

DISABILITY IN AFGHANISTAN: Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan¹

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Introduction

After Taliban collapse in 2001, health care system in Afghanistan has undergone a process of reconstruction. This process has not been an easy task. The country had to face some challenges such as lack of skilled health professionals, scarce financial resources and precarious infrastructure (Trani and Bakhshi 2008, Waldman et al 2006). Since then, national authorities and international organizations have had to manage some of the worst health situations in the world. In 2004, maternal mortality and infant mortality rates were incredibly high at 1,600 per 100,000 live births and 165 per 1,000 live births, respectively (Newbrander et al 2014, Edward et al 2011). Furthermore, life expectancy was only 42 years (Trani and Barbou-des-Courieres 2012).

Unstructured healthcare systems are usually found in countries emerging from conflict scenarios as it has been the case in Afghanistan. What distinguishes Afghanistan from other countries which went through a similar fragile status, such as Cambodia and Uganda, is the improvement achieved in health and healthcare indicators during their ongoing reconstruction process (Newbrander et al 2014, Edward et al 2011). The country succeeded in increasing the coverage to basic health services from less than 10% to over 60%; maternal and child mortality rates decreased by more than a half and as a result gains in life expectancy have also been observed (Waldman and Newbrander 2014). In 2013, according to World Health Organization, life expectancy at birth reached 61 and 62 years for male and female population, respectively.

In part, the success in rebuilding the healthcare system of Afghanistan can be explained by the implementation of the Basic Package of Health Services (BPHS) implemented by the Ministry of Public Health (MOPH). The BPHS is part of an effort in providing the most cost-effective healthcare services to the whole population (Acerra et al 2009, Edward et al 2011). International organizations such as the European Community, US Agency for International Development and World Bank have provided financial and institutional support to the MOPH. Policies at the BPHS were guided by four basic principles: effectiveness, scaling up (possible to be implemented on a national scale and to benefit a large part of the population), equity and sustainability (Newbrander et al 2014).

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Initially, the BPHS contemplated the more vulnerable and needy groups such as women and children and has covered the following programs: maternal and newborn health, child health and immunization, nutrition, control of communicable diseases, mental health, disability and provision of essential drugs (Waldman and Hanif 2002, Belay 2010). In 2005, the MOPH launched another program, the Essential Package of Hospital Services (EPHS) which standardized hospital services for each type of hospital (district, provincial and national). EPHS promoted a referral system that allowed the integration of BPHS with hospitals (Newbrander et al 2014, Belay 2010). Despite of the success in rebuilding the healthcare system with notorious improvements in the health of the population, Afghanistan still presents some of the poorest health indicators in the world (Belay 2010).

Regarding disability, the BPHS contemplated the following services: physiotherapy integrated into primary health care services and orthopedic services expanded to the hospital level (Waldman and Hanif 2002, Acerra et al 2009). Currently, the challenge faced by policy makers is to scale up the supply of these services in order to reach all provinces. It is estimated that in 24 of the 34 provinces, physical rehabilitation services have been offered.

Disability has become a concern in Afghanistan due to the high prevalence of individuals experiencing some physical or mental distress. The main causes of disability in the country are war related (which includes mine injuries and mental distress). However, cerebral palsy and polio have also played an important role (Waldman and Hanif 2002). Mine injuries are still a problem since only 2 of the 34 provinces in Afghanistan are completely clear of mines (Belay 2010). In the case of polio, progress in the eradication of this disease is expected in the following years due to the implementation of the supplemental immunization activities (Simpson et al 2014).

After overcoming the main current issues related to disability, national authorities will face other challenges. Currently, the causes of disabilities are mainly related to the conflicts experienced by the country in a recent past. In the future, as life expectancy increases, more individuals will be experiencing chronic illnesses that are known to be important risk factors for disability (Monteverde et al 2009). Therefore, to a larger or lesser degree, disability is expected to remain in the agenda of public health in Afghanistan.

The main issue in the definition of public policies to address disability is the lack of data about the situation and living conditions of individuals with disabilities. As a result, there is a gap between the public policies and the needs of this population group (Trani and Bakhshi 2008). In this context, the development of studies is mandatory to assist policymakers in the definition of health strategies. These studies are scarce for the Afghan population in part because of the lack of reliable national data about disability. In 2004, a National Disability Survey in

Afghanistan (NDSA) was carried out specifically with this purpose. The prevalence of individuals with severe disability estimated by the NDSA was 2.5%. In this study, disability was defined as a multidimensional approach and it considered limitations due to physical, sensory, intellectual disability, mental illness and psychological distress (Trani and Bakhshi 2008).

More recently, in 2012, the Socio-Demographic and Economic Survey (SDES) was carried out aiming to provide a more accurate and reliable information about the Afghan population. This study, besides addressing socioeconomic and demographic characteristics, asked about few but important questions on functional disability. The aim of the present study is to assess the prevalence of disability in Afghanistan using information of SDES. The analysis is performed for each province investigated: Kabul, Kapisa, Parwan, Daykundi, Bamiyan and Ghor. The study also identifies individual and household characteristics that are associated with the probability of being disabled.

Data and Methodology

DATA

Data in this study emerges from the six first provincial SDES in Afghanistan. SDES provides important information about socioeconomic and demographic attributes, such as, age, sex, marital status, functional disability, educational level, and household characteristics. Given the importance of specific population topics as a matter of human rights, groups such as women and elderly population were of particular focus in the analyses. The data evaluation allowed defining the best strategy to portray disability in the six provinces: Bamiyan, Daykundi, Ghor, Kabul, Kapisa, and Parwan. It is important to notice that Parwan and Kapisa data is still ongoing. Therefore, for both provinces, results are based on preliminary datasets.

METHODOLOGY FOR ANALYSIS

Descriptive analysis and logistic regression models were estimated in order to characterize the disability profile in Afghanistan regarding socioeconomic and demographic attributes. Individual sample weights were used in the estimations. The analysis was performed considering the whole population (individuals who are over 5 years of age) and elderly individuals (aged over 60). The sample was classified according to the following age groups: 5-14, 15-19, 20-29, 30-39, 40-49, 50-59, 60-69 and 70 years and older.

Defining disability is a complex task since it is a multidimensional concept and depends on social and cultural aspects. Different frameworks define disability from alternative perspectives that varies from an exclusively medical dimension to a more social one. However, lately, efforts have been taken to recognize that health

conditions per se cannot be blamed for disability. Indeed, presence of disability depends on the interaction of individuals with their environmental and social context. An individual impairment will be translated in a disability depending on the collective resources that are available to deal with the difficulties associated to a physical condition. Therefore, disability is a result of a complex and dynamic interplay between individual characteristics and community (Trani and Bakhshi 2008).

The International Classification of Functioning, Disability and Health (ICF) considers a wide range of activities to define disability (WHO 2001). The majority of the studies about disability focus on elderly people who are the most vulnerable group regarding health characteristics. In these studies, disability and dependence are defined according to the presence of some health conditions or the inability in performing activities that are important to preserve an independent life style. The main variables used to measure disabilities are difficulties with Activities of Daily Living (ADL), difficulties with Instrumental Activities of Daily Living (IADL), mobility problems, mental and physical impairments, and cognitive problems (Chiu et al 2000, Comas-Herrera et al. 2006, Freedman et al. 2005, Greene et al. 1998, Lee 2000, Schoeni et al. 2005, Singer and Manton 1998, Spillman and Black 2005, Trani and Bakhshi 2008, Weissert and Cready 1989, Williams et al 1997).

In the present study, the variables available in the survey allow us to measure different domains of disability: impairment, mobility, self-caring, communication and intellectual or memorization aspects. Individuals aged over 5 years were asked to evaluate their difficulty in: 1) Seeing even when wearing eyeglasses; 2) Hearing even when using a hearing aid; 3) Walking or climbing steps: if assistance of any device or human is required, it was considered that individual had difficulty in performing these tasks; 4) Remembering or concentrating; 5) Communicating; 6) Self-caring that includes bathing or dressing: if individual was using assistive device or getting help from someone, difficulty was assessed with this help taken into consideration.

According to the ICF (WHO 2001), to measure the presence as well as severity of disability, each question should be rated on a five-point scale (“yes, able without problem”; “yes, able with mild difficulty”; “yes, able with moderate difficulty”; “yes, able with severe difficulty”; “unable” to do the task). Surveys about elderly population in general define only three discrete response categories: 1) cannot do it; 2) have some difficult; 3) do not have difficult. This simplification makes the options more understandable to the interviewee and decreases the risk of misinterpretation. Still, the definition of three categories allows the distinction between severe (cannot do it) and moderate (have difficult) disability.

In the SDES, however, questions differ from those usually asked to measure functional disability. Questions are simple, direct and allow for just a binary answer (yes or not). In that manner, it is not possible to differentiate individuals according to the severity of their functioning problems. In order to deal with this limitation, in the present study individuals were classified as having functional disability if they reported difficulties in performing at least two of the six investigated tasks.

Another issue related to the disability measures in the SDES is the lack of some important dimensions. Examples are cognitive problems and mental impairments. Both dimensions are especially valuable in countries with a history and experiences of conflicts. In these contexts, a high prevalence of individuals suffering from depression is expected, as are stress, and anxiety symptoms (Trani and Bakhshi 2008). Information available for 2002 reveals that about 67.7% of Afghans are affected by mental disorders or psychosocial stress (Trani et al 2005). Notwithstanding, the type of variables available in the Survey offer a valuable opportunity and a challenge to model the degree of functional difficulties and the risk of having more than one functional difficulty for the six provinces of Afghanistan. However, the estimations provided in this study will probably be a lower bound of prevalence of disability in the country.

In addition to age groups and sex divisions, disability in Afghanistan was defined according the following socioeconomic and demographic attributes. As the SDES did not investigate direct information on income level, a wealth index was constructed, based on the combination of household characteristics and the ownership of household assets. The wealth index was estimated by using a principal component analysis (PCA). This indicator is widely used as a proxy for assessing socioeconomic status of households (Trani and Loeb 2010, Pathak et al 2010, Gwatkin et al 2007, Vyas and Kumaranayake, 2006, Andrade et al 2012). As household's characteristics and the prevalence of assets vary among the six provinces, different sets of variables were defined for each locality. The Kaiser-Meyer-Olkin (KMO) measure was estimated to evaluate the adequacy of the variables in use of the principal components analysis. KMO can range from 0 to 1 with higher values indicating that the construction of a low-dimensional representation of the data is possible. In this study, the specification of the PCA was considered appropriated when KMO was greater than 0.6. Based on a wealth index, individuals were classified into wealth-quintiles.

Individuals were also classified into groups based on years of schooling reached for each household. This variable takes into account the socioeconomic mobility of household members across educational levels. Besides, the highest educated individual in the household will be able to provide more information about health and other related issues to their less educated relatives. The joint use of the highest educational level in the household and the wealth index provide more accurate information about socioeconomic status of individuals. For Bamiyan,

information about the level of schooling was not asked for individuals aged above 45 years. Therefore, for this province, the highest level reached in the household may be underestimated.

The presence of at least one adult woman was used as a proxy for potential informal caregivers in the household. Adult woman are those aged between 15 and 59 years old. In the SDES, individuals were asked to classify themselves according to their current marital status: “Currently married”, “Widowed”, “Never married and not engaged”, “Never married and currently engaged”, “Divorced and separated”. In this study, individuals who never got married neither engaged, never got married but are currently engaged, or got divorced, or separated, were classified into the same category namely: "single individuals".

Research Findings

DESCRIPTIVE ANALYSIS

Table 1 shows the distribution of individuals according to the number of disabilities. The frequency decreases with the number of tasks that individuals reported having difficulties with. The proportion of individuals with difficulties in 4 or more tasks is negligible. For all provinces, they represent less than 0.6%.

Table 1 - Afghanistan (SDES): Distribution of Individuals over 4 Years Old According to the Number of Disabilities. Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)

# of disabilities	PARWAN		KAPISA		KABUL	
	N	%	N	%	N	%
0	269298	98.16	117153	97.90	1734938	98.27
1	3029	1.10	1546	1.29	19847	1.12
2	1081	0.39	532	0.44	5863	0.33
3	493	0.18	239	0.20	2678	0.15
4	272	0.10	110	0.09	1257	0.07
5	101	0.04	46	0.04	461	0.03
6	59	0.02	37	0.03	373	0.02
Total	274332	100.00	119664	100.00	1765415	100.00
# of disabilities	GHOR		DAYKUNDI		BAMIYAN	
	N	%	N	%	N	%
0	342268	95.16	261870	96.37	149278	94.74
1	8641	2.40	5445	2.00	5101	3.24
2	4381	1.22	2281	0.84	1739	1.10
3	2320	0.65	1240	0.46	827	0.52
4	1088	0.30	511	0.19	321	0.20
5	419	0.12	208	0.08	130	0.08
6	569	0.16	178	0.07	176	0.11

Total	359686	100.00	271732	100.00	157573	100.00
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Source: Afghanistan, SDES, Circa 2012.

The prevalence of disability (difficult in performing at least two tasks) among individuals aged over 4 ranges from 0.6% in Kabul to 2.4% in Ghor. Ghor and Bamiyan stand as the first and second provinces with the highest prevalence of functional disability followed by Daykundi. For all provinces, not surprisingly, disability rates increase with age. For the age group 5 to 14 years of age, the prevalence is less than 0.3% in Kabul, Parwan and Kapisa and reaches 1.6% in Ghor. Among individuals aged over 69, the prevalence can be as high as 33% in Ghor, about 14% in Kapisa and Parwan, and 11% in Kabul (Table 2 and Figure 1).

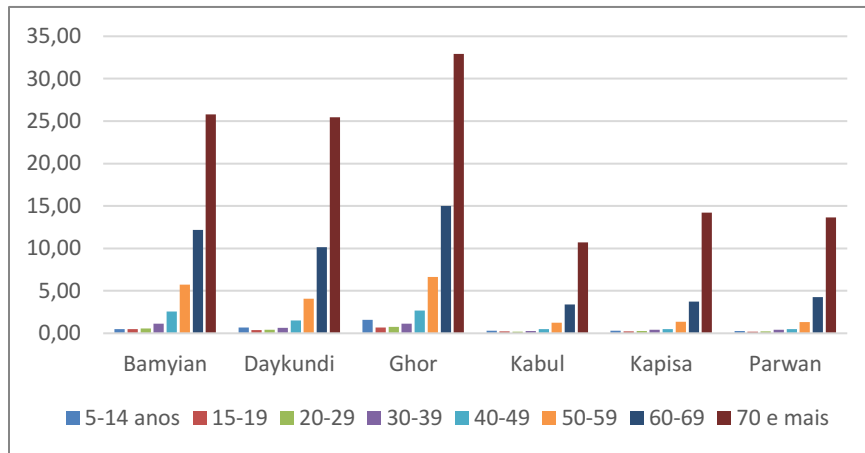
The analysis by sex shows a slight difference in the prevalence of functional disability. In Bamiyan, Kabul, Kapisa, and Parwan, prevalence is higher for the male population while the opposite is found for Daykundi (Table 2 and Figure 2). For Ghor, prevalence is about the same for the both groups. The prevalence by sex also differs across age groups. For all provinces, disability rates are higher among men at younger ages (until 29 years of age in Bamiyan, 39 in Daykundi, and 49 in Kabul, Kapisa and Parwan). For older ages, disability rates become higher among women (Table 2).

Table 2 - Afghanistan (SDES): Prevalence of Disability among Individuals over 4 Years Old by Age and Sex. Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)

Age groups	BAMIYAN			DAYKUNDI			GHOR		
	TOTAL	FEMALE	MALE	TOTAL	FEMALE	MALE	TOTAL	FEMALE	MALE
5-14 years	0.51	0.47	0.55	0.67	0.65	0.69	1.57	1.62	1.52
15-19	0.51	0.45	0.56	0.37	0.34	0.40	0.67	0.65	0.69
20-29	0.56	0.55	0.57	0.42	0.38	0.45	0.76	0.79	0.74
30-39	1.12	1.18	1.07	0.64	0.63	0.64	1.14	1.22	1.05
40-49	2.55	2.90	2.22	1.51	1.80	1.22	2.67	3.21	2.20
50-59	5.74	7.20	4.49	4.09	5.45	2.79	6.65	8.72	5.18
60-69	12.17	13.68	11.14	10.15	12.94	8.00	15.02	19.14	12.64
70 +	25.78	26.85	25.30	25.44	29.61	23.25	32.91	38.47	30.57
Total	2.03	1.89	2.15	1.63	1.66	1.60	2.44	2.43	2.45
Age groups	KABUL			KAPISA			PARWAN		
	TOTAL	FEMALE	MALE	TOTAL	FEMALE	MALE	TOTAL	FEMALE	MALE
5-14 years	0.29	0.27	0.30	0.29	0.26	0.32	0.27	0.22	0.31
15-19	0.22	0.17	0.26	0.22	0.21	0.22	0.18	0.13	0.23
20-29	0.20	0.15	0.25	0.28	0.23	0.33	0.23	0.18	0.27
30-39	0.26	0.19	0.33	0.42	0.24	0.62	0.40	0.22	0.58
40-49	0.48	0.44	0.51	0.49	0.38	0.61	0.50	0.41	0.60
50-59	1.24	1.35	1.14	1.37	1.59	1.14	1.33	1.39	1.26
60-69	3.41	3.97	2.99	3.74	4.25	3.27	4.27	5.04	3.69
70 +	10.73	11.05	10.53	14.21	14.20	14.22	13.65	14.94	12.87
Total	0.60	0.54	0.66	0.81	0.72	0.89	0.73	0.64	0.81

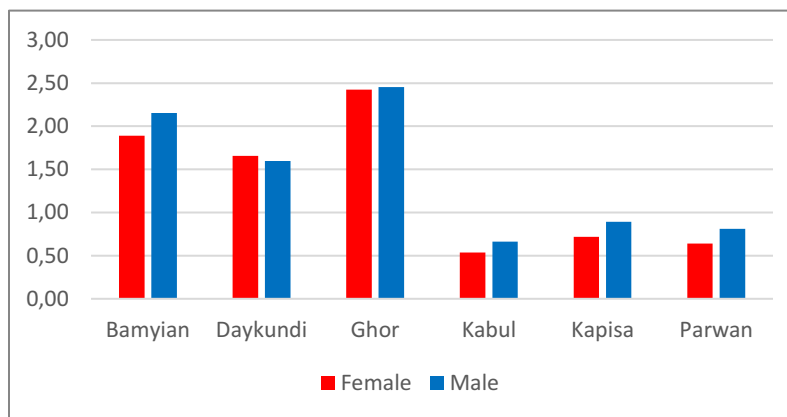
Source: Afghanistan, SDES, Circa 2012.

Figure 1 - Afghanistan (SDES): Prevalence of Disability among Individuals over 4 Years Old by Age Groups. Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)



Source: Afghanistan, SDES, Circa 2012.

Figure 2 - Afghanistan (SDES): Prevalence of Disability among Individuals over 4 Years Old by Sex. Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)



Source: Afghanistan, SDES, Circa 2012.

Table 3, Figures 3 and Figure 4 display the prevalence of functional disability by wealth quintiles for the whole population and elderly individuals. As expected, the analysis suggests the presence of a social gradient favoring the highest wealth groups in all provinces. The social gradient more pronounced in Bamiyan. In this province, the prevalence of disability is 2.4 (for the whole population) and 2 times higher (for the elderly) in the first quintile than for the fifth one. Considering the elderly population, whereas the prevalence of disability is 12% for the wealthiest quintile, for the poorest group this figure reaches 22.8%.

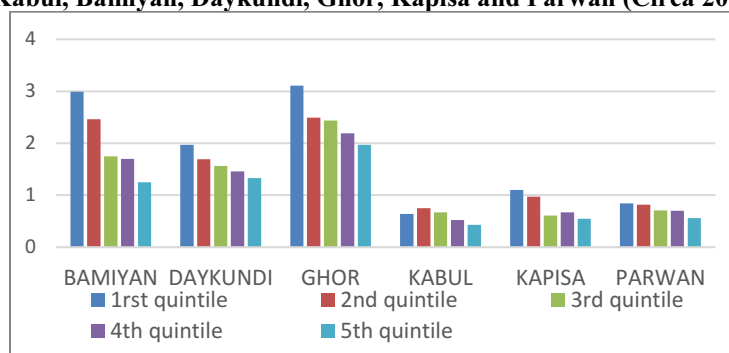
Table 3 - Afghanistan (SDES): Prevalence of Disability by Wealth Quintile. Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)

WIQ	Total population					
	BAMIYAN	DAYKUNDI	GHOR	KABUL	KAPISA	PARWAN
1	2.99	1.97	3.11	0.64	1.10	0.84
2	2.46	1.69	2.49	0.75	0.97	0.82
3	1.75	1.56	2.44	0.67	0.61	0.71
4	1.70	1.46	2.19	0.52	0.67	0.70
5	1.25	1.33	1.97	0.43	0.55	0.56
Total	2.03	1.63	2.44	0.60	0.81	0.73

WIQ	Elderly population					
	BAMIYAN	DAYKUNDI	GHOR	KABUL	KAPISA	PARWAN
1	22.77	17.18	25.67	6.55	9.81	8.22
2	21.03	17.41	20.87	8.05	9.51	7.97
3	15.83	15.84	21.50	6.96	6.12	8.35
4	15.28	15.14	21.01	5.44	6.98	7.77
5	12.21	16.37	17.96	4.12	6.72	5.99
Total	17.71	16.50	21.64	6.17	8.15	7.76

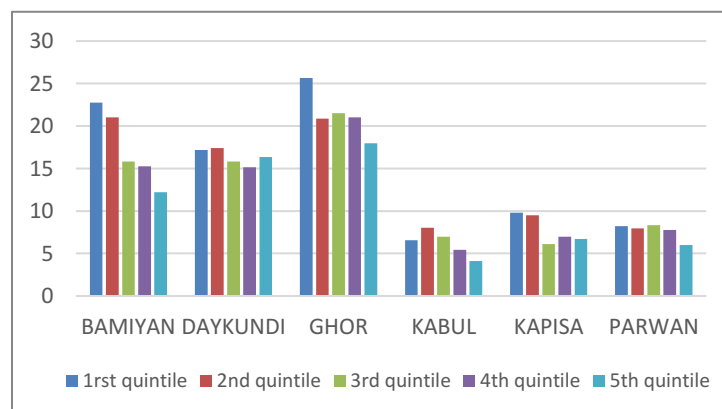
Source: Afghanistan, SDES, Circa 2012.

Figure 3 - Afghanistan (SDES): Prevalence of Disability among Individuals over 4 Years Old by Wealth Quintile. Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)



Source: Afghanistan, SDES, Circa 2012.

Figure 4 - Afghanistan (SDES): Prevalence of Disability among Elderly Individuals by Wealth Quintile. Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)



Source: Afghanistan, SDES, Circa 2012.

A similar result is found by educational level (Table 4, Figures 5 and 6). Considering the entire population, the prevalence of disability is greater among individuals with the highest level of education in the household is zero.

For Bamiyan, for instance, the prevalence of disability is 2.7% in the lower educational group versus 1.2% in the highest one. Among elderly individuals, the prevalence reaches the peak for the group of 1-6 years of schooling surpassing the prevalence of disability among those without formal education. This result is found for all provinces except Kabul. In Kabul, the prevalence of disability among elderly monotonically decreases with increases in the educational level: it ranges from 8.8% (for the zero year of schooling group) to 4.3% (for the group of over 11 years of schooling).

Table 4 - Afghanistan (SDS): Prevalence of Disability by Groups of the Highest Schooling Level. Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)

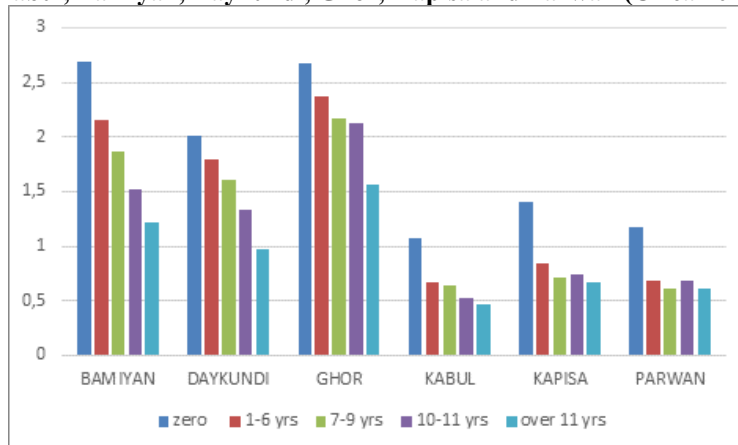
highest schooling level in the household	TOTAL					
	BAMIYAN	DAYKUNDI	GHOR	KABUL	KAPISA	PARWAN
0 year	2.69	2.01	2.68	1.08	1.41	1.18
1 a 6 years	2.16	1.80	2.37	0.67	0.84	0.69
7 a 9 years	1.87	1.61	2.17	0.64	0.71	0.61
10 a 11 years	1.53	1.34	2.13	0.53	0.74	0.69
12 years or more	1.22	0.98	1.56	0.47	0.67	0.62
Total	2.03	1.63	2.44	0.60	0.81	0.73

highest schooling level in the household	60 +					
	BAMIYAN	DAYKUNDI	GHOR	KABUL	KAPISA	PARWAN
0 year	17.71	16.03	22.21	8.76	8.03	8.22
1 a 6 years	21.70	18.54	23.62	7.77	10.95	9.96
7 a 9 years	17.01	16.45	19.70	7.32	7.88	7.39
10 a 11 years	13.88	14.82	19.23	5.73	7.75	7.41
12 years or more	12.39	11.35	10.67	4.32	6.82	6.39
Total	17.71	16.48	21.63	6.20	8.12	7.83

Source: Afghanistan, SDS, Circa 2012.

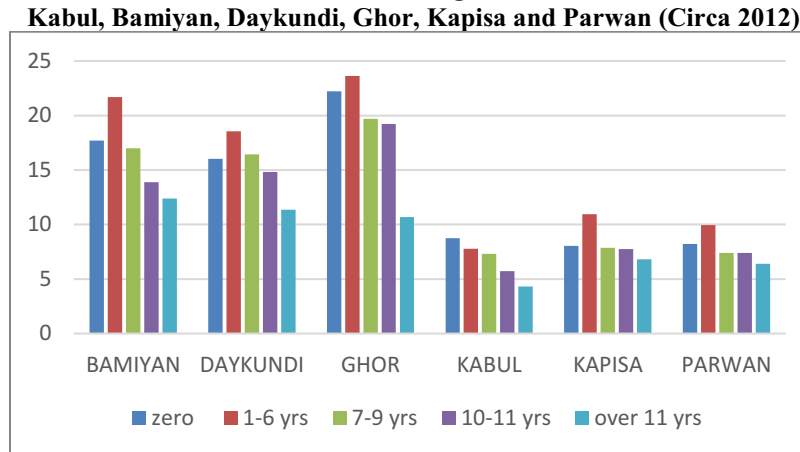
Figure 5 - Afghanistan (SDS): Prevalence of Disability among Individuals over 4 Years Old by the Highest Household Level of Schooling.

Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)



Source: Afghanistan, SDS, Circa 2012.

Figure 6 - Afghanistan (SDES): Prevalence of Disability among Elderly Individuals by the Highest Household Level of Schooling.



Source: Afghanistan, SDES, Circa 2012.

The presence of at least one adult woman in the household seems to be associated with the risk of being disabled. The direction of this association depends on the population group. Considering the entire population, the prevalence of disability is higher for those households without an adult woman. Among elderly, higher prevalence of disability are found in households with adult woman. This result is especially valid among female elderly. Women aged over 59 years reporting at least two disabilities are more likely to live with an adult woman than those without functional disability. On the contrary, elderly men with disability are less likely to live with adult woman than those without functional problems. For instance, for Daykundi the prevalence of disability is 19.4% among elderly women who lived with at least one adult female. This percentage is only 8.8% among those inhabiting households without adult woman. Among elderly man, these figures are 14.8% and 18.3% respectively. According to these findings, elderly women experiencing functional disabilities are more likely to live with a potential caregiver than their healthier counterpart. Among elderly men, the opposite result is observed: the prevalence of disability is higher among households without an adult woman.

**Table 5 - Afghanistan (SDES): Prevalence of Disability According to the Presence of at least one Adult Woman in the Household.
Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)**

	BAMIYAN				DAYKUNDI			
	TOTAL	60+	60+ /Female	60+ / Male	TOTAL	60+	60+ /Female	60+ / Male
Without adult woman	4.54	16.38	13.22	19.99	3.70	13.48	8.81	18.25
At least one adult woman	1.98	17.82	18.84	17.27	1.61	16.59	19.38	14.77
Total	2.03	17.71	18.19	17.43	1.63	16.48	18.91	14.87
	GHOR				KABUL			
	TOTAL	60+	60+ /Female	60+ / Male	TOTAL	60+	60+ /Female	60+ / Male
Without adult woman	8.34	20.86	16.01	25.54	2.87	6.87	4.60	9.43
At least one adult woman	2.34	21.75	27.76	18.98	0.57	6.13	6.71	5.75
Total	2.44	21.63	25.34	19.70	0.60	6.20	6.45	6.03
	KAPISA				PARWAN			
	TOTAL	60+	60+ /Female	60+ / Male	TOTAL	60+	60+ /Female	60+ / Male
Without adult woman	4.40	8.65	4.34	13.77	3.49	6.81	4.66	9.25
At least one adult woman	0.74	8.03	8.79	7.45	0.69	7.99	9.27	7.16
Total	0.81	8.12	8.01	8.21	0.73	7.83	8.45	7.39

Source: Afghanistan, SDES, Circa 2012.

Regarding marital status, the prevalence of disability is higher among widowed individuals. These findings are probably associated with age. The exception is found for elderly female in Daykundi, Kabul and Kapisa. In these provinces, the prevalence of disability is higher among single elderly women (never married but engaged, never married and not engaged, divorced or separated) (Table 6).

**Table 6 - Afghanistan (SDES): Prevalence of Disability According to the Marital Status.
Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)**

Marital status	BAMIYAN				DAYKUNDI				GHOR			
	TOTAL	60+	60+ /Female	60+ / Male	TOTAL	60+	60+ /Female	60+ / Male	TOTAL	60+	60+ /Female	60+ / Male
Single/divorced	0.63	12.59	13.09	12.29	0.70	31.20	32.08	29.89	1.45	27.14	28.75	25.45
Widowed	16.08	25.30	23.57	28.97	17.69	28.41	26.97	33.01	20.76	33.96	33.71	34.61
Married	3.15	15.65	14.49	16.08	2.10	12.64	11.96	12.91	2.73	18.20	18.18	18.20
Total	2.03	17.71	18.19	17.43	1.63	16.48	18.91	14.87	2.44	21.63	25.34	19.70
	KABUL				KAPISA				PARWAN			
	TOTAL	60+	60+ /Female	60+ / Male	TOTAL	60+	60+ /Female	60+ / Male	TOTAL	60+	60+ /Female	60+ / Male
Single/divorced	0.32	8.65	10.35	6.83	0.41	27.22	24.97	28.53	0.34	12.98	11.16	14.16
Widowed	5.85	9.62	8.97	11.89	7.77	12.70	11.92	15.30	7.61	13.00	12.15	15.56
Married	0.72	5.06	4.11	5.43	0.87	6.04	3.95	7.02	0.89	6.19	5.66	6.43
Total	0.60	6.20	6.45	6.03	0.81	8.12	8.01	8.21	0.73	7.83	8.45	7.39

Source: Afghanistan, SDES, Circa 2012.

LOGISTIC MODELS

Table 7 displays the adjusted odds ratios from logistic models estimated considering the entire population. The results confirm the positive association of disability with age found in the descriptive analysis. Older age groups are more prone to report disability than the youngest ones. The results are significant for all the six provinces. For example, in Kabul, among individuals who are younger than 30 years of age, the chance of being disabled is around 99% lower than those who are 70 years and older.

The results estimated for sex differ from those found in the descriptive analysis for Bamiyan and Ghor. For both provinces, differences in disability become significantly higher for woman: 7% and 19% respectively. In Daykundi, sex difference is around 9%. For Kabul, Kapisa and Parwan, even after controlling for relevant characteristics, the chance of having disability among women is still lower (16%, 21% and 19%) than among men, respectively.

The wealthiest groups are significantly at lower odds of reporting disabilities. These results suggest the presence of inequalities favoring the richest individuals in all provinces. The highest socioeconomic differences are found for Bamiyan wherein the chance of having disability is 41% and 56% lower for the fourth and fifth quintiles than for the first one. An intriguing result is found for Kabul. For this province, among individuals of the second and third quintiles, the chance of being disabled is 26% and 17% higher than for the poorest group. This finding is also verified in the descriptive analysis.

Further analysis is needed to explore the relationship between wealth groups and disability. Wealth quintiles were calculated using information about household characteristics and assets ownership. Even though a correlation between wealth and level of schooling is observed, it is important to verify to what extent the wealth indicator is sufficient to discriminate socioeconomic status especially among the poorest groups in Kabul. Besides, disability status in Afghanistan may have a different relation with wealth status especially among man. According to Trani and Kakshi (2008), male Afghan who become disabled by war are considered heroes by the society. Therefore, they have better social status and better access to land, employment and public facilities. Their statuses as heroes may allow them to escape from poverty conditions.

Inequalities are also observed among educational levels. The chance of having disability is lower for the more educated individuals. In Kabul, the chance is 47% lower for the highest group of schooling (over 11 years) than for individuals without any formal education. Only for Kapisa educational level is not significant.

In this study, the presence of at least one adult woman in the household is considered as a proxy for potential informal caregivers. According to the results, this variable is associated with higher chances of reporting

disabilities in Ghor, Bamiyan and Parwan: 24%, 29% and 40% respectively. For Daykundi, Kabul and Kapisa, this variable is not significant. In some societies, individuals with disability are usually cared by their relatives or friends (informal caregivers). Therefore, household arrangements will reflect in which extent the need of individuals with disabilities are being met. The results found indicate that in Ghor, Bamiyan and Parwan, there is a difference in the household arrangement between individuals without and with a disability. For Daykundi, Kabul and Parwan, the difference is not significant. A non-significant association may indicate that individuals with disability are not having the care they need. However, other arrangements, not tested here, may play a role in these provinces. Besides, a more accurate measure of disability that take into account the level of severity would be necessary in order to better understand this association.

Marital status is an important variable related to disability. For all provinces, married individuals are less likely to report disability than the single ones. This difference is significant and much larger in magnitude for Kapisa and Parwan. In both provinces, married individuals are 90% less prone to report disability than the reference group. Being widow is also associated with a lower chance of disability. This result differs to that found in the descriptive analysis in which the prevalence of disability is higher among widowed individuals. The higher prevalence observed in this group reflect the age of these individuals. The results of logistic model show that after controlling by age, being single increases the probability of having functional disability than being widowed or married.

Table 1 - Afghanistan (SDES): Odds Ratios Predicting the Likelihood of Being Disable Among Individuals Aged Over 4. Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)

Variables	BAMIYAN		DAYKUNDI		GHOR		KABUL		KAPISA		PARWAN	
	Odds Ratio		Odds Ratio		Odds Ratio		Odds Ratio		Odds Ratio		Odds Ratio	
Age group (ref. 70 +)												
5-14	0.010	***	0.005	***	0.016	***	0.005	***	0.002	***	0.002	***
15-19	0.011	***	0.003	***	0.009	***	0.004	***	0.002	***	0.001	***
20-29	0.016	***	0.007	***	0.015	***	0.007	***	0.004	***	0.004	***
30-39	0.036	***	0.022	***	0.027	***	0.022	***	0.023	***	0.024	***
40-49	0.084	***	0.057	***	0.063	***	0.050	***	0.036	***	0.038	***
50-59	0.191	***	0.151	***	0.159	***	0.132	***	0.100	***	0.103	***
60-69	0.419	***	0.365	***	0.375	***	0.333	***	0.272	***	0.313	***
Wealth Quintile (ref. 1st quintile)												
2	0.806	***	0.890	**	0.853	***	1.264	***	0.992	Ns	0.979	ns
3	0.593	***	0.861	***	0.892	***	1.171	***	0.659	***	0.899	ns
4	0.591	***	0.818	***	0.786	***	0.942	*	0.726	***	0.913	ns
5	0.444	***	0.783	***	0.720	***	0.794	***	0.642	***	0.785	***
sex (ref. Male)												
	1.073	*	1.090	**	1.192	***	0.838	***	0.789	***	0.813	***
Highest schooling level household (ref. Zero)												
1 to 6 years	1.119	**	1.113	*	0.953	*	0.823	***	1.061	Ns	0.912	ns
7 to 9 years	1.016	Ns	1.004	ns	0.836	***	0.754	***	0.901	Ns	0.740	***
10 to 11 years	0.859	**	0.807	***	0.841	***	0.606	***	0.902	Ns	0.771	***
12 years or more	0.732	***	0.571	***	0.606	***	0.531	***	0.767	*	0.667	***
Presence of adult woman												
	1.289	**	1.220	ns	1.242	***	1.057	ns	1.053	Ns	1.400	***
Marital status (ref. Single/divorced)												
Widowed	1.031	Ns	0.454	***	0.894	Ns	0.301	***	0.173	***	0.188	***
Married	0.597	***	0.175	***	0.409	***	0.149	***	0.073	***	0.081	***
Constant	0.541	***	1.258	ns	0.918	Ns	0.849	**	2.041	***	1.462	**

Source: Afghanistan, SDES, Circa 2012.

Note: *** significant at 1%, ** significant at 5%, * significant at 10%, ns Not significant

The results for elderly are similar to those estimated for the whole population regarding age, sex and household arrangement. The chance of having disability is higher among older ages (for all provinces) and among those inhabited by adult woman (Bamiyan, Ghor and Parwan). The difference of being disabled by sex is significant in Ghor, Kabul and Kapisa. For Ghor, the chance is higher among women. For Kabul and Kapisa, the opposite is observed. The results according to socioeconomic characteristics (wealth quintile and educational level) and marital status depends on the province analyzed (Table 8).

Inequalities favoring the wealthiest groups are significant only for Bamiyan and Ghor. In both provinces, the chance of having disability is lower for the poorest group. The results estimated for marital status shows that the chance of having disability is lower among married elderly in Daykundi, Kabul, Kapisa and Parwan and higher

in Bamiyan. Being a widow is associated with a higher chance of disability in Bamiyan and Ghor but with a lower chance in Kapisa (Table 8).

Table 8 - Afghanistan (SDES): Odds Ratios Predicting the Likelihood of Being Disable Among Elderly Individuals. Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)

Variables	BAMIYAN	DAYKUNDI	GHOR	KABUL	KAPISA	PARWAN
	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio
age group 60 - 69 (ref. 70+)	0.417 ***	0.361 ***	0.368 ***	0.324 ***	0.268 ***	0.305 ***
Wealth quintile (ref. 1st quintile)						
2	0.878 *	1.029 Ns	0.783 ***	1.317 ***	0.984 ns	0.946 ns
3	0.638 ***	0.955 Ns	0.836 ***	1.175 ***	0.627 ***	1.018 ns
4	0.622 ***	0.914 Ns	0.770 ***	0.969 ns	0.709 **	0.937 ns
5	0.494 ***	1.043 Ns	0.659 ***	0.802 ***	0.742 ns	0.719 ***
sex (ref. Male)	1.017 Ns	1.047 Ns	1.200 ***	0.892 ***	0.789 **	0.974 ns
Highest level schooling household (ref. Zero)						
1 to 6 years	1.290 ***	1.170 **	1.103 *	0.852 ***	1.442 **	1.193 *
7 to 9 years	1.054 Ns	1.094 Ns	0.930 Ns	0.848 ***	1.084 ns	0.910 ns
10 to 11 years	0.920 Ns	0.976 Ns	0.969 Ns	0.717 ***	1.204 ns	0.967 ns
12 years or more	0.862 Ns	0.671 **	0.484 ***	0.609 ***	1.093 ns	0.883 ns
Presence of adult woman	1.248 **	1.130 Ns	1.246 ***	1.068 ns	0.931 ns	1.327 ***
Marital status (ref. Single/divorced)						
Widowed	2.217 ***	0.871 Ns	1.404 *	0.986 ns	0.427 **	0.673 ns
Married	1.427 *	0.371 ***	0.759 Ns	0.569 ***	0.202 ***	0.356 ***
Constant	0.222 ***	0.563 **	0.520 ***	0.208 ***	0.701 ns	0.296 ***

Source: Afghanistan, SDES, Circa 2012.

Note: *** significant at 1%, ** significant at 5%, * significant at 10%, ns Not significant

Similar results are found when the analysis is performed by sex (Table 9). The main difference is related to the association between the chance of experiencing disability and the presence of adult woman in the household. Female elderly inhabiting households with adult woman are at higher odds of being disabled than those living without adult woman. Among male elderly, this difference is not significant between the two groups.

Table 9 - Afghanistan (SDES): Odds Ratios Predicting the Likelihood of Being Disable Among Elderly Individuals, by Sex. Kabul, Bamiyan, Daykundi, Ghor, Kapisa and Parwan (Circa 2012)

FEMALE												
Variables	BAMIYAN		DAYKUNDI		GHOR		KABUL		KAPISA		PARWAN	
age group 60 - 69 (ref. 70+)	0,469	***	0,424	***	0,431	***	0,377	***	0,319	***	0,339	***
Wealth quintile (first quintile)												
2	0,960	ns	1,019	ns	0,794	**	1,375	***	0,985	ns	0,879	Ns
3	0,734	**	0,934	ns	0,858	ns	1,133	*	0,564	**	0,953	Ns
4	0,724	**	0,904	ns	0,753	***	1,019	ns	0,808	ns	0,852	Ns
5	0,629	***	1,019	ns	0,725	***	0,841	**	0,609	*	0,670	**
Highest level schooling household (ref. Zero)												
1 to 6 years	1,475	***	1,198	ns	1,129	ns	0,815	**	1,169	ns	1,398	**
7 to 9 years	1,135	ns	1,182	ns	0,917	ns	0,843	**	0,994	ns	1,184	Ns
10 to 11 years	0,919	ns	1,031	ns	1,077	ns	0,788	***	1,560	*	1,013	Ns
12 years or more	0,818	ns	0,779	ns	0,463	***	0,699	***	1,112	ns	1,185	Ns
Presence of woman aged 15-59	1,384	**	1,644	**	1,523	***	1,319	***	1,387	ns	1,660	***
Marital status (ref. Single/divorced)												
Widowed	1,935	*	0,807	ns	1,300	ns	0,688	**	0,417	ns	0,845	Ns
Married	1,296	ns	0,364	***	0,747	ns	0,387	***	0,166	***	0,475	Ns
Constant	0,183	***	0,386	***	0,488	**	0,194	***	0,379	ns	0,163	***
MALE												
Variables	BAMIYAN		DAYKUNDI		GHOR		KABUL		KAPISA		PARWAN	
age group 60 - 69 (ref. 70+)	0,394	***	0,318	***	0,341	***	0,293	***	0,236	***	0,284	***
Wealth quintile (first quintile)												
2	0,829	*	1,035	ns	0,777	***	1,280	***	0,979	ns	1,006	Ns
3	0,587	***	0,964	ns	0,818	***	1,208	***	0,687	*	1,074	Ns
4	0,566	***	0,917	ns	0,782	***	0,936	ns	0,634	**	1,011	Ns
5	0,421	***	1,061	ns	0,614	***	0,767	***	0,885	ns	0,762	*
Highest level schooling household (ref. Zero)												
1 to 6 years	1,193	*	1,167	ns	1,100	ns	0,884	*	1,660	**	1,060	Ns
7 to 9 years	1,021	ns	1,047	ns	0,944	ns	0,854	**	1,149	ns	0,740	*
10 to 11 years	0,927	ns	0,953	ns	0,914	ns	0,676	***	0,933	ns	0,942	Ns
12 years or more	0,903	ns	0,588	**	0,498	***	0,557	***	1,052	ns	0,706	**
Presence of woman aged 15-59	1,144	ns	0,924	ns	1,139	*	0,945	ns	0,751	ns	1,171	Ns
Marital status (ref. Single/divorced)												
Widowed	2,424	***	0,996	ns	1,547	ns	1,537	*	0,387	**	0,675	Ns
Married	1,497	ns	0,392	***	0,814	ns	0,917	ns	0,228	***	0,345	**
Constant	0,256	***	0,679	ns	0,551	**	0,157	***	0,836	ns	0,362	**

Source: Afghanistan, SDES, Circa 2012.

Note: *** significant at 1%, ** significant at 5%, * significant at 10%, ns Not significant

Discussion

The present study examines the prevalence of disability in six provinces in Afghanistan. The analysis is carried out by age, sex, wealth quintiles, years of schooling reached in the household, marital status and presence of adult woman. Besides the prevalence of disability, logistic models were estimated in order to identify the characteristics that are significantly associated to the chance of reported disability.

According to the SDES results, prevalence of disability range from 0.6% to 2.4% for the whole population (individuals over 4 years old) and from 11% to 33% for people aged over 69 in Kabul and Ghor respectively. The prevalence considering the whole population is below than the 2.7% estimated by Trani and Bakhshi (2008). This difference is probably associated to the definition of functional disability between both studies. Trani and Bakhshi (2008) used information of the NDSA that defines disability as a multidimensional concept. This approach encompasses limitations associated to physical, sensory, intellectual disability, mental illness and psychological distress. In the present study, disability is defined as difficult in performing the following tasks: seeing even when wearing eyeglasses, hearing even when using a hearing aid, walking or climbing steps, remembering or concentrating, communicating, and self-caring. The main missing dimensions of disability in the SDES data are mental illness and psychological distress which probably explain the lower prevalence estimated by the present study. As aforementioned, in 2002, 67.7% of Afghans have been affected by mental disorders or psychosocial stress (Trani et al 2005).

The main variables explaining the chance of having a disability are age, sex, wealth quintiles, marital status and presence of an adult woman in the household. The results show that more vulnerable groups are more prone to have reported functional limitations: individuals in the lowest quintiles, at older age and being single. The higher chance of experiencing disability among single individuals can either be associated with selection effects (married or widowed are healthier than single individuals) or absence of partner (another potential caregiver). Partners can help their spouses with their daily activities and consequently the effects of a health condition or impairment on the functional disability may be minimized. This is especially true among men.

The association of disability and presence of adult woman in the household depends on the sex and age group. Among female elderly, the chance of being disabled is higher for those living in a household with adult women. Among elderly man, there is no significant difference in the chance of disability between those living with an adult woman and those living without this potential informal caregiver. This result does not mean that elderly men with disability are less prone to live with a potential caregiver than women. It may be the case that female

elderly will live with adult woman when their health deteriorates while among elderly men, the presence of an adult woman is independent of their functional condition.

Indeed, for all the six Afghan provinces analyzed, the proportion of elderly men inhabiting households with adult women is higher than for elderly women, independently of their functional condition. In Bamiyan, 94% of the elderly men inhabit households with at least one adult female while among elderly women this proportion is 89%. In Kabul, these figures are 92.5% and 87.5% respectively. In Afghanistan, the abandon of members of the family is socially condemned. Besides, as there are only few institutions for disabled individuals, those with disability are probably taken care of by their relatives (Trani and Loeb 2010).

The results presented in this paper are preliminary. Further estimations will be performed in order to deal with some issues raised in this study. First, it will be necessary to test other specifications to construct the wealth index for each province. As a larger proportion of population lives in extreme poverty conditions, the use of possession of assets and households characteristics may not differentiate well individuals according to their socioeconomic status. Besides wealth index and schooling level, other variables associated with vulnerability of the families could be included in the analysis. One important variable that may be associated with socioeconomic conditions is the sex of the household head. Labor force participation and immigration status could be also analyzed. Finally, it will be necessary to better explore the definition of disability. The starting point is to perform the analysis by each domain of disability. Prevalence was estimated considering a more general concept. Further analysis could explore the prevalence of individuals with difficult in performing each of the investigated tasks.

BIBLIOGRAPHY

- Acerra, J. R., K. Ikyan, et al. (2009). "Rebuilding the health care system in Afghanistan: An overview of primary care and emergency services." *International Journal of Emergency Medicine* 2(2): 77-82.
- Andrade MV, Noronha K, Singh A, Rodrigues CG, Padmadas SS. Antenatal care use in Brazil and India: scale, outreach and socioeconomic inequality. *Health Place*. 2012;18(5):942-50. <http://dx.doi.org/10.1016/j.healthplace.2012.06.014>. PMID:22832334.
- Belay T (2010) Building on early gains challenges and options for Afghanistan's health and nutrition sector. Washington (D.C.): World Bank
- Chiu L, Tang KY, Shyu WC, Huang CL and Wang SP (2000). Cost Analyses of Home Care and Nursing Home Services in the Southern Taiwan Area. *Public Health Nursing* 17(5):325-335.
- Comas-Herrera, A., Wittenberg, R., Costa-Font, J., Gori, C., Di Maio, A., Paxtot, C., Pickard, L., Pozzi, A. and Rothgang, H. (2006), 'Future long-term care expenditure in Germany, Spain, Italy and the United Kingdom', *Ageing and Society*, 26(2): 285–302.
- Edward, A., Kunar, B., Kakar, F., Salehi, A., Burnham, G., & Peters, D. (2011). Configuring Balanced Scorecards for measuring health system performance: Evidence from 5 years' evaluation in Afghanistan. *PLoS Medicine*, 8(7), e1001066. doi:10.1371/journal.pmed.1001066

- Freedman VA, Martin L, Cornman J, Agree E and Shoeni RF (2005). Trends in Assistance with Activities: Racial/Ethnic and Socioeconomic Disparities Persist in the U.S. Older Population. Trends Working Paper Series, num 05-2.
- Greene VL, Ondrich J, Laditka S (1998). Can home care services achieve cost savings in long-term care for older people? *The Journals of Gerontology*; 53B(4):S228-S238.
- D.R. Gwatkin, S. Rutstein, K. Johnson, E. Suliman, A. Wagstaff, A. Amouzou. Socio-Economic Differences in Health, Nutrition, and Population Within Developing Countries: An Overview. Country Reports on HNP and Poverty Washington, DC World Bank (2007)
- Lee T (2000). The Relationship between Severity of Physical Impairment and Costs of Care in an Elderly Population. *Geriatric Nursing* 21(2): 102-106.
- Monteverde, M., Noronha, K., & Palloni, A. (2009). Effect of early conditions on disability among the elderly in Latin America and the Caribbean. *Population Studies*, 63(1), 21-35. View publication via DOI: DOI:10.1080/00324720802621583
- Newbrander, W., Ickx, P., Feroz, F., & Stanekzai, H. (2014). Afghanistan's basic package of health services: Its development and effects on rebuilding the health system. *Global Public Health*, 9 (S1), S6–S28.
- P.K. Pathak, A. Singh, S.V. Subramanian Economic inequalities in maternal health care: prenatal care and skilled birth attendance in India, 1992–2006 *PLoS One*, 5 (2010), p. e13593
- Schoeni R, Martin L, Andreski P and Freedman V. (2005). Growing disparities in trends in old-age disability 1982-2001. *American Journal of Public Health* 95(11):2065-2070.
- Simpson DM, Sadr-Azodi N, Mashal T, Sabawoon W, Pardis A, Quddus A, Garrigos C, Guirguis S, Zahoor Zaidi SS, Shaukat S, Sharif S, Asghar H, Hadler SC. Polio eradication initiative in Afghanistan, 1997-2013. *J Infect Dis.* 2014 Nov;210 Suppl 1:S162-72. doi:10.1093/infdis/jiu022. PubMed PMID:25316832.
- Singer BH and Manton KG (1998). The effects of health changes on projections of health service needs for the elderly population of the United States. *PNAS* 95(26): 15618-15622, December 22.
- Spillman, Brenda C., and Kristin J. Black. 2005. "Staying the Course: Trends in Family Caregiving." AARP Public Policy Institute Report 2005-17. Washington, DC: AARP.
- Trani JF, Barbou-des-Courieres C: Measuring equity in disability and healthcare utilization in Afghanistan. *Med Confl Surviv* 2012, 28:219-246.
- Trani, J; Bakhshi, P; Noor, A; Mashkoo, A; Lopez, D; Lavasani, L; Schwarz, S; (2005) "Disability in Afghanistan: Taking a Capabilities Approach Look at Research Challenges and Policy Implications". In: (Proceedings) 5th International Conference of the Capabilities Approach. : UNESCO, Paris.
- Trani JF, Bakhshi P. Challenges for assessing disability prevalence: The case of Afghanistan. *ALTER, Revue européenne de recherche sur le handicap* 2 (2008) 44–64.
- Trani JF, Loebi M. Poverty and disability: a vicious circle? Evidence from Afghanistan and Zambia. *Journal of International Development*, Vol 24, Issue Supplement S1, pages S19-S52. 2010.
- Vyas S, Kumaranayake L. Constructing socio-economic status indices: how to use principal components analysis *Health Policy and Planning*, 21 (2006), pp. 459–468
- Waldman, R., & Hanif, H. (2002). The public health system in Afghanistan: Current issues. Kabul: Afghanistan Research and Evaluation Unit.
- Waldman, R., Strong, L., & Wali, A. (2006). Afghanistan's health system since 2001: Condition improved, prognosis cautiously optimistic. Kabul: Afghanistan Research and Evaluation Unit, Briefing Paper Series.
- Waldman, R. & Newbrander, W. (2014) Afghanistan's health system: Moving forward in challenging circumstances 2002–2013, *Global Public Health: An International Journal for Research, Policy and Practice*, 9:sup1, S1-S5, DOI: 10.1080/17441692.2014.924188
- Weissert WG and Cready CM (1989). Toward a Model for Improved Targeting of Aged at risk of Institutionalization. *HRS: Health Services Research* 24:4.
- WHO (2001). International Classification of Functioning, Disability and Health. World Health Organization, Geneva.

Williams J, Lyons B, Rowland D (1997). Unmet Long-Term Care Needs of Elderly People in the Community: A Review of the Literature. *Home Health Care Services Quarterly*, 16[1/2]: 93-119.