
Female (ref. male)	0.69	0.24-1.90	0.65	0.24-1.76
Married (ref. not married)	0.63	0.29-1.36	0.89	0.38-2.06
Tajik (ref. Pashto)	0.69	0.44-1.08	0.65**	0.42-1.00
Other ethnicity	1.59*	0.91-2.77	1.41	0.78-2.56
Years of schooling	0.94***	0.89-0.98	1.00	0.95-1.04
Working (ref. not working)	1.11	0.66-1.85	0.78	0.51-1.17
<b>Household characteristics</b>				
Size	1.02	0.98-1.06	1.02	0.97-1.06
Rural residence (ref. urban)	2.12**	1.10-4.05	1.02	0.58-1.76
Poorest wealth quintile (ref. least poor)	1.32	0.75-2.30	0.72	0.38-1.32
Poorer wealth quintile	2.19***	1.19-4.01	1.29	0.70-2.35
Poor wealth quintile	2.16***	1.19-3.90	1.25	0.68-2.27
Less poor wealth quintile	1.93**	1.05-3.52	1.22	0.69-2.16
<b>Provider characteristics</b>				
Travel time	1.06	0.92-1.21	0.97	0.81-1.16
Money problem	0.85	0.47-1.51	0.51**	0.28-0.91

Transportation problem	0.85	0.55-1.29	0.59**	0.37-0.93
Problem to be treated	0.93	0.41-2.09	1.27	0.52-3.05
BPHS cost (ref. below median cost)	1.31	0.86-1.97	1.38	0.90-2.09
Hospital cost (ref. below median cost)	0.83	0.54-1.24	1.16	0.77-1.73
Private provider cost (ref. below median cost)	1.27	0.85-1.89	1.22	0.80-1.85
Traditional provider cost (ref. below median cost)	1.04	0.69-1.57	0.87	0.58-1.30

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\*\*\* Significant at the 1% level ( $p \leq 0.01$ ). \*\* Significant at the 5% level ( $p \leq 0.05$ ). \* Significant at the 10% level ( $p \leq 0.10$ ).

Base choice is private provider