2012

Measuring equity in disability and healthcare utilization in Afghanistan

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Key words : Afghanistan, conflict, health care access, equity.

Abstract

This paper analyses equity in health and healthcare utilisation in Afghanistan based on a representative national household survey. Equitable access is a cornerstone of the Afghan health policy. We measured socioeconomic-related equity in access to public health care, using disability– because people with disabilities are poorer and more likely to use health care – and a concentration index (CI) and its decomposition. The socioeconomic-related equity in healthcare utilisation was measured using a probit model and compared with an OLS model providing the horizontal inequity index (HI). We found low rate of healthcare facilities utilisation (25%). Disabled persons are using more healthcare facilities and have higher medical expenses. Disability is more frequently associated with older age, unemployed heads of household and lower education. The CI of disability is 0.0221 indicating a pro-rich distribution of health. This pro-rich effect is higher in small households (CI decreases with size of the household, -0.0048) and safe (0.0059) areas. The CI of healthcare utilisation is -0.0159 indicating a slightly pro-poor distribution of healthcare utilisation but overall, there is no difference in healthcare utilisation by wealth status. Our study does not show major socioeconomic related inequity in disability and healthcare utilisation in Afghanistan. This is due to the extreme and pervasive poverty found in Afghanistan. The absence of inequity in health access is explained by the uniform poverty of the population and the difficulty to access BPHS facilities, despite alarming health indicators.

Introduction

Equity in health (Sen 2002) and access to healthcare (Goddard and Smith 2001) is a major concern for all health systems and policy makers particularly since the Alma Ata declaration of 1978 (WHO 1978). Following the declaration, health equity has been the goal of new health policies focused on universal access to primary healthcare. The idea to promote better health for all requires to focus on equity, utility, equality, and human rights (Bryant, Khan et al. 1997). In the recent years, the World Bank and World Health Organisation's (WHO) Commission on Social Determinants of Health (CSDH) have released reports examining the social determinants that undermine equitable health distribution and have demonstrated that in the context of increasing global wealth, the health inequities are increasing as well (WB 2005; World Bank 2005; CSDH 2008). The overarching goal of contracting for basic health care services delivery is to improve services, promote universal access, equity, resources, effectiveness and efficiency. Basic health services are considered to have the best potential to deliver equitable health care. It is estimated that they can deal with 90% of health care needs (World Bank 1994), and are more

accessible to the general population and those more in need than hospitals which are primarily situated in urban centres.

In 2005, in Afghanistan, Dr. Sayed Mohammad Amin Fatimie, Minister of Public Health, clearly stated that the new health policy, the Basic Package of Health Services (BPHS) was an "opportunity to the ongoing development of the health system of Afghanistan, extending access and promoting equity for the benefit of the Afghan people" (MoPH 2005a). The Afghan Government, supported by international donors (USAID, World Bank and the European Commission), is aiming at providing universal healthcare through the BPHS (composed of health posts, health centres and district hospitals) and provincial hospitals. However, health inequity in Afghanistan must be achieved in a context of difficult accessibility to the health services due to geographical constraints, conflict-related violence, as well as in an environment of extreme and pervasive poverty. A previous study has demonstrated what are the difficulties faced by vulnerable groups such as women head of households, poor and disabled people in accessing healthcare facilities. (Trani, Bakhshi et al., 2010).

Using a different method and perspective, we assess in this paper to what extent the BPHS has been able to achieve its official objective of providing equitable access to healthcare for the most vulnerable in Afghan society by identifying the impact of the social determinants of healthcare utilisation. We use data from the National Disability Survey in Afghanistan (NDSA) (Bakhshi, Trani et al. 2006a), which employs a household survey questionnaire to collect individuals' perception of their own disability, activities of daily living and social determinants of health, as well as the users' perspective on health services utilisation. By using a representative household survey, this work extends the findings of other studies of healthcare utilisation in Afghanistan that were restricted to health facilities' catchment areas (MoPH 2008; Steinhardt, Waters et al. 2009).

A vast literature exists regarding different forms of equity, (termed 'vertical' and 'horizontal'), but the focus of much of this is on horizontal equity in healthcare delivery, defined as "equal treatment for equal need" (Culyer, van Doorslaer et al. 1992; Culyer and Wagstaff 1993; van Doorslaer, Wagstaff et al. 2000). In other words, horizontal equity is the utilisation of healthcare according to health needs, irrespective of social characteristics. In our study, we captured differences in utilisation of public healthcare services that cannot be justified by variations in health

needs proxied by the disability score. Following (Wagstaff, van Doorslaer et al. 1989) and (Wagstaff, Paci et al. 1991), we use a concentration index of equity to explore the extent to which an equitable access to healthcare in Afghanistan is provided relative to need, regardless of individual socioeconomic status. We followed two steps: firstly by analysing health equity defined by equal distribution of health among people irrespective of their socioeconomic status, and secondly by examining horizontal equity in healthcare utilisation. The utilisation here is restricted to public healthcare services, which remain the only reliable source of healthcare in Afghanistan.[1]

Background

After decades of conflict, Afghanistan is one of the poorest countries in the world, with a estimated 42% of its 29 millions inhabitants (WB 2009) living under the poverty line. The Gross National Income (GNI) of the country is $10.6 billion and the GNI per capita is evaluated at $370. This ranks Afghanistan at 202 out of 213 countries (WB 2010a). Early after the US invasion, the health indicators were one of the worst in the world: Life Expectancy was 42 years (2004), the Under 5 Mortality was 258/1000 live births (2004) and Maternal Mortality was 1900/100000 live births (2000) (WHO 2006). The few existing health services were mainly provided by non-governmental organisations (NGOs) in a scattered and uncoordinated way. Even after the fall of the Taliban regime in 2001, major constraints still remained in the delivery of health services: geographic constraints in rural areas (including the absence of road, and the isolation of half of the country's villages due to snow during winter), increasing insecurity (Richards and Little 2002; Fleck 2004), the continued risk associated with the presence of landmines, the lack of medical and non medical infrastructures and skilled health workers and economic instability (Acerra, Iskyan et al. 2009). Our paper explores to what extend these factors, particularly risk of violence and remoteness of villages, explain inequality of access to health care after standardizing for differences in need through decomposition analysis (Wagstaff, van Doorslaer et al. 2003; Wagstaff and Watanabe 2003).

The Government of Afghanistan faced the challenge of rebuilding the healthcare system in this fragile and volatile environment. The Ministry of Public

[1] Private providers are rarely available in rural areas and characterised by partial or nonexistence of medical training, lack of equipment and absence of regulation. Private clinics are found in urban settings and only affordable by the richest people.

Health (MoPH), supported by International Organisations, major donors and NGOs, launched a nationwide healthcare plan made up of the BPHS covering primary healthcare services and of the Essential Package of Hospital Services (EPHS) covering secondary/tertiary healthcare at hospital level (MoPH 2005a; MoPH 2005b). The priorities of the BPHS are: maternal and new-born health, child health and immunisation, public nutrition, communicable disease treatment and control, mental health, disability services and regular supply of essential drugs with a special focus on equitable delivery of health services nationwide. However, the BPHS strategy was criticised for contracting national and international NGOs for its implementation with insufficient grant budgets varying between US $4.30–$5.12 per capita (Newbrander, Yoder et al. 2007).

A process of evaluation of the implementation of the BPHS was launched in Afghanistan in 2004 (Loevinsohn and Harding 2005) and provided mixed results in terms of both efficiency and equity as well as methodological issues. Some studies showed that contracting-out provides a rapid scaling-up in health services delivery (Palmer, Strong et al. 2006), an increase in patient utilisation (Arur, Peters et al. 2010), a global improvement of the Balanced Scorecard (BSC) indicators (Peters, Noor et al. 2007; MoPH 2008) or improvement in emergency care services (Acerra, Iskyan et al. 2009). Other studies reported that this strategy can confine the MoPH to its stewardship role (Liu and Mills 2002), that introducing competition between NGOs through bidding processes and performance-based results is not a good indicator of efficiency and equity in healthcare delivery (Ridde 2005), and that the cost per capita is not a good predictor of utilisation and effectiveness (Ameli and Newbrander 2008). Studies in India indicate (Baqui, Rosecrans et al. 2008) that contracting International NGOs increases equity in preventive care services utilisation but not in healthcare services utilisation where extrinsic factors (cost, remoteness, etc.) affect the accessibility to health facilities for the poorest people. In Afghanistan, (Hansen, Peters et al. 2008) demonstrated that contracting-out NGOs leads to a higher quality in health services delivery largely in favour of the poorest. However, they also recorded that there was a still noticeable difference between provinces concerning the quality of services delivered to the population.

Methods

Study design

We conducted a cross-sectional national household survey on disability between November 2004 and July 2005 (Trani and Bakhshi 2008). We used the 2004 census as a household sampling frame. At the pre-sampling stage, estimations of disability prevalence ranged from 3% to 10% from organisations working with disabled people in Afghanistan, therefore a disability prevalence rate estimate of 6 to 8% was chosen for the sampling calculation (UNDP/UNOPS 1999; WFP and MRRD 2004). The CSO population database 2003-2004 indicated a need to interview a minimum of 1915 disabled persons with a 95% confidence interval and a 15% precision; a screening level of between 5000 and 6000 households (Bakhshi, Trani et al. 2006a). The NDSA sample size included 5250 households divided into 175 clusters, with 30 households per cluster. A three stage sample frame was then established. At the first stage 175 clusters were randomly selected using probability proportional to population size. Second, surveyed villages were randomly selected using the same method. At the third stage, households were randomly selected as follows. In each selected village, the survey team asked for the location of the village centre. From there, the team spun a pointer to choose a direction then allocated a number from 1 to 30 to each consecutive house in that direction. One household between 1 and 30 was randomly selected as the first household to survey and from there the 29 nearest households were interviewed using the "nearest front door" method for selection.

A screening questionnaire comprising of 27 questions was completed by the head of each selected household in order to establish whether a disabled person was present within the household. All disabled persons identified at this stage were interviewed directly or through a caretaker in the case of young children. Children younger than 5 years of age were excluded as, below this age, it was very difficult to clearly establish a disability status through activity of daily living and social participation. Disability was defined as "the interaction between an individual restriction or lack of ability to perform any given everyday activity due to an impairment in functioning and the community and social resources, beliefs and practices that enable or prevent a person from participating in all spheres of social life and taking decisions that are relevant to his/her own future" (Trani and Bakhshi 2008, p. 6). 958 persons were identified as experiencing disability (physical, sensorial, mental illness or intellectual disability) and invited to participate in the survey, which included five modules addressing issues relating to health, education, labour, livelihoods and income, and social network and participation. One non-

disabled person matching in age and gender from the same household was also included in the survey. Finally a control person was randomly selected to complete the questionnaire from one in every five households without disabled persons. This yielded a total of 2696 questionnaires. The non-respondent rate (mainly due to the absence of a respondent in the household after several visits in urban areas) was 0.3%. Respondents were asked to provide written or verbal (when illiterate) consent and could refuse to participate at any point. Nomadic people were de facto excluded from this survey except when they were settled in a selected village where the survey was on-going.

The screening and main-stage questionnaires were developed jointly with the main stakeholders working on disability in Afghanistan and revised by a team of researchers from Johns Hopkins Bloomberg School of Public Health and the Indian Institute of Health Management. The questionnaire was informed by findings of a qualitative study which was conducted by the research team in order to understand the definitions and the perceptions of disability adopted among Afghan population, to establish culturally acceptable approaches to questionnaire development (Trani, Bakhshi et al. 2006). Previous work on Afghan perceptions of disability was also used to refine the questionnaire (Thakkar, Cerveau et al. 2004). The questionnaire was pilot tested in urban and rural clusters in Kabul province.

The survey received ethical approval from the Johns Hopkins Bloomberg School of Public Health.

Analysis

Main measures

Two main outcomes are considered in the paper: self-assessed disability score and a healthcare utilisation measure is based on self-reported PHF use: number of visits to the PHF in the previous year, or on medical expenses in Afghani[1] spent by the patient during the same period (fees, medication and transportation costs, expenses associated with care-taking and food intake during the period of healthcare). PHFs are BPHS clinics, public hospitals and physiotherapy centres.

The disability score is based on the International Classification of Functioning, Disability and Health (ICF) (WHO 2003) and on the capability approach of Amartya Sen (Nussbaum and Sen 1993). The score comprises 9 dimensions: (i) autonomy for daily functioning, (ii) contribution to housework, (iii) contribution to work outside the house, (iv) communicating, (v) social interactions, (vi) cognitive function, (vii)

behaviour functioning, (viii) signs of depression or anxiety and (ix) episodes of fits/seizure. We defined three categories: no disability is defined by absence of any difficulty on any of the nine dimensions; mild and moderate disability is defined by at least one mild or moderate difficulty on any dimension and absence of severe difficulty on any dimension; severe and very severe disability is defined by at least a severe difficulty on any dimension. For purpose of simplicity, we will refer to (1) no disability, (2) mild disability and (3) severe disability in the analysis.

The main exposure of interest is the socioeconomic status (SES) of the interviewee. Status is evaluated by an household asset index which gives a measure of relative poverty (Trani, Bakhshi et al. 2010). It is calculated according to the Filmer and Pritchett's method of first factor principal components analysis (Filmer and Pritchett 2001), then aggregated and weighted in order to balance the sampling and the household effects. The asset index is composed of 29 indicators grouped into three categories (40% poorest, 40%middle and 20% richest): household or individual items (radio, television, cooker, oven, fridge, heater, generator, lamp, sewing machine, bicycle, motorbike, car, tractor); household's dwelling (toilet facilities, sources of drinking water, sources of light, sources of cooking, number of rooms); house ownership and landownership; ownership of animals (sheep, cows, goats, donkeys, chicken and birds, roosters, horses or camels).

Other variables of interest

Health analyses were standardised by gender and age (starting at five years old age at which it is possible to easily identify disability without a systematic medical examination).

The second group includes the "non-needs" factors defined as the social determinants that do not interfere directly with the health outcome, but that can affect the interaction between health and SES or between healthcare utilisation and SES. The variables were chosen according to the existing literature on equity of healthcare access or utilisation (Morris, Sutton et al. 2005; Lu, Leung et al. 2007; Bornemisza, Ranson et al. 2010). We identified: gender, marital status, ethnicity, working status, education of the head of household; size of the household; marital status and education of the respondent; rural or urban residence; level of insecurity in the area; having enough to eat; availability of public healthcare services; usefulness of public healthcare services; time to the closest health facility.

Concentration index and decomposition of the concentration index

The concentration index (CI) provides the degree of socioeconomic-related inequality in disability status within the Afghan population. It allows for comparison between countries when it is normalised. The CI shows the relationship between the health variable (the disability score) and the ranking of the socioeconomic variable (the household asset index). We compute the concentration index using the OLS method that gives an estimate of the regression of the outcome variable on the fractional rank of the asset index variable including the sample's weight (Kakwani, Wagstaff et al. 1997). The standard error (SE), the confidence interval and the t-value of the CI were computed applying the Delta method (O'Donnell, Van Doorslaer et al. 2008) that takes into account the sampling variability of all terms used in the regression.

If there is perfect equality, the CI will be equal to zero. In case of maximum inequality the absolute value of the CI will be one. By convention, the CI will be negative when the health variable is disproportionately concentrated among the poorest and positive when it is disproportionately concentrated among the richest.

In order to estimate the degree of unequal distribution of each variable across the asset index quintiles, we decomposed the CI to examine the contribution of the "needs" and "non-needs" factors. The decomposition also displays the sensitivity of the health outcome to each factor, measured by the level of change in the disability score due to a one percent change in the given factor (elasticity). Finally, the contribution of each variable to the concentration index will be provided as well as the inter-variables' contribution (fixed commune effect). The variable contribution is the product of the variable's CI and its elasticity. The residual corresponds to the socioeconomic-related inequality in health that is not explained by the model.

Horizontal inequality in healthcare utilisation

We compared the actual distribution of healthcare utilisation with the distribution of health needs. The concentration index (or unstandardised CI) indicates the degree of inequality in healthcare utilisation. As need for healthcare varies across asset index groups, the degree of inequality in actual utilisation must be compared to the degree of inequality in need for healthcare. The need for healthcare is estimated using a probit model, as utilisation is modelled as a non linear function of the needs factors (van Doorslaer, Wagstaff et al. 2000). We compared the probit model to a linear regression model (OLS).

The model generates a need-predicted value of utilisation, indicating the amount of healthcare an individual would have used if she was treated the same as others with same health needs (van Doorslaer, Koolman et al. 2004). This is interpreted as an individual predicted-need for healthcare. By analogy, a concentration index of need-predicted utilisation can be defined based on a concentration curve. In the probit model we also take into account the effect of the non-need factors by controlling for them. The utilisation prediction depends on the level of non-need factors selected, therefore the non-need factors were set equal to their sample means. Controlling for the non-needs factors provides the need-standardised utilisation across asset groups.

We evaluated the horizontal equity by comparing the actual healthcare utilisation (unstandardised) and the need-predicted utilisation within each asset group. The horizontal inequity index is defined as twice the area between the need-expected utilisation curve and the actual utilisation curve. We also obtained the horizontal inequity index by decomposing the unstandardised CI into contribution of the need factors and non-need factors. The horizontal equity represents the difference between the need-predicted CI and the unstandardised CI.

Analyses were weighted to allow for the multistage cluster sampling approach taken in this study. We used Stata 11.1 for all calculation starting with the “svyset” command in order to take into account the sample’s weight.

Results

Descriptive analysis

Figure 1 shows that the disability score is skewed to the right (skewness=1.49) with a large number of observations without disability (Figure1).

Figure 1: Disability score distribution among the sample population (approximately here)

Table 1 also summarises socioeconomic status as well as healthcare utilisation indicators, need and non need variables comparing disabled and non-disabled people by severity of impairment.

Socioeconomic status

Figure 2 and Table 1 show that there is no major difference in wealth between disabled and non-disabled people. Figure 2 further demonstrates that the distribution of the wealth index is skewed to the right (skewness=1.70) with a mean at -0.008. This indicates that most of the respondents are poor and no major variation in wealth is identified among the Afghan population using this measure.

Figure 2: Wealth distribution among the sample population described by the distribution of the principal component factor (approximately here)

Healthcare utilisation

Only 25% of respondents reported having used a PHF during the year preceding the interview and the same proportion have had medical expenses. There is no evidence that disabled people are using more or more frequently the public health facilities than non-disabled people; they do not spend more money for their health than non-disabled persons.

Need variables

The results show that 57% of the respondents are male. 54% are under 15 years old. Women are more represented among the mild/moderate disability group than men; conversely, there is strong evidence than men are more represented among the non-disabled group and the severe/very severe disability group. There is also strong evidence that disability prevalence, whatever the level of severity is higher among children than other age groups. A higher proportion of elderly respondents are severely disabled.

Non need variables

Most of the “Non-needs” factors do not show differences between disabled and non-disabled people. Almost all households are headed by an uneducated married working male without any significant difference between disabled and non disabled respondents. There is also very little evidence that disability affects differently people according to their ethnic origin. Pashto and Hazara are less often severely disabled. Conversely Tajik are more often disabled whatever the level of severity, whereas Uzbek are more often mildly disabled and minority ethnic groups severely disabled. Persons with disabilities live in households of same size than non disabled people.

Level of satisfaction with health care services is quite high for all respondents: 67% of them declared that there is a PHF available in their area and 72% lived less than one hour journey from the closest PHF; 71% found PHF useful.

There is some evidence that severely disabled people have less access to school, are less often married and live more often than other respondents in rural areas. People with severe disability reported more often that they always do not eat enough than other categories, and there is a declining gradient from the non-disabled to the very severe disability group for always eating enough.

Table 1: Disability, socioeconomic status, healthcare utilisation, need and non-need factors (approximately here)

Concentration Index and decomposition of the concentration index

The CI calculated by OLS method has a positive but low value (0.0221) with a 95% confidence interval (-0.0114; 0.0555) that does not allow for definitely concluding that there is a higher concentration of health among the wealthiest group. Therefore, there is no major difference in disability within the ranking of the wealth index groups.

The CI decomposition shows that non-need factors such as education of the head of household, education of the respondent, place of residence and level of insecurity are supporting an important part of the socioeconomic related inequality. Yet, few non-need factors have a strong contribution to the total CI of the health status due to low level of elasticity (Table2).

The common fixed effect of all these variables has the larger contribution and there is a relatively important residual showing that our model does not fully explain the CI decomposition. To conclude, we found that the various factors have opposite effects resulting in a global disability CI close to zero.

Table 2: Decomposition of the concentration index for the disability score (approximately here)

Decomposition of inequality in healthcare utilisation

In table 3, the negative “actual CI” of healthcare utilisation shows a pro-poor distribution that means that poorest people are using more the public health services, irrelative to their health needs. But the mean of utilisation distribution is not consistent across the asset groups (either in the actual, need-predicted or need-standardised distribution).

In our study, most of the wealth index groups have an actual utilisation of PHF as expected (positive difference between predicted mean and actual mean). The exception is the 40% middle group that used PHF approximately 0.6% less than expected. Furthermore, this group uses PHF in average less than all the other groups. These results do not vary significantly across models. Finally, the probit model gives a negative horizontal inequity index that corroborates a slight pro-poor distribution of the PHF utilisation. However, confidence intervals in all models include zero making difficult any definitive conclusion about the pro-poor PHF utilisation.

Table 3: Distributions of Actual, Need-Predicted and Need-Standardised yearly visit to a public health facility (approximately here)

Table 4 gives the CI decomposition of actual utilisation of PHF. The negative contribution of the "non-needs" factors indicates that they, alone, would have a pro-poor effect on utilisation, whilst the positive contribution of the "needs" factors shows a pro-rich effect. There is still a residual which is attributed to unknown "non-needs" factors in the literature (van Doorslaer, Wagstaff et al. 2000; van Doorslaer, Masseria et al. 2006). This suggests that unobserved "non-needs" factors have a pro-poor contribution to the CI. (Bago d'Uva, Jones et al. 2009) found a similar result when comparing a "conservative" approach and the "conventional" approach in the case of European countries.

The horizontal inequity index is negative. This result suggests that the worse-off visit public health services in Afghanistan more often than richer people. However, a horizontal inequity index close to zero indicates that there is no major difference in utilisation of public health services across wealth groups.

Table 4: Decomposition of the concentration index of actual public health services utilisation (approximately here)

Discussion

This paper explores the link between being poor or rich and the use of the health system in Afghanistan. It assesses whether there is inequity in health and in public health facilities utilisation linked to socioeconomic and environmental factors in Afghanistan, including remoteness and insecurity. This is a major issue as equity of healthcare access was a central tenet of the new Afghan health policy launched in 2002 (MoPH 2005a).

Our study shows that only a quarter of the population have used the public healthcare services during the year preceding the interview. The literature indicates that this low utilisation is not due to a negative perception of the quality of the services provided, but rather due to their inaccessibility (Peters, Noor et al. 2007; Steinhardt, Waters et al. 2009; Trani, Bakhshi et al. 2010). This rate of utilisation is significantly below the BPHS objective of one consultation per person per year (Sabri, Siddiqi et al. 2007). Furthermore, some authors argue that this objective of one consultation per person per year is insufficient to ensure a good coverage of the health needs of a given population. For instance, (Siddiqi, Kielmann et al. 2001) reported that in the case of Pakistan, an average of 2.7 consultations per person and per year was necessary to provide adequate healthcare.

Disabled people faced higher out-of-pocket medical expenditure. This is possibly due to the fact that the BPHS was not effectively free of charge at the time of the survey. Patients often had to pay particularly for medicines (Trani, Bakhshi et al. 2006). On average, disabled persons have received less education than those without disability. This is consistent with numerous studies that have largely demonstrated that greater ill-health is associated with lower individual education or lower education of the care taker (Morris, Sutton et al. 2005; Wagstaff 2005; Hosseinpoor, Van Doorslaer et al. 2006). Persons with severe disability are also reporting a lower food intake than non-disabled people or people with mild or moderate disability.

This project was based on a national representative household survey and therefore gives some interesting insight into the public healthcare utilisation and its distribution among the Afghan population. Other studies have stressed the progress made in health care delivery in Afghanistan and explored quality of care as well as accessibility for users with various socioeconomic background (Steinhardt, Waters et al. 2009). But these studies are not representative of the whole country as respondents are generally surveyed in the surrounding of the health facility and they do not explore specifically the issue of health equity.

Interestingly, a positive concentration index shows a pro-rich socioeconomic-related health inequity. However, the confidence interval includes zero. Therefore, we cannot form a definitive conclusion regarding socioeconomic inequity in health and we cannot conclude from our calculation that rich people have a better health status. This is due to the lack of variation in the wealth asset index, which shows that the majority of the Afghan population is poor. There are too few rich people to

demonstrate a significant privileged health status. Similarly, it is difficult to make a clear distinction between the wealth groups when measuring health equity and equity of access to healthcare. Yet, the CI decomposition shows that educated Afghans, those living in urban area and away from violence have better access to healthcare services. Educated Afghans are aware of the importance of taking care of their health and have both the resources and the network to access the best-equipped healthcare facilities, both public and private, offering specialised medicine services in the major urban centres.

In addition, inequalities linked to insecurity are also on the rise since the present study was conducted. A recent assessment of the healthcare system showed that with the resurgence of the armed conflict since 2005, many health facilities are either closed or cannot be properly supplied and staffed in insecure rural areas resulting in large communities left without suitable healthcare access; This is particularly the case for women and girls because of the absence of female health professional in insecure areas (Michael, 2011).

Conversely, the CI for PHF utilisation, after controlling for health needs, shows a pro-poor inequality. The “needs” factors slightly contributed to the pro-rich inequity whilst the “non-needs” factors are clearly in favour of the poorest people. A significant pro-poor residual remains after decomposition showing that the model does not reflect wholly inequality in healthcare utilisation. The conventional horizontal inequality index close to zero indicates that there is no major inequity between rich and poor in PHF utilisation (Peters, Noor et al. 2007; MoPH 2008). We found no major variation across asset groups, confirming this result. This differs from a study done in Jamaica (van Doorslaer and Wagstaff 1998) which showed a clear gradient in the distribution of the mean of utilisation of healthcare facilities. The absence of difference in healthcare utilisation is due to the extreme and pervasive poverty in Afghanistan. Such state of pervasive poverty constitutes a major obstacle to achieve the objective of targeting - and ensuring better access to - the poorest and most vulnerable groups. For instance, a pilot programme attempted to provide waiver cards to very poor and female-headed households in catchment areas of 26 healthcare facilities. Findings showed that beneficiaries of waiver cards were more likely to seek care for disease than those without cards. Yet, the evaluation also showed difficulty to target the poorest and female-headed households, the need for more cards to distribute as all poor households were not covered and the fact that other types of barriers, mainly financial, remained to accessing care (money for treatment, lack of transportation and lack of money for transport were the main barriers mentioned) (Steinhardt,

Waters et al. 2009). Generalised poverty in a context of conflict also highlights the intricacy of developing a long-term sustainable healthcare system financing strategy. Currently, the international assistance finances the BPHS and it seems unrealistic to rely on user fees in the sort to middle term. Community health financing (CHF), as an alternative to user fees does not offer alone a strong alternative as an experiment has shown that enrolment in the scheme was limited and health expenditures at the community level were not reduced (Rao, Waters et al. 2009).

Additionally, evidence from our research suggests that major constraints affect equitable healthcare service delivery in Afghanistan as shown in the existing literature. Among these, the level of insecurity reduced the likelihood to use the health system for the most vulnerable (Bristol 2005) (Morikawa 2008) (Sabri, Siddiqi et al. 2007). Out of pocket expenditure remains high, representing an important burden for poor households, with catastrophic expenses deepening poverty through high debt to pay for healthcare. Out of pocket expenditure is the main source of health financing, despite the Afghan Parliament 2008 decision to keep healthcare theoretically free for users (Trani, Bakhshi et al. 2010; Michael, 2011). The recent increase in insecurity has made delivery of healthcare services almost impossible in all districts and provinces under control of the insurgency (MoPH 2008) (Michael, 2011). In many areas, the private sector is the only available source of healthcare but the quality of the service offer is particularly low in remote and dangerous areas as providers are hardly adequately trained. Moreover, lack of monitoring and evaluation as well as of coordination of provincial services by the MoPH did not contribute to curve corruption and mismanagement and explain a high level of under-spending of the health budget (Michael, 2011). The geography of Afghanistan adds further difficulty to equitable access to healthcare delivery, especially during winter when large part of the country is isolated due to snow. Furthermore, the geographical distribution of healthcare facilities does not reflect fully the distribution of the population. The low operating cost, under USD five per capita, cannot ensure both large coverage and high quality care and hardly any of the two. This situation raises an ethical debate between cost-effectiveness and equitable access to healthcare services for isolated population (Rice and Smith 2001).

Limitations of the study

The data used in the present study was collected during a multistage cluster survey. The weighting process tried to counterbalance a limited cluster effect. The disability score used here as a proxy for health needs has some limitation as it does

not perfectly reflect the capacity to benefit from healthcare. Yet it provides an interesting proxy of health status as impairment is always associated with greater health needs and disabled people are often among the poorest. In addition, the disability status is a culturally sensitive topic that can introduce recall bias or misreporting; the severe disability prevalence rate obtained was consistent with the prevalence in similar contexts, which consolidate the validity and the acceptability of this disability questionnaire. The limitations and the biases of disability surveys have already been described elsewhere (Trani and Bakhshi 2008).

Regarding the measurement of socioeconomic-related health equity and equity in healthcare utilisation, the main difficulty was that very few studies were based on disability scores or activity of daily living as a health outcome indicator. Instead, the asset index calculated with the first factor principal components analysis is widely used as a proxy of wealth status, particularly in countries where people do not have regular incomes – as is the case in Afghanistan. As noted above, the decomposition of both concentration indices shows some residual. It indicates that other social determinants might affect health inequality. Further research is needed to examine the evolution of public healthcare services utilisation after the introduction of a user fees ban in all BPHS facilities in 2008 (Steinhardt, Waters et al. 2009).

Finally, one could argue that the data from 2005 does not reflect the current reality of health and healthcare in Afghanistan. Unfortunately, the increased violence, lack of financial and human resources, widespread corruption and feeble State capacity to monitor and coordinate the implementation of the BPHS explain that little progress towards equitable service has been achieved in recent years (Michael, 2011).

Conclusion

This study is one of the few to look at equity in access to healthcare in Afghanistan. It found that Afghan people had low access to public health care facilities but that there was no significant inequity between rich and poor. Yet, the level and distribution of health expenditure is a factor of inequity. Firstly, the per capita budget does not account for differences in health needs and in healthcare delivery barriers that can exist within the country or within provinces. Secondly, the governmental expenditure on healthcare of 5 US $ per capita (PPP US $ in 2005) is similar to the 9 US $ per capita in Pakistan, but much lower than the 2261 US $ per capita in the UK the same year (WHO 2010). Given the poor health indicators, it will

be challenging to achieve the Millennium Development Goals without considerably increasing the level of healthcare funding. The current situation of the healthcare system in Afghanistan stresses the huge discrepancy that exists in healthcare funding across the richest and poorest countries. As a result, we also observed such important inequalities in health indicators and well-being. In Afghanistan, where a high degree of deprivation exists and where very few people can be considered as well-off, we argue that there is little possibility for resource distribution across social groups through a taxation system to improve overall health of the population. Therefore, in order to achieve an acceptable threshold level of health necessary for achieving a good social participation, such a resource redistribution must take place between countries, from the richest to the poorest (Acharya 2004). Other authors argue similarly that the international community has to uphold its responsibility in funding health sector in Afghanistan for several (many?) years to come (Steinhardt, Waters et al. 2009).

At the time of the survey, the BPHS implementation was far off target and therefore it could have been reassuring that this study does not show major socioeconomic related inequity in disability and healthcare utilisation in Afghanistan. Conversely, it is worrying that in 2005 only a quarter of the population was using the BPHS facilities, considering the low level of health indicators. Yet, a recent assessment of the health system demonstrates that the level of utilisation remains low and that the private sector still constitutes the main provider of healthcare (USAID 2009(Michael 2011)

).

In addition, the level of funding of the healthcare system is insufficient to address the Millennium Development Goals, Afghanistan's extreme and pervasive poverty.

Finally, ongoing violence makes delivery of the BPHS difficult or even impossible in large areas of the country. Insecurity constitutes the main limitation to the delivery of health service provision in many remote areas. Similarly, it prevents NGOs from sending qualified staff in certain areas, particularly women staff. Our findings and the recent development in Afghanistan tend to substantiate the argument that peace, stability and security are preconditions to promote strategies aiming at improving health equity. We therefore dispute the idea that the BPHS can contribute to State building and legitimacy in the current context of bad governance and high level of violence.

It will be crucial to continue to evaluate the impact of the BPHS policy and the users' fee ban through representative surveys that include the isolated population and not only people living in the facilities' catchment area. As addressed by Peters et al. in 2007, it is also important to include indicators of health outcomes, coverage and utilisation of facilities within the monitoring tools.

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Figure 2: Wealth distribution among the sample population described by the distribution of the principal component factor

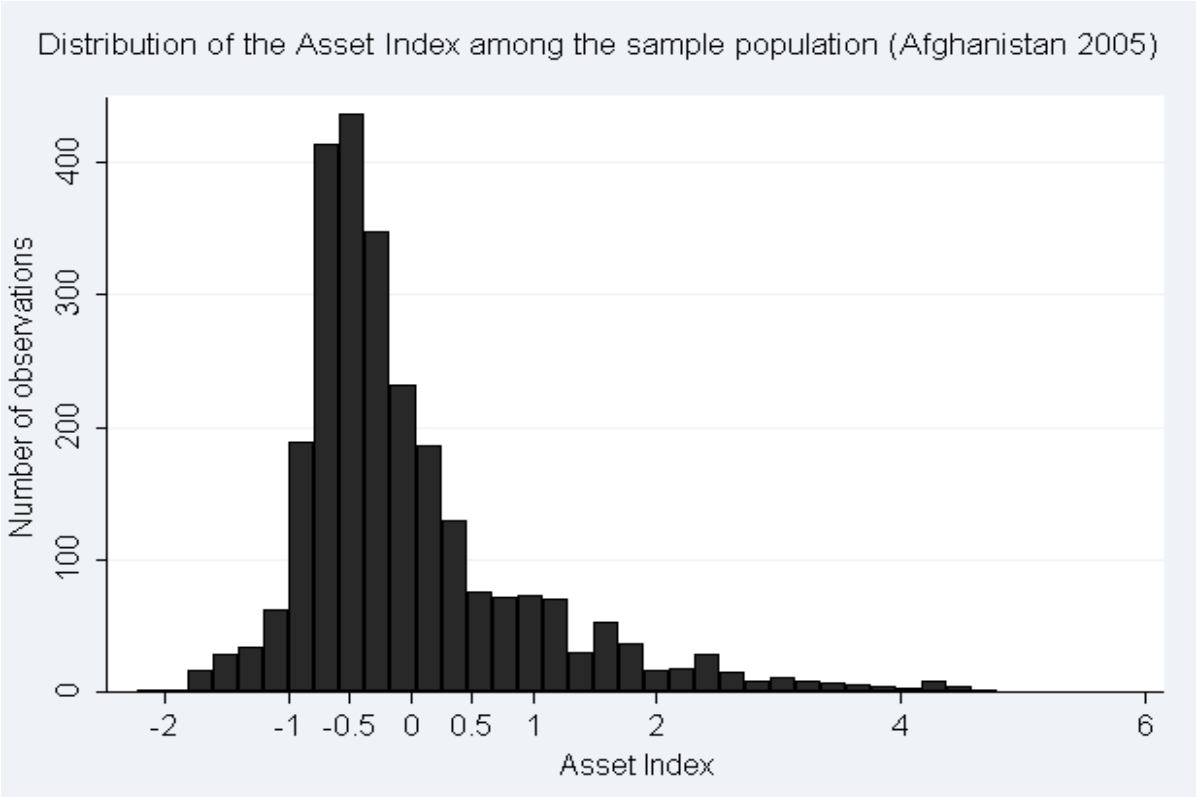

Table 1: Descriptive analysis of explanatory variable by the binary disability variable and with the categorical disability variable. (The cells give the number of observations recalculated after weighting and the column percentage)

Socioeconomic status	**Level of disability**				
Asset Index	**No Disability**	**Mild/moderate disability**	**Severe/very severe disability**	**Total**	**Pearson**
Poorest	302 (42.7%)	432 (39.27%)	256(37.48%)	990(40.59%)	
Poorer	286(37.61%)	431(34.97%)	243(44.44%)	960(36.78%)	p=0.1262
Poor	122(19.68%)	239(25.76%)	127(18.07%)	488(22.63%)	
Total	710 (100%)	1102 (100%)	626 (100%)	2438 (100%)	
Health care utilisation	**Level of disability**				
Use of public facility	**No Disability**	**Mild/moderate disability**	**Severe/very severe disability**	**Total**	**Pearson**
Not using	560(74,96%)	815(74,58%)	413(74,6%)	1788(74,74%)	
Using	167(25,04%)	308(25,42%)	225(25,4%)	700(25,26%)	
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	p=0,988
Number visit/year					
No visit	560(74,96%)	815 (74,58%)	413(74,6%)	1788(74,74%)	
1 visit	129 (19,05%)	223 (19,2%)	164(18,68%)	516(19,1%)	
2 visits	30(4,84%)	66(4,87%)	39(5,66%)	135(4,91%)	p=0,9986
3 visits+	8(1,15%)	19(1,36%)	22(1,06%)	49(1,25%)	
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Medical expenses					
No expenses	564(75,95%)	824(75,58%)	422(75%)	1810(75,69%)	
1-499 Afghanis	108(15,34%)	171(14,61%)	81(10,23%)	360(14,59%)	
500-1999 Afs	37(6,95%)	76(6,92%)	67(10,29%)	180(7,18%)	p=0,5157
2000-105000 Afs	15(1,76%)	46(2,89%)	65(4,48%)	126(2,53%)	
Total	724 (100%)	1117 (100%)	635 (100%)	2476 (100%)	
Need variables	**Level of disability**				
Respondent gender	**No Disability**	**Mild/moderate disability**	**Severe/very severe disability**	**Total**	**Pearson**
Male	509(70,03%)	551(46,07%)	376(69,72%)	1436(57,96%)	
Female	218(29,97%)	572(53,93%)	262(30,28%)	1052(42,04%)	P < 0.0001
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Age group (years of age)					
5 to 14	258(35,36%)	558(64,36%)	226(65,72%)	1042(52,19%)	
15 to 29	269(36,11%)	239(16,52%)	116(11,36%)	624(24,43%	
30 to 44	127(18,1%)	163(8,94%)	110(9,93%)	400(12,89%)	P < 0.0001
45+	73(10,43%)	163(10,17%)	186(12,99%)	422(10,49%)	
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Non-need variables	**Level of disability**				
Household head gender	**No Disability**	**Mild/moderate disability**	**Severe/very severe disability**	**Total**	**Pearson**
Man	698(96,94%)	1077(96,49%)	611(97,84%)	2386(96,78%)	
Woman	29(3,06%)	46(3,51%)	27(2,16%)	102(3,22%)	p=0,6681
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Household head marital status					

Yes	659(92,04%)	1033(93,24%)	580(95%)	2272(92,86%)	
No	68(7,96%)	90(6,76%)	58(5%)	216(7,14%)	
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	p=0,4474
Household head ethnicity					
Pashto	360(48,05%)	555(49,96%)	313(43,28%)	1228(48,65%)	
Tajik	201(27,14%)	348(32,68%)	193(31,71%)	742(30,26%)	
Uzbek	71(11,73%)	89(6,18%)	52(10,17%)	212(8,82%)	P = 0.0519
Hazara	61(8,8%)	89(6,98%)	46(5,03%)	196(7,6%)	
Other	34(4,29%)	42(4,21%)	34(9,81%)	110(4,66%)	
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Household head activity					
Not working	135(15,63%)	200(17,59%)	118(12,16%)	453(16,35%)	
Working	592(84,37%)	923(82,41%)	520(87,84%)	2035(83,65%)	P = 0.4309
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Household head education					
No school	502(62,05%)	709(57,29%)	423(67,87%)	1634(60,09%)	
Primary school	57(9,36%)	111(12,47%)	55(5,55%)	223(10,64%)	p=0.21
Secondary school or more	168(28,6%)	303(30,24%)	160(26,59%)	631(29,28%)	
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Size of the household					
1 or 2 members	8(0.47%)	24(0.85%)	23(1.56%)	55(0.74%)	
3 members	28(2.08%)	53(2.58%)	24(2.81%)	105(2.38%)	
4 members	54(4.89%)	77(5.56%)	46(4.78%)	177(5.22%)	
5 members	81(8.62%)	105(6.49%)	65(9.33%)	251(7.6%)	
6 members	99(10.99%)	120(7.48%)	68(4.14%)	287(8.72%)	
7 members	74(8.27%)	140(9.57%)	65(9.5%)	279(9.01%)	
8 members	85(13.69%)	145(12.79%)	81(18.6%)	311(13.6%)	
9 members and more	298(50.99%)	459(54.68%)	266(49.3%)	1023(52.72%)	P=0.1645
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Respondent marital status					
No	423(54.89%)	722(74.68%)	387(74.17%)	1532(66.27%)	
Yes	304(45.11%)	401(25.32%)	251(25.83%)	956(33.73%)	P <0.0001
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Respondent education					
Yes	299(43.17%)	474(52.38%)	161(42.29%)	934(47.74%)	
No	428(56.83%)	649(47.62%)	477(57.71%)	1554(52.26%)	P=0.0163
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Place of residence (urban/rural)					
Urban	182(27.26%)	336(31.42%)	188(20%)	706(28.81%)	
Rural	545(72.74%)	787(68.58%)	450(80%)	1782(71.19%)	P=0.0899
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Level of insecurity					
No risk	408(57.76%)	706(61.24%)	372(58.78%)	1486(59.59%)	
Moderate risk	131(15.39%)	172(12.31%)	122(16.31%)	425(13.91%)	
High risk	188(26.84%)	245(26.44%)	144(24.92%)	577(26.5%)	p=0.662
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Enough food					
Always enough	395(55.57%)	536(48.68%)	259(35.77%)	1190(50.63%)	
Sometimes not enough	106(14.21%)	196(19.91%)	112(18.57%)	414(17.4%)	p=0.0247
Frequently not enough	129(17.25%)	208(18.13%)	152(27.28%)	489(18.43%)	

Always not enough	97(12.97%)	183(13.29%)	115(18.38%)	395(13.53%)	
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Availability of public facility					
No	227(28.92%)	399(35.47%)	222(34.18%)	848(32.6%)	
Yes	500(71.08%)	724(64.53%)	416(65.82%)	1640(67.4%)	p=0.0886
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Non-need variables	**Level of disability**				
Usefulness of public facility	**No Disability**	**Mild/moderate disability**	**Severe/very severe disability**	**Total**	**Pearson**
No	185(24.57%)	347(31.16%)	171(31.94%)	703(28.43%)	
Yes	542(75.43%)	776(68.84%)	467(68.06%)	1785(71.57%)	p=0.0635
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	
Time to closest public facility					
<30mn	322(46.88%)	548(54.81%)	301(42.5%)	1171(50.54%)	
30mn-1h	160(22.17%)	231(18.93%)	143(26.39%)	534(20.86%)	
1h-2h	129(15.95%)	160(12.66%)	99(20.95%)	388(14.67%)	p=0.0638
>2h	116(15%)	184(13.6%)	95(10.15%)	395(13.93%)	
Total	727 (100%)	1123 (100%)	638 (100%)	2488 (100%)	

Note: Cells give the number of observations recalculated after weighting and the column percentage

Table 2: Decomposition of the concentration index for the disability score.

Explanatory variables	Elasticities	Concentration indices	Contributions	Percentage Contributions
Need factors				
Respondent gender	0,1059	0,0400	0,0042	0,1922
Age group (years of age)	-0,0460	-0,0017	0,0001	0,0036
Non-need factors				
Household head gender	-0,0005	0,0250	0,0000	-0,0005
Household head marital status	-0,1247	-0,0004	0,0001	0,0025
Household head ethnicity	0,0929	0,0397	0,0037	0,1670
Household head activity	-0,0383	-0,0010	0,0000	0,0017
Household head education	0,0072	0,1716	0,0012	0,0560
Size of the household	-0,4662	0,0103	-0,0048	-0,2171
Respondent marital status	-0,0255	-0,0057	0,0001	0,0067
Respondent education	-0,0147	0,1394	-0,0020	-0,0929
Place of residence (urban/rural)	-0,0035	0,3859	-0,0014	-0,0613
Level of insecurity	-0,0254	-0,2328	0,0059	0,2686
Enough food	0,1083	0,0021	0,0002	0,0105
Availability of public facility	-0,0549	-0,0261	0,0014	0,0650
Usefulness of public facility	-0,0256	-0,0458	0,0012	0,0531
Time to closest public facility	-0,0432	-0,0795	0,0034	0,1558
Fixed commune effects			-0,0081	-0,3653
"Residual"			0,0166	
Total			0,0220	

Table 3: Distributions of Actual, need-predicted and Need-Standardised yearly visit to a public health facility.

Probability of using a public Health Service during the previous year							
		Probit with controls		Need-standardised			
				With controls		Without controls	
Asset categories (quintiles)	**Actual**	**Need-predicted**	**Difference (Predicted-Actual)**	**Probit**	**OLS**	**Probit**	**OLS**
Poorest	0,2808	0,2638	0,0170	0,2817	0,2816	0,2814	0,2814
Middle	0,2573	0,2635	-0,0062	0,2585	0,2585	0,2583	0,2584
Richest	0,3156	0,2711	0,0444	0,3091	0,3092	0,3101	0,3100
Mean	0,2785	0,2652	0,0133	0,2780	0,2781	0,2780	0,2780
CI	**-0,0156**	**0,0020**		**-0,0175**	**-0,0176**	**-0,0171**	**-0,0172**
SE	0,0202	0,0026		0,0201	0,0201	0,0201	0,0201
t-ratio	-0,7710	0,7651		-0,8727	-0,8778	0,08507	-0,8576

Table 4: Decomposition of the concentration index of actual public health services utilisation using OLS method.

	Contribution to the concentration index of healthcare utilisation
"Needs" factors contribution	0,0003
"Non-needs" factors contribution	-0,0013
Residual	-0,0146
Actual Concentration Index CI	-0,0156
Horizontal Inequity Index HI= CI –"needs" factors contribution	-0,0159

[1] 50 AFN=1 US$ in 2005