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Applied research concerning inclusion of persons with disabilities in systems of social protection

Quantitative Research Report, Peru

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Contents

Originaltext: Doctor Cecilie Medina Aquino (left hand) - She studied ophthalmology at the Universidad Nacional Dederico Villareal and is next on the list to receive the 'facofractura' course and a patient (right hand). Vorschlag: Cover photo: Ophthalmologist examining patients eyes.

1 Background

Originaltext: Morning Cataract Screening, Campana Gratuita Optalmologica para Descarte de Cataratas (in a community hall)- organised by the Municipality of Villa Maria del Triumfo with the support of the Clinica Divino Nino Jesus. The screening is free of cost and the people who work there are volunteers. Here: the technical assistant (left hand) of nurse Christina and the waiting patients. **Vorschlag:** Technical assisstant at a free morning cataract screening talking to patients.

Social protection, consisting of policies and programs designed to reduce poverty and vulnerability, has become increasingly important on the international agenda[1]. Through social protection programs, poverty, vulnerabilities and livelihood protection are addressed with respect to lifecycle risks (e.g. old age), economic risks (e.g. unemployment), health risks (e.g. sickness), and natural and ecological risks.[2] Therefore, social protection can serve as a means to alleviate poverty and enhance the living conditions of the target population. However, many countries have not yet implemented comprehensive and inclusive social protection systems; as a result, persons with disabilities have not been considered within the context of social protection.

Disability can be defined as a difficulty in functioning at the body, person, or societal levels, in one or more life domains, as experienced by an individual with a health condition in interaction with contextual factors.[3,4] According to the UN Convention on the Rights of Persons with Disabilities, '[p]ersons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others' (article 1).[5] Disability is, then, a complex phenomenon, reflecting the interaction between features of a person's body and features of the society in which he or she lives.

Worldwide, over a billion persons live with some form of disability, equivalent to 15 % of the world's population, and approximately 110-190 million adults have very significant difficulties in functioning.[6] Although the number of years lived with disability (YLD) have remained largely constant over time; in the last two decades, the number of persons living with disabilities has increased due to population ageing.[7]

Disability disproportionally affects vulnerable populations, and therefore, prevalence of disability is higher in low- and middle income countries than high income countries.[6] In addition, prevalence of disability is higher among women and older people, and those with low socioeconomic status.[8] Persons with disabilities have the same general needs as everyone else in addition to those specifically related to their condition, but are disproportionately poor, experiencing a narrower margin of health and social inclusion. Evidence shows that persons with disabilities face barriers to many core social activities and services targeted by social protection projects, including health and rehabilitation, education, livelihoods, political participation, among others.[9-11] Overcoming the difficulties faced by persons with disabilities requires interventions to remove environmental and social barriers as well as addressing the needs related to their impairments. Therefore, social protection programmes can facilitate inclusion of persons with disabilities, especially those centered on education, employment and health.

1.1 Preliminary data in Peru

In 2012, the National Institute of Statistics and Informatics (INEI) carried out the National Survey on Disability (*Encuesta Nacional Especializada sobre Discapacidad*, ENEDIS in Spanish) and reported that 5.2 % of the total population had permanent impairments.[12] Although this survey provides valuable information, the methods used were not standardized, as an adaptation of the Washington Group Short set of Questions on disability was used, and insufficient data were collected to compare the lives of persons with disabilities with the rest of the population.

1.2 Social protection programs in Peru

The government of Ollanta Humala, current President of Peru, has placed social protection as one of its main priorities, taking advantage of the country's economic growth.[2] Two different cash transfer programmes ('Juntos' and 'Pensión 65') were created to promote social inclusion. In addition, the Integral Health Insurance – SIS (*Seguro Integral de Salud*), a

program related to health, was also included in the research project.

The two cash transfer programmes are very similar regarding operational and delivery processes, selection of beneficiaries and technical and human resources. However, 'Juntos' is focused on households with children under 18, pregnant women, widowed parents, and older adults living in poverty or extreme poverty;[13] whereas 'Pensión 65' is for older adults who live in extreme poverty.[14] Persons with disabilities) are not target population of these programs; however, if they are in one of the aforementioned groups (children under 18, pregnant women, widowed parents, and older adults living in poverty or extreme poverty), then they can be included. The ENEDIS survey found that few persons with disabilities were included in these leading social protection programs. Thus, less than 1 % of persons with disabilities was included in 'Juntos', whereas only 8 % of those aged 65 and over were enrolled in 'Pension 65'. The Sistema de Focalizacion de Hogares (Household Targeting System, SISFOH in Spanish) data, a system to detect people in need of social support, showed that only 1 % of people included in this scheme had an impairment, which suggests extreme underrepresentation of PWD in this programme.[15] There is also a lack of quantitative and qualitative information to understand exactly how mainstreaming and specific programmes for persons with disabilities have been performed, why they may not be performing as expected, and how they can best be supported to achieve their intended aims. Thus, despite these initiatives, there is a need to appropriately determine whether political/socio-economic conditions have led to under-representation and exclusion of persons with disabilities from social protection programs.

On the other hand, the Seguro Integral de Salud (SIS) is a social protection program that aims to protect Peruvians' health, especially if they are not enrolled in a health insurance scheme, prioritizing vulnerable populations in extreme poverty.[16] Although in some areas, enrollment only requires the national identity card and an economic evaluation through SISFOH, health coverage is limited to the number of medical consultations (2 per month) and medicines available.

The main objectives of this quantitative part of the project were twofold: to estimate the prevalence and types of impairments in Peru and in the social protection programs using a standardized tool in a resource-constrained setting, and to assess the specific conditions of exclusion of persons with disabilities and their needs for social protection in comparison to persons without disabilities.

2 Methods

Originaltext: Sofia Angel Chambi Aparecio, girl, blind (age not given) at.Santa Rosa Private School. This private school is a regular school. Pupils with disabilities have a personal teacher who is acting as assistant to the regular teacher of the class. These teachers are called itinerant teachers. Here: Sofia (right hand) with her best friend (second from the right), her teacher Veronica (central) and another class-mate (left hand) Many parents don't want their child to sit next to Sofia because they think she would slow down the lessons, but according to Veronica (Sofia's teacher) that's nonsense. Anyway, Sofia's best friend is happy to sit next to her and says she would give Sofia her own eyes in case she would die. **Vorschlag:** A blind girl at a regular private school where pupils with disabilities have a personal teacher who acts as assistant to the regular class teacher.

2.1 Study setting

The district of Morropón, part of the province of the same name in Piura (region at the north of Peru), was selected to perform this study. According to the 2007 national census,[17] Morropón has 14,421 inhabitants, 15 % are illiterate, and 48.7 % do not have health insurance. Although there is no specific data regarding disability in Morropón, the prevalence was estimated in 4.5 % in the region of Piura according to the ENEDIS.[12] In addition and based upon information available from the Ministerio de Desarrollo e Inclusion Social (Ministry of Development and Social Inclusion),[18] 1,409 households are enrolled in the 'Juntos' program, and 569 individuals are included in the 'Pensión 65' program.

2.2 Study phases

The study consisted of two phases.

Phase 1: Disability survey in the general population and representation amongst programme participants

Study design: A population-based survey was designed to estimate the prevalence of disability in the general population and to evaluate the proportion of families/individuals with and without disabilities among the participants in the social protection programmes.

Selection criteria: All members of selected households aged 5 years and above were screened for disability.

Sampling frame: Data from the 2007 National Census and maps were used as the sampling frame. A two-stage sampling method was utilized to guarantee an equal probability of selection amongst all households in the district. In the first stage, a random sample with? 90 out of 207 clusters was selected, each comprising of one individual residential block containing, on average, 20 to 40 households. Each household in the cluster was visited to register its location. In the second stage, the head of the family or his/her spouse in all the households was interviewed to collect additional data regarding disability.

Disability definition: For the purpose of this study, disability was defined using the Washington Group Short Set of Questions on Disability, translated into Spanish.[19] The tool includes six questions about difficulties with activities (seeing, hearing, walking or climbing stairs, remembering or concentrating, washing all over or dressing, and communicating) as a result of a health problem. These questions were rated by the responder using four options: no difficulty, some difficulty, a lot of difficulty, cannot do at all. Accordingly, a participant responding 'cannot do at all' or 'a lot of difficulty' to any of the 6 questions as well as those who reported some difficulty in at least two questions was considered to have an impairment.

Procedures: Questionnaires were administered in Spanish by trained fieldworkers. First, a census template was utilized to register data regarding household composition and household-level data on social protection program access, with a focus on 'Juntos' and 'Pension 65', family income, and household characteristics including assets and access to services. A second template was used to collect individual-level data on each household member, including sex, age and disability status (using the Washington Group Short Set).[19] Data were recorded for all family members but information was provided by the head of the family or his/her spouse.

Phase 2: Exclusion and needs for social protection

Study design: A nested case-control study was performed by selecting all cases with disabilities identified in Phase 1 and matched with one control by sex and age (± 3 years).

Selection criteria: A case: male or female, aged 5 years and above, with disabilities based upon the Washington Group screening questions.[19] A control (ratio case-control: 1-1) of the same sex and similar age (± 5 years) but without disabilities, was taken from the general population and used as a comparison group. Only one participant, case or control, per household was included in this phase of the study.

Variables definition: The questionnaire included modules on education, employment, health and areas pertinent to social protection programs (including access to other programmes, such as SIS), so as to compare the living circumstances of persons with disabilities to those without.

Procedures: Interviews were performed by trained personnel. Data was taken from the screening phase of the study and then corroborated directly with participants. The screening questions were assessed again to confirm that the participant was a case or a control. Questionnaires were administered in Spanish by trained fieldworkers. A special instrument was created for the case-control study.

Sample size: With a conservatively estimated prevalence of disability of 5 %, a total of 135 cases with disabilities and 135 controls were needed to estimate an odds ratio of 2.1, assuming 80 % power, 5 % of level of significance, and a prevalence of exposure (e.g. poverty) of 25 % among controls.[1]

2.3 Data analysis

Data was analyzed using STATA 13 for Windows (Stata Corp, College Station, TX, US). Gender-stratified estimations of prevalence of disability and types of impairments in the general population as well as comparison of disability prevalence within social protection programs were calculated. Data were analyzed at the household and individual level for 'Juntos' and 'Pension 65' respectively.

Comparisons between cases and control were performed using the Chi-squared test or Fisher exact test accordingly.[2] Multivariable logistic regression models were created to identify differences between cases and controls in the domains of education, employment, and health as well as areas pertinent to the social protection programs, adjusting for age and gender. Gender stratified analysis was also performed to assess whether the needs and inclusion in society of women and girls with disability differed to those of men and boys.

2.4 Ethics

The phases of the study were reviewed and approved by the Ethical Committees of the London School of Hygiene and Tropical Medicine in London, UK, and the Universidad Peruana Cayetano Heredia in Lima, Peru. Verbal informed consent was obtained before starting fieldwork activities.

[1] **Odds ratios:** implies the strength of association between variables; **Power:** is the ability of the study to detect differences between variables; **Level of significance:** what is the probability that the difference found is due to chance; **Prevalence of exposure**: the proportion of controls that are poor people, for example.

[2] When categorical variables are compared (like in this report), you have two options: Chi-squared test or Fisher exact test, depending on the number of observations in each of the cells of a 2x2 table. When the number of observation is low, you use Fisher. Howell, DC. Chi-squared test – Analysis of contingency tables. Available at: http://www.uvm.edu/~dhowell/methods7/Supplements/ChiSquareTests.pdf

3 Findings

Originaltext: Nurse Christina (left hand, background) with a patient; she studied five years at the university of Lima. Via CBM she followed the course 'Superando Barreras' where she learned how to check eyes and detect cataract. But beside that she also informs the people about possible eye diseases and their meaning. **Vorschlag:** Nurse with a patient checking eyes for cataracts and informing about possible diseases and their meaning.

3.1 Phase 1: Disability survey in the general population and representation amongst programme participants

A total of 4,021 participants in 1,084 households were recorded in the screening phase. Of them, 335 (8.3 %) were excluded from further analyses as they were aged under 5 years. Thus, 3,684 participants, of which 1,848 (50.1 %) females, mean age 36.4 (SD: 21.7) were assessed. The majority of the study population (53.3 %) reported earning less than 450 PEN per month (approximately 158 USD). The characteristics of the study population are shown in Table 1.

Table 1: Characteristics of the study population (n = 3,684)

Variables	N (%)
Gender	
Female	1,848 (50.1 %)
Male	1,836 (49.9 %)
Age categories	
5 – 17 years	956 (25.9 %)
18 – 64 years	2,296 (62.3 %)
65+ years	434 (11.8 %)
Familial income	
Up to 100 PEN	86 (2.4 %)
101 – 450 PEN	1,793 (50.9 %)
451 – 750 PEN	993 (28.2 %)
751+ PEN	653 (18.5 %)

3.1.1 Prevalence of disability

A total of 290 (7.9 %; 95 %CI 7.0 % - 8.7 %) individuals were classified as having an impairment using the study criteria. The most common impairment was difficulty walking (2.4 %), followed by difficulty seeing (2.1 %). See details in Table 2 and E-Table 1 in the Appendix Section.

Table 2: Difficulties according to Washington Group tool

Difficulty	N (%)
Difficulty seeing	76 (2.1 %)
Difficulty hearing	53 (1.4 %)
Difficulty walking	90 (2.4 %)
Difficulty remembering/concentrating	64 (1.7 %)
Difficulty with self-care	54 (1.5 %)
Difficulty communicating	36 (1.0 %)

At the family level, 188 (17.3 %) families included one person with disabilities, whereas 39 (3.6 %) and 8 (0.7 %) families included two and three persons with disabilities, respectively.

3.1.2 Prevalence of disability according to socio-demographic factors

There was no difference in the prevalence of disability between males and females (OR = 1.15; 95 %CI: 0.91–1.47); however, prevalence of disability was greater among older individuals when compared to younger persons (OR = 11.30; 95 %CI: 6.19–20.62). The prevalence of disability was lower among those with greater familial income (OR = 0.37; 95 %CI: 0.26–0.52), and among those in the wealthiest socioeconomic status quartile (OR = 0.14; 95 %CI: 0.07–0.27). Detailed information is showed in Table 3.

Table 3: Socio-demographic characteristics according to disability

	Persons with disabilities/Total	Prevalence of disability (95 %CI)	OR (95 %CI)
Gender*			
Female	135 / 1,786	7.6 % (6.3 % - 8.8 %)	1 (Reference)
Male	152 / 1,787	8.5 % (7.2 % - 9.8 %)	1.15 (0.91 – 1.47)
Age categories*			
5 – 9 years	12 / 341	3.5 % (1.6 % - 5.5 %)	1 (Reference)
10 – 19 years	19 / 749	2.5 % (1.4 % - 3.7 %)	0.71 (0.34 – 1.49)
20 – 29 years	14 / 465	3.0 % (1.5 % - 4.6 %)	0.85 (0.39 – 1.86)
30 – 39 years	17 / 465	3.7 % (1.9 % - 5.4 %)	1.04 (0.49 – 2.21)
40 – 59 years	47 / 943	5.0 % (3.6 % - 6.4 %)	1.44 (0.75 – 2.74)
60+ years	178 / 610	29.2 % (25.6 % - 32.8 %)	**11.30 (6.19 – 20.62)**
Familial income			
Up to 100 PEN	19 / 85	22.4 % (13.3 % - 31.4 %)	1 (Reference)
101 – 450 PEN	167 / 1,730	9.7 % (8.3 % - 11.0 %)	**0.54 (0.40 – 0.74)**
451 – 750 PEN	55 / 959	5.7 % (4.3 % - 7.2 %)	**0.45 (0.32 – 0.62)**
751+ PEN	25 / 642	3.9 % (2.4 % - 5.4 %)	**0.37 (0.26 – 0.52)**
Socioeconomic status**			
1st quartile (poorest)	116 / 888	13.1 % (10.8 % - 15.3 %)	1 (Reference)
2nd quartile	67 / 871	7.7 % (5.9 % - 9.5 %)	**0.37 (0.22 – 0.63)**
3rd quartile	57 / 910	6.3 % (4.7 % - 7.8 %)	**0.21 (0.12 – 0.38)**
4th quartile (wealthiest)	47 / 904	5.2 % (3.7 % - 6.6 %)	**0.14 (0.07 – 0.27)**

Bold estimates are statistically significant (p<0.05)

* Socioeconomic status was evaluated by creating a wealth index based on household assets and then split in quartiles.

3.1.3 Disability and social protection programs

Juntos program: As 'Juntos' is a familial social program focused on children under 18 years of age, pregnant women, widowed parents or older adults living in poverty or extreme poverty,[13] analyses were performed at the family level. A total of 356 (32.9 %) families out of 1082 assessed were enrolled in the 'Juntos' program. Of them, 105 (29.5 %) were in the poorest quartile of socioeconomic status, 352 (98.9 %) had at least one child aged under 18 years or a person aged 65 years and over.

Among families with at least one member with disabilities, 67/235 (28.5 %) were enrolled in 'Juntos', whereas it was the case for 289 (34.1 %) out of 847 families without members with disabilities (p = 0.11).

Of the 28 families with a child with disabilities, 24 (85.7 %) were enrolled in 'Juntos', whereas this proportion was only 515/926 (55.6 %) among those families with children without disabilities (p = 0.002). Children with disabilities enrolled in the 'Juntos' program were, on average 11.3 years (SD: 3.3), mostly males 13/24 (54.2 %), and belonged to the lowest (54.2 %) quartile.

Pensión 65: This program is specifically focused on the elderly (65 years and above) at the individual level. As a consequence, only elderly participants were considered in the analysis: there was no difference between those enrolled in Pensión 65 among participants with or without disabilities (p = 0.07).

Table 4: Disability and Pensión 65 program

	Pensión 65 program		
	No (n = 317)	Yes (n = 116)	p-value
Disability			
No	210 (76.1 %)	66 (23.9 %)	0.07
Yes	107 (68.2 %)	50 (31.8 %)	

Seguro Integral de Salud: In addition, Seguro Integral de Salud (SIS) enrollment was also assessed. The SIS is a social program related to health access targeting low socio-economic status. More than three quarters of the study sample was enrolled in the SIS, with no difference between those with or without disabilities (p = 0.16, Table 5).

Table 5: Disability and SIS program

	SIS program		
	No (n = 783)	Yes (n = 2,901)	p-value
Disability			
No	712 (21.0 %)	2,682 (79.0 %)	0.16
Yes	71 (24.5 %)	219 (75.5 %)	

3.2 Phase 2: Exclusion and needs for social protection

A total of 161 cases with disabilities were matched by sex and age with 161 controls. Cases had a mean age of 56.8 (SD: 24.2) years, whereas controls had a mean age of 56.1 (SD: 23.7) years.

3.2.1 Self-reporting of disabilities and perceived causes

Self-reporting of disability, assessed by the question 'Do you consider yourself to have a disability?' was more common among cases (n = 127, 78.9 %) than among controls (n =5, 3.8 %). In addition, 15 participants (9 cases and 6 controls) did not know if they had a disability. On the other hand, 25 (16.5 %) cases self-reported not having a disability compared to 150 (96.8 %) of the controls. Detailed information regarding self-reporting of disability and different definitions of impairments according to the Washington Group questions are summarized in E-Table 2 (See Appendix).

Among cases, the most common perceived causes of impairments were advanced age (20.6 %), followed by genetic causes (15.6 %), non communicable diseases (11.3 %), and accidents/injuries (7.5 %). Of note, none of the participants attributed the cause of impairments to infectious diseases. On average, the reported age of onset of disability was 42.3 (SD: 32.0, inter-quartile range: 7 - 70.5) years.

3.2.2 Socio-demographic characteristics and disability in adults aged ≥18 years

A total of 141 cases and their respective controls were aged 18 years or above. According to socio-demographic characteristics, those who were single had higher odds of being persons with disabilities when compared to those who were married or cohabiting (p=0.002). Similarly, cases were more probable to be Caucasian (p=0.01) and have lower levels of literacy (p = 0.004). Education level, defined as the highest level of education attained, was not

significantly associated with disabilities (p = 680.49). Although school attendance was not significant, cases were more probably to report not attending school (21.2 % vs. 17.0 % among controls, p = 0.06). On the other hand, 32.6 % of cases reported they could not read and 16.3 % of controls did it (p = 0.006). Details of the distribution of socio-demographic characteristics and association estimates are presented in Table 6.

Table 6: Nested case-control study: Association between disability and socio-demographic characteristics in adults aged ≥18 years

	Cases (n = 141)	Controls (n = 141)	Age- and sex-adjusted OR
Gender			
Female	81 (57.5 %)	81 (57.5 %)	--
Age categories			
18 – 29 years	8 (5.7 %)	8 (5.7 %)	--
30– 49 years	24 (17.0 %)	24 (17.0 %)	--
50 – 69 years	45 (31.9 %)	50 (35.5 %)	--
70+ years	64 (45.4 %)	59 (41.8 %)	--
Marital status			
Married/cohabiting	66 (46.8 %)	84 (59.6 %)	1 (Reference)
Divorced/separated/widowed	42 (29.8 %)	43 (30.5 %)	1.07 (0.55 – 2.06)
Single	33 (23.4 %)	14 (9.9 %)	**3.40 (1.54 – 7.51)**
Ethnicity			
Mestizo (Amerindian)	92 (69.7 %)	116 (84.7 %)	1 (Reference)
African-Peruvian/Black	12 (9.1 %)	9 (6.6 %)	1.61 (0.63 – 4.08)
Caucasian/White	28 (21.2 %)	12 (8.8 %)	**2.61 (1.25 – 5.48)**
School attendance			
Yes	104 (73.8 %)	117 (83.0 %)	1 (Reference)
No	37 (26.2 %)	24 (17.0 %)	1.72 (0.96 – 3.08)
Highest academic attainment			
Up to incomplete primary	53 (51.0 %)	60 (51.3 %)	1 (Reference)
Complete primary/basic	19 (18.3 %)	15 (12.8 %)	1.49 (0.55 – 4.03)
Incomplete/complete secondary	20 (19.2 %)	27 (23.1 %)	0.82 (0.32 – 2.15)
Superior or more	12 (11.5 %)	15 (12.8 %)	0.60 (0.18 – 1.98)
Literacy			
Good	50 (35.5 %)	64 (45.4 %)	1 (Reference)
Not so good	45 (31.9 %)	54 (38.3 %)	1.14 (0.62 – 2.07)
Cannot read	46 (32.6 %)	23 (16.3 %)	**2.71 (1.38 – 5.32)**

Bold estimates are statistically significant (p<0.05)
-- Not calculable due to study design.

A total of 61 participants (37 cases and 24 controls) reported not having ever attended school. Reasons for school nonattendance differed between cases and controls (p = 0.04). Among cases, the three main causes of nonattendance were, in order, based on parents' decision (32.4 %), the need to work (27.0 %), and the lack of money (13.5 %). Only 1 (2.7 %) reported difficulties to get the school, and 2 (5.4 %) reported the lack of appropriate infrastructure in the school. On the other hand, among controls, the three main reasons for nonattendance were centered on the need to work (58.3 %), the lack of money (16.7 %), and the lack of school in the area (8.3 %).

3.2.3 Employment and disability in adults aged ≥18 years

Comparing cases and controls, persons with disabilities were over 4 times more likely not to have worked in either the last 7 days or the last year. Overall, 6 participants (3 cases and 3 controls) reported not working because of either disease or holidays (p = 0.59). In addition, only 25 participants: 5 (12.8 %) cases and 20 (26.3 %) controls, p-value=0.10) reported a second job, and only 4 participants were looking for a job: 2 cases (2.0 %) and 2 controls (3.1 %), p=0.66. Details and estimates regarding employment and disability are presented in Table 7.

Table 7: Nested case-control study: Association between disability and employment characteristics in adults aged ≥18 years

	Cases (n = 141)	Controls (n = 141)	Age- and sex-adjusted OR
Worked in last 7 days			
Yes	32 (22.7 %)	70 (49.7 %)	1 (Reference)
No	109 (77.3 %)	71 (50.4 %)	4.45 (2.32 – 8.57)
Worked in last year			
Yes	36 (25.5 %)	73 (51.8 %)	1 (Reference)
No	105 (74.5 %)	68 (48.2 %)	4.36 (2.26 – 8.40)

Bold estimates are statistically significant (p<0.05)

Reasons for not currently working varied between cases and controls (p<0.001). Although the main reason, being older or retired, was the same in both groups (cases: 44.1 % vs. controls: 61.5 %), secondary reasons were different. Thus, among cases, the two secondary reasons for not currently working were having physical problems or limitations (21.6 %) and having a long disease, i.e. > 1 month (18.6 %). On the other hand, among controls, these secondary reasons were caring for children (27.7 %) and not finding work positions (4.6 %).

3.2.4 Income, employment benefits and disability in adults aged ≥18 years

These analyses were performed amongst those who reported having worked in the last year. Thirty six cases and 73 controls were included in the comparisons. Results are shown in Table 8 and additional comparisons are shown in E-Table 3 (Appendix).

Table 8: Nested case-control study: Association between income, employment benefits and disability in adults aged ≥18 years

	Cases (n = 36)	Controls (n = 73)	Age- and sex-adjusted OR
Job type			
Own business	21 (58.3 %)	30 (41.1 %)	1 (Reference)
Work for other person	12 (33.3 %)	29 (39.7 %)	1.34 (0.41 – 4.37)
Agriculture/cattle raising	3 (8.3 %)	14 (19.2 %)	0.75 (0.12 – 4.75)
Work type			
All year	17 (47.2 %)	29 (40.3 %)	1 (Reference)
Seasonal	12 (33.3 %)	27 (37.5 %)	1.21 (0.33 – 4.41)
Occasionally	7 (19.5 %)	16 (22.2 %)	2.64 (0.49 – 14.3)
Payment in primary occupation			
Monthly/biweekly	6 (17.1 %)	18 (24.7 %)	--
Weekly/daily	23 (65.7 %)	42 (57.5 %)	--
No payment	3 (8.6 %)	2 (2.7 %)	--
Other form	3 (8.6 %)	11 (15.1 %)	--
Income			
< 400 PEN	27 (87.0 %)	37 (54.4 %)	1 (Reference)
400 – 749 PEN	2 (6.5 %)	12 (17.7 %)	0.25 (0.03 – 2.24)
750+ PEN	2 (6.5 %)	19 (27.9 %)	--

-- Not calculable.

Of note, only income was statistically different between cases and controls: 87 % of controls received less than 400 PEN as income, whereas only 54.4 % of controls received that (p=0.007).

3.2.5 Inclusion characteristics and disability in children <18 years

Twenty children with disabilities and their respective controls were included in these analyses. Characteristics of cases and controls are shown in Table 9. Of note, more than a quarter of children with disabilities were one grade lower than controls (26.5 % vs. 5.0 %, respectively), although this difference was not significant (p = 0.09).

Table 9: Nested case-control study: Association between inclusion and disability in children aged <18 years

	Cases (n = 20)	Controls (n = 20)	Age- and sex-adjusted OR
Gender			
Female	9 (45.0 %)	9 (45.0 %)	--
Male	11 (55.0 %)	11 (55.0 %)	--
Age			
5 – 7 years	2 (10.0 %)	3 (15.0 %)	--
8 – 11 years	9 (45.0 %)	8 (40.0 %)	--
12 – 17 years	9 (45.0 %)	9 (45.0 %)	--
Currently enrolled at school			
No	1 (5.0 %)	0 (0.0 %)	--
Same grade as other children			
Yes	14 (73.7 %)	19 (95.0 %)	1 (Reference)
No, one grade below	5 (26.3 %)	5 (5.0 %)	5.0 (0.58 – 42.8)
Days of school missed			
None	15 (79.0 %)	19 (95.0 %)	1 (Reference)
1+ days	2 (10.5 %)	0 (0.0 %)	4.0 (0.45 – 35.8)
Highest academic attainment			
Complete/incomplete primary	13 (68.4 %)	12 (60.0 %)	1 (Reference)
Complete/incomplete secondary	6 (31.6 %)	8 (40.0 %)	0.5 (0.05 – 5.51)
Ever repeated a school year			
Yes	5 (26.3 %)	2 (10.0 %)	1 (Reference)
No	14 (73.6 %)	18 (90.0 %)	4.0 (0.45 – 35.8)

-- Not calculable.

In addition, all children reported attending a regular school and only one, a child with disabilities, reported not attending school. Among 7 children that reported having repeated a school year, 3 repeated once (cases: 1 vs. controls: 2), 3 repeated twice (all cases), and repeated three times (a case).

3.2.6 Health and disability in adults aged ≥18 years

Serious health problems were more frequent among cases 67.4 % when compared to controls (33.3 %, p-value < 0.001). However, persons with disabilities were not more likely to be enrolled in health insurance schemes, with enrollment rates of above 80 % for both groups (p = 0.64). Information is shown in Table 10.

Table 10: Nested case-control study: Association between health and disability in adults aged ≥18 years

	Cases (n = 141)	Controls (n = 141)	Age- and sex-adjusted OR
Enrolled in health insurance			
Yes	117 (83.0 %)	114 (80.9 %)	1 (Reference)
No	24 (17.0 %)	27 (19.2 %)	0.85 (0.45 – 1.62)
Health problem in last 12 months			
No	18 (12.8 %)	52 (36.9 %)	1 (Reference)
Yes, but not serious	28 (19.8 %)	42 (29.8 %)	1.72 (0.75 – 3.92)
Yes, and serious	95 (67.4 %)	47 (33.3 %)	**5.69 (2.78 – 11.65)**

Bold estimates are statistically significant (p<0.05)

When the type of health insurance scheme was analyzed, there was no difference between cases and controls. Thus, 76.9 % of cases and 79.0 % of controls (p = 0.71) were enrolled in the Seguro Integral de Salud. Similarly, 22.2 % of cases and 20.2 % of controls (p = 0.70) were enrolled in ESSALUD, and none of cases - and only 1.8 % of controls (p = 0.15) - had private insurance.

Among those who reported having a health problem (123 cases and 89 controls); comparisons for health seeking behaviors were also performed: 61 % of cases and 64 % of control reported seeking health care always, whereas 13 % of cases and5.6 % of controls reported never seeking health. Detailed results are shown in Table 11. Of note, there was no difference in health seeking (p = 0.20), but cases sought treatment in health centers (p<0.001), whereas controls sought treatment in pharmacies (p = 0.003). Further, reasons for not seeking health differed among cases and controls. Amongst the reasons reported, persons with disabilities reported that they believed it was not necessary (33.3 % of reasons reported), lack of money (31.3 %), and self-medication (22.9 %) as main reasons for not seeking health. In the case of controls, 50 % reported that they believed it was not necessary, 21.9 % because of self-medication, and 18.9 % due to lack of money (p = 0.58).

Table 11: Nested case-control study: Association between health seeking behaviors and disability in adults aged ≥18 years

	Cases (n = 123)	Controls (n = 89)	Age- and sex-adjusted OR
Health seeking			
Always	75 (61.0 %)	57 (64.0 %)	1 (Reference)
Occasionally	32 (26.0 %)	27 (30.4 %)	0.86 (0.42 – 1.74)
Never	16 (13.0 %)	5 (5.6 %)	4.44 (0.96 – 20.56)
Place sought treatment			
Health centre (yes/no)	96 (89.7 %)	52 (61.9 %)	**6.67 (1.98 – 22.43)**
Hospital (yes/no)	19 (17.8 %)	11 (13.1 %)	2.14 (0.87 – 5.26)
Private clinic (yes/no)	29 (27.1 %)	32 (38.1 %)	0.47 (0.21 – 1.05)
Pharmacy (yes/no)	29 (27.1 %)	40 (47.6 %)	**0.41 (0.17 – 0.99)**

Bold estimates are statistically significant (p<0.05)

3.2.7 Health and disability in women aged 15-49 years

Thirty-eight women (19 cases and 19 controls) were included in these analyses. Of note, only 7 (36.8 %) of cases reported having children compared to 16 (88.9 %) of controls (p = 0.002). Details are shown in Table 12.

Only 9 women reported having previous abortions or miscarriages (3 cases and 6 controls, p-value 0.46).

All women who reported having a pregnancy in the previous 5 years also reported having accessed pre-natal care (1 case and 10 controls) and in all cases the birth was attended by a midwife. Birth took place in hospital (attended by physician) in the only case (100 %) and for 5 of the controls (50 %), whereas the other 50 % of controls reported giving birth in a health centre, attended by a midwife only. Finally, all the children born in this period have received vaccines (1 case and 10 controls).

Table 12: Nested case-control study: Association between health seeking behaviors and disability in adults aged ≥18 years

	Cases (n = 19)	Controls (n = 19)	p-value*
Do you have children			
Yes	7 (36.8 %)	16 (88.9 %)	0.002
No	12 (63.2 %)	2 (11.1 %)	
How many children			
0	12 (63.2 %)	2 (11.1 %)	0.003
1	3 (15.8 %)	2 (11.1 %)	
2	2 (10.5 %)	8 (44.4 %)	
3+	2 (10.5 %)	6 (33.3 %)	
Pregnancy ended in abortion			
Yes	3 (15.8 %)	6 (33.3 %)	0.27
No	16 (84.2 %)	12 (66.7 %)	

* Fisher's exact test was used for p-value calculations. OR was not calculated as the sample size is too small

3.2.8 Health and disability in children aged <18 years

Twenty children with disabilities and their respective controls were included in these analyses. Among cases, 18 (90.0 %) reported having a health problem in last 12 months (60.0 % serious) compared to 12 (60.0 %) in controls, of which 10 % were serious (p = 0.03). See detailed information in Table 13.

Table 13: Nested case-control study: Association between health and disability in women aged between 15 and 49 years

	Cases (n = 20)	Controls (n = 20)	p-value*
Enrolled in health insurance			
Yes	19 (95.0 %)	20 (100.0 %)	0.31
Health problem in last 12 months			
No	2 (10.0 %)	8 (40.0 %)	0.003
Yes, but not serious	6 (30.0 %)	10 (50.0 %)	
Yes, and serious	12 (60.0 %)	2 (10.0 %)	

* Fisher's exact test was used for p-value calculations

Further analysis was conducted on the 30 children (18 cases and 12 controls) who were reported to have experienced a health problem in the preceding 12 months. There was no difference between cases and control regarding health seeking behavior and the place where they sought treatment. See detailed information in Table 14.

Table 14: Nested case-control study: Association between health seeking behaviors and disability in children aged <18 years

	Cases (n = 20)	Controls (n = 20)	p-value*
Health seeking			
Always	13 (72.2 %)	8 (66.7 %)	0.75
Occasionally	5 (27.8 %)	4 (33.3 %)	
Never	0 (0.0 %)	0 (0.0 %)	
Place sought treatment			
Health centre (yes/no)	18 (100.0 %)	11 (91.7 %)	0.40
Hospital (yes/no)	3 (16.7 %)	1 (8.3 %)	0.63
Private clinic (yes/no)	2 (11.1 %)	1 (8.3 %)	0.80
Pharmacy (yes/no)	4 (22.2 %)	4 (33.3 %)	0.68

* Fisher's exact test was used for p-value calculations

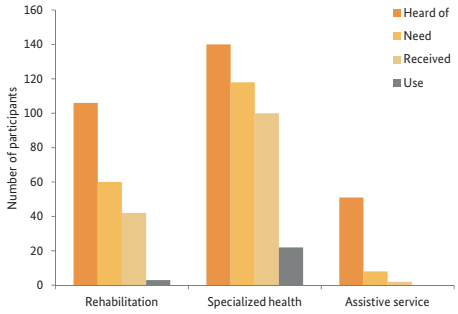
3.2.9 Specialized health needs

Specialized health needs were assessed among the 161 cases with disabilities. Medical rehabilitation, specialized health, assistive device services, special education, job searching services, personal and familial counseling, legal counseling, and services provided by the Municipal Office for the Attention of People with Disabilities (Oficina Municipal de Atención a la Persona con Discapacidad, OMAPED), which coordinates and provide disability-related programmes at the local level, were included in the analysis.

From the health perspective, 65.8 % of cases had heard about rehabilitation services, 86.9 % had heard about specialized services, and only 31.7 % had heard about assistive devices. Detailed information is shown in Figure 1. Of note, only 5 % (3/60) of those who needed rehabilitation reported using the service, whereas it was the case for 18.6 % (22/118) in specialized health service, and 0 % (0/8) reported not using assistive device.

From the counseling perspective, 92.5 % of participants with disabilities reported having heard about healers, 56.5 % had heard about OMAPED, 37.3 % reported having heard about familial counseling and special education services. Less than a third of cases reported having heard about other services included in the analyses. In addition, only 15 % (6/40) reported using healers, 64.4 % (29/45) reported using the OMAPED, 38.9 % (7/18) reported using familial counseling, and 33.3 % (2/6) reported using special education services. Details are shown in E-Figure 1.

Figure 1: Health needs among cases: rehabilitation, specialized health and assistive services*

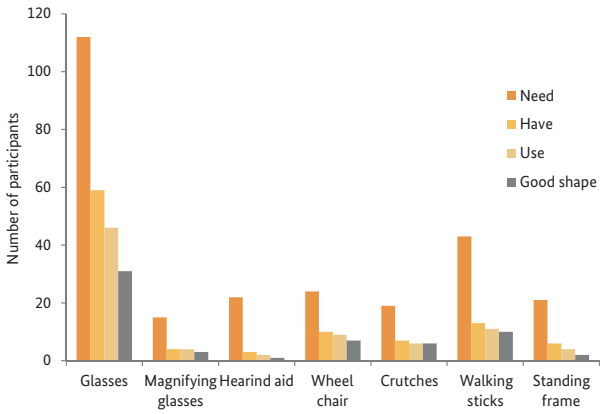


*Only persons with disabilities (cases) were included in the analysis.

The main reason for not accessing services among those that reported needing it was cost. For example, among participants (n = 18) who did not receive medical rehabilitation, 11 (61.1 %) reported it was too expensive, and 4 (22.2 %) that it was not available. Similarly, among 18 people who did not receive specialized health services, 15 (83.3 %) reported that it was too expensive, and the remaining 3 (16.7 %) reported that the service was either not available or too far away. Finally, among the 6 cases that needed but did not receive assistive services, 5 (83.3 %) reported that the service was too expensive, whereas one person (16.7 %) reported that the service was not available.

3.2.10 Assistive device need

Figure 2: Devices need among cases*



*Only persons with disabilities (cases) were included in the analysis.

Assistive device need amongst persons with disabilities was also assessed. Glasses were reported as necessary by 112 (69.6 %), followed by walking sticks (n = 43, 26.7 %), and wheel chairs (n = 24, 14.9 %), 85.7 % reported they were not aware of the Braille system; and this proportion was also high for awareness regarding recorders (80.8 %), enlarged prints (74.5 %), guides (67.7 %), white canes (51.6 %), and prostheses (50.9 %). In accordance, only 5 participants reported needing prostheses, whereas 2 needed enlarged prints, and 1 needed the Braille system. Moreover, no one reported needing a recorder, white cane, or guide. Detailed information is provided in Figure 2.

Fifty-nine cases (53 % of cases) reported having glasses and of these 46 (78.0 % of participants having glasses) used them and 33 (71.7 % of those using glasses) reported that they had acquired their glasses from a private provider. Among the remaining 13 participants who had but did not use glasses, 8 reported that the glasses were not helpful. 13 participants reported having a walking stick, 11 (84.6 % of participants who had a walking stick) used them and 8 (72.7 % of those using a walking stick) reported having acquired their stick from a private provider. Among the remaining 2 participants who reported having but not using walking sticks, 1 reported that the stick was not helpful and the other reported that it was not needed. Finally, 10 participants with disabilities reported having a wheelchair, of whom 9 (90 % of those with a wheelchair) used them and 2 (22.2 % of those who used their wheelchair) reported having acquired the wheelchair from a private provider, whilst 2 participants reported acquiring their wheelchairs from a public health provider. In contrast, only 1 reported having and not using a wheelchair because he/she was not satisfied with the product.

4 Discussion

4.1 Disability prevalence and social protection programmes

4.1.1 Main findings

Based on the results of the first phase of the study, almost 8 % of the population aged 5 years and above presented a disability. The most common impairment was difficulty walking, followed by difficulty seeing. The prevalence of disability by sex was similar, but greater disability rates were found in older people (aged 60 years and above), among those with lower familial income and amongst those in the lowest socioeconomic status quartile.

Different social protection programmes, including cash transfers and programmes focused on health insurance and education, were assessed. The results of this study suggest that there were no differences in the inclusion of persons with disabilities in the evaluated social protection programs compared to those without disabilities. However, families with children with disabilities were more likely to be enrolled in 'Juntos' than families with children without disabilities.

4.1.2 Implications

According to previous reports, prevalence of disability varies significantly between countries, especially due to tools used in the evaluation.[20-25] A report using Washington Group's questions in Mexico reported 5.1 %,[26] whereas an estimation of disability for 54 countries reported 14 %.[27] Our results are higher than those reported by a national survey in Peru (ENEDIS),[12] although INEI used an adaptation of the Washington Group questions defining disability as a permanent limitation. When we limited the definition of disability to those reporting a lot of or total difficulty; disability prevalence reduced to 5.6 %, which is comparable to estimates from the national survey (5.2 %).

As in previous reports, old age, poverty and unemployment are factors associated with greater prevalence of disability. On the other hand, disability was similar between males and females, in contrast to some studies that found greater prevalence of disability among women.[6, 28] As expected, an aging population means that more people will present with disabilities, but this may also be a consequence of increasing survival rates from disease or injury. Previous studies have corroborated that persons with disabilities tend to be of lower socioeconomic status and to be concentrated in poorer areas.[21]

The inclusion of persons with disabilities is important within the context of social protection, as they were poorer and less likely to be working both in our study and in previous reports.[29] This is in part because disability is likely to be more common in already vulnerable groups, such as among women, older people and poor households.[6] In addition, persons with disabilities face restrictions to their inclusion and participation in society as a result of social and contextual factors beyond their impairment and capacity, which can reduce access to education, employment and health care and the full realization of their human rights.[28]

'Juntos', a familial social protection program, is a conditional cash transfer program to reduce poverty. Participants of this program acquired a series of commitments to improve access to education and health.[13] 'Pensión 65', another cash transfer program, is focused on adults aged 65 years and above without appropriate resources for subsistence.[14] The 'Seguro Integral de Salud (SIS)' is a social protection program that aims to protect Peruvians' health, especially if they are not enrolled in a health insurance scheme, prioritizing vulnerable populations in extreme poverty.[16] It is encouraging to see equal access amongst families/individuals with and without disabilities in social protection programmes, but coverage of 'Pensión 65' and 'Juntos' is relatively low with 31.8 % of adults with disabilities over 65 and 28.5 % of families with a member with disabilities of any age enrolled in each programme, respectively. As these programs are not specific for persons with disabilities, low coverage may be related to disability not being amongst the criteria for enrolment. This should be reconsidered in light of this study's findings related to increased health problems and decreased livelihood opportunities amongst persons with disabilities.

4.2 Nested case-control study

4.2.1 Main findings and implications

Adults with disabilities (aged 18 and above) in the case-control study were more likely to be single, to self-report their ethnicity as Caucasian/white, and to have lower literacy than adults without disabilities. For instance, adult cases were almost 3 times more likely not to be able to read than adult controls. This suggests that whilst adults with disabilities completed the same number of years of education as adults without disabilities, achievement was lower amongst those with disabilities. On the other hand, the average age of reported onset of disability was 42.3 years, suggesting that the majority of adults with disability acquired their impairments beyond school completion age and that differences in literacy are therefore not related to schooling.

Adults with disabilities were four times more likely not to have worked in the last 7 days or the last year than controls without disabilities, making them far more vulnerable to economic shocks. Among those working, there was no difference in the job type, work type, and payment in primary occupation; however, only 5 % of cases received the legal minimum wage (750 PEN) or more, compared with 28 % of controls. Thus, persons with disabilities are far less likely to be working, and amongst those who are, less likely to be receiving the minimum wage. This is a key gap that can be closed through different strategies, including social protection programs.

Regarding health, a similar proportion of adult cases and controls reported being enrolled in a health insurance scheme. However, cases were 5.7 times more likely to have experienced a serious health problem in the last 12 months than controls. Dependent on the level of contribution at the point of use of health insurance, and especially for those without health insurance, this presents a potentially significant additional cost burden experienced by persons with disabilities. Among those who experienced a health problem, there was no difference in the proportion seeking health care between cases and controls. However, cases sought treatment in a health centre more frequently than controls, whereas controls sought care more regularly in pharmacies. This might suggest that the illnesses experienced by persons with disabilities were more likely to require physician assistance than illnesses experienced by controls, which could be controlled via pharmacy-bought medication or assistance.

In the particular case of women of child-bearing age (between 15 and 49), only 37 % of cases reported having children compared to 89 % of controls. There was no difference in reports of pregnancies ending in abortion between cases and controls. This, along with the finding that

persons with disabilities are more likely to be single than persons without disabilities, is important in terms of programmes such as 'Juntos', that operate at the familial level and include having children under 18 as criteria for support. Inclusive social protection programmes need to provide provision at the individual level for persons with disabilities even if they are not in family units, especially given the added vulnerability this may bring.

Amongst children under 18, only one child with disabilities (and no children without disabilities) was not enrolled in school, and all cases who were enrolled attended a regular school. Children with disabilities were more likely to be in a lower grade than other children their age, more likely to have missed one or more days of school and more likely to have ever repeated a school year, although differences reported were not statistically significant.

Similar to adults, in the case of health in children, almost all of them were enrolled in a health insurance scheme. However, whilst there was no difference in health seeking behavior, children with disabilities were much more likely to have experienced a serious health problem in the previous 12 months. Again, dependent on costs at the point of use, this suggests a greater cost burden related to health for children with disabilities than children without. Moreover, this may account for the increased number of days of school missed amongst children with disabilities versus controls.

4.3 Nested case-control study: specialized health and devices needs

Persons with disabilities report experiencing serious health problems much more frequently than persons without disabilities. Access to and use of specialist health services including medical rehabilitation and assistive device services was very low in the study. Evidence from other studies suggests that persons with disabilities have greater unmet needs not only because of increased costs and a range of barriers when they attempt to access health care,[28] but also because of inadequate health worker skills and the absence of specialized health services. The same case applies for specific device needs, including a lack of knowledge regarding the existence of technologies and devices that can maximize functioning. As the WHO reported for resource-constrained settings,[6] less than 15 % of people who require assistive devices are able to access them.

5 Strengths/ Limitations

This is a very detailed report including two different methodological designs to evaluate prevalence of as well as factors associated with disability in a district in Peru. The main strengths of this study include the enrolment of participants from all ages, as well as the assessment of social protection programs. However, some limitations deserve consideration. First, the design of the study can only determine association and not causality, which can be important for a more detailed ascertainment of care and service needs. Second, we used the short set of question of the Washington Group, and for instance, the impact of mental health on disability has not been considered. Third, the six dimensions of the Washington Group questions were grouped, which unfortunately did not allow for comparisons between different types of impairments. Finally, although we tried to show information regarding gender and child age, the sample size was not be big enough to demonstrate differences between groups.

6 Conclusions and Recommendations

6.1 Conclusions

- Results of this study showed that almost 8 % of the study population were persons with disabilities, which is higher than findings of previous studies in Peru.
- Access to education amongst children with disabilities, and access to health care amongst adults and children with disabilities are comparable to the rest of the population. However, both adults and children with disabilities experience significantly more frequent serious health conditions.
- Adults with disabilities are also more likely to be single, not to have children and not to be working, whilst those who do work are less likely to receive the national minimum wage.
- Although persons with disabilities in the study were found to have equal access to the two individual-level social protection programmes 'Pensión 65' and 'Seguro Intgral de Salud', as well as the family-level programs, the low coverage rates of 'Pension 65' and 'Juntos' suggests that many adults with disabilities in particular may not have access to social protection that can decrease their vulnerability, which ought to be addressed so as to ensure full inclusivity of the programmes.

6.2 Recommendations

- Despite of fact that local poverty conditions can hide some of the gaps related to participation and social inclusion of persons with disabilities, our findings in this quantitative phase of the study in combination suggest greater economic vulnerability for persons with disabilities and greater need for social support to guarantee appropriate inclusion. Moreover, in the case of health, our results suggest a heightened need for social protection and health insurance that can reduce the burden of the disability-related extra costs in this population.
- Although there was no difference between the inclusion of persons with and without disabilities in the evaluated social protection programmes, coverage is low and persons with disabilities in Peru face additional economic risks regarding employment, wages, health, access to specialized services and education. In this sense, although the representation of persons with disabilities in social protection programmes is good in comparison to those without disabilities, this by itself does not guarantee a positive impact in their lives.
- As many of the barriers that persons with disabilities face are avoidable, policies need to focus on reviewing existing legislation and developing strategies to reduce these barriers. Social protection programmes should consider adding disability status to selection criteria of so as to reduce these barriers.

7 Appendix

Extra Table 1: Washington Group question responses in the survey population

	Total population (n = 3,686)
Difficulty seeing	
No	3,393 (92.1 %)
Some	217 (5.9 %)
A lot	63 (1.7 %)
Cannot do	13 (0.3 %)
Difficulty hearing	
No	3,524 (95.6 %)
Some	108 (2.9 %)
A lot	46 1.3 %)
Cannot do	7 (0.2 %)
Difficulty walking	
No	3,507 (95.2 %)
Some	89 (2.4 %)
A lot	67 (1.8 %)
Cannot do	24 (0.6 %)
Difficulty remembering/concentrating	
No	3,521 (95.5 %)
Some	101 (2.7 %)
A lot	50 (1.4 %)
Cannot do	14 (0.4 %)
Difficulty with self-care	
No	3,608 (97.9 %)
Some	24 (0.6 %)
A lot	26 (0.7 %)
Cannot do	28 (0.8 %)
Difficulty communicating	
No	3,599 (97.7 %)
Some	50 (1.3 %)
A lot	25 (0.7 %)
Cannot do	11 (0.3 %)

Extra Table 2: Relationship between self-reported disability and Washington Group questions

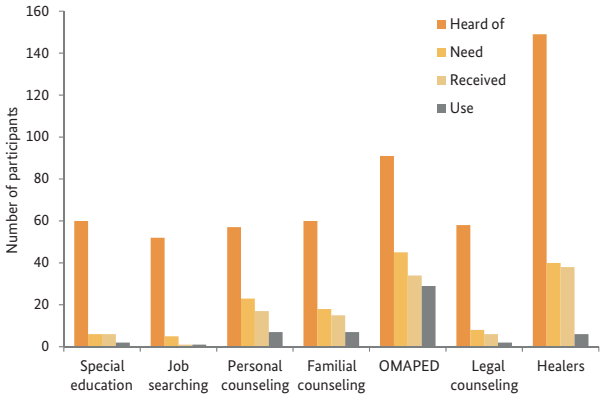
	Self-reported disability	No self-reported disability
At least one domain is scored 'some difficulty' or above	131 (99.2 %)	70 (40.0 %)
At least two domains are scored some difficulty; or a lot of difficulty/cannot do at all in at least one domain (Case definition for study)	127 (96.2 %)	25 (14.3 %)
At least one domain is scored 'a lot of difficulty' (this measure excludes those with the mildest degrees of difficulty).	110 (83.3 %)	15 (8.6 %)
At least one domain is scored 'cannot do at all' (this measure focuses on the most severe levels of difficulty)	22 (16.7 %)	0 (0.0 %)

Extra Table 3: Nested case-control study: Association between income, employment benefits and disability in adults aged ≥18 years (additional comparisons)

	Cases (n = 36)	Controls (n = 73)	p-value*
Payment type			
In cash	30 (88.2 %)	68 (93.2 %)	0.66
Cash and goods/only goods	2 (5.9 %)	3 (4.1 %)	
No payment	2 (5.9 %)	2 (2.7 %)	
Receipt of			
Retirement pension (yes/no)	1 (2.8 %)	1 (1.4 %)	0.61
Disability pension (yes/no)	0 (0.0 %)	0 (0.0 %)	--
Pensión 65 (yes/no)	4 (11.1 %)	11 (15.1 %)	0.57
Received in last 12 months			
Gratuity (yes/no)	2 (6.1 %)	7 (9.9 %)	0.52
Bonus for school (yes/no)	0 (0.0 %)	1 (1.4 %)	0.49
Utilities (yes/no)	0 (0.0 %)	2 (2.8 %)	0.33
Compensation (yes/no)	0 (0.0 %)	1 (1.4 %)	0.49
None (yes/no)	33 (90.9 %)	62 (87.3 %)	0.59

* Fisher's exact test was used for p-value calculations

Extra Figure 1: Health needs among cases: counseling and other services*



*Only persons with disabilities (cases) were included in the analysis.

9 References

1. United Nations Research Institute for Social Development. Combating poverty and inequality: structural change, social policy and politics. Geneva, Switzerland: UNRISD; 2010.

2. Lavigne M. Social protection systems in Latin America and the Caribbean: Peru. Santiago, Chile: United Nations; 2013.

3. Leonardi M, Bickenbach J, Ustun TB, Kostanjsek N, Chatterji S. The definition of disability: what is in a name? Lancet 2006;368(9543):1219-21.

4. United Nations Enable. Eight session on the ad hoc committee on a comprehensive and integral international convention on protection and promotion of the rights and dignity of persons with disabilities. Aug 14 - 25, 2006. 2006 [updated 200 6; cited 2014 Oct 2]; Available from: http://www.un.org/esa/socdev/enable/rights/ahc8.htm.

5. United Nations. United Nations Convention on the Rights of Persons with Disabilities. Geneva, Switzerland: UN; 2006.

6. World Health Organization. 10 facts on disability. Geneva, Switzerland: WHO; 2013 [updated 2013; cited 2014 November 20]; available from: http://www.who.int/features/factfiles/disability/facts/en/.

7. Vos T, Flaxman AD, Naghavi M, Lozano R, Michaud C, Ezzati M, et al. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet 2013;380(9859):2163-96.

8. Morgon Banks L, Polack S. The economic costs of exclusion and gains of inclusion of people with disabilities. Evidence from low and middle income countries. London, UK: International Centre for Evidence in Disability, London School of Hygiene and Tropical Medicine.

9. Amaral FL, Motta MH, da Silva LP, Alves SB. [Factors associated with difficulty of access of the elderly with disabilities to the health services]. Cien Saude Colet 2012;17(11):2991-3001.

10. Iezzoni LI, Frakt AB, Pizer SD. Uninsured persons with disability confront substantial barriers to health care services. Disabil Health J 2011;4(4):238-44.

11. Pharr J, Chino M. Predicting barriers to primary care for patients with disabilities: a mixed methods study of practice administrators. Disabil Health J 2013;6(2):116-23.

12. Instituto Nacional de Estadística e Informática. Microdatos: Base de datos: Consulta por Encuesta. Lima, Perú: INEI; 2012 [updated 2012; cited 2013 Nov 10]; available from: http://iinei.inei.gob.pe/microdatos/.

13. Ministerio de Desarrollo e Inclusion Social. Juntos: Programa Nacional de Apoyo a los mas Pobres. Lima, Peru: MIDIS; 2014 [updated 2014; cited 2014 November 20,]; available from: http://www.juntos.gob.pe/.

14. Ministerio de Desarrollo e Inclusion Social. Pension 65. Lima, Peru: MIDIS; 2014 [updated 2014; cited 2014 Noviembre 21,]; available from: http://www.pension65.gob.pe/.

15. Ministerio de Desarrollo e Inclusion Social. Sistema de Focalizacion de Hogares (SISFOH). Lima, Peru: MIDIS; 2014 [updated 2014; cited 2014 Novemeber 24,]; available from: http://www.sisfoh.gob.pe.

16. Ministerio de Salud. SIS: Seguro Integral de Salud. Lima, Peru: MINSA; 2014 [updated 2014; cited 2014 November 25,]; available from: http://www.sis.gob.pe/Portal/index.html.

17. Instituto Nacional de Estadistica e Informatica. Censos Nacionales 2007, XI de Poblacion y VI de Vivienda: Sistema de Consulta de Resultados Censales. Lima, Peru: INEI; 2014 [updated 2014; cited 2014 November 24,]; Available from: http://www.inei.gob.pe/estadisticas/censos/.

18. Ministerio de Desarrollo e Inclusion Social. INFOMIDIS: Observatorio Distrital de Programas MIDIS. Lima, Peru: MIDIS; 2014 [updated 2014; cited 2014 November 24,]; available from: http://www.midis.gob.pe/mapas/infomidis/.

19. Washington Group on Disability Statistics. Understanding and interpreting disability as measured using the Washington Group short set of questions. Atlanta, US: Centers for Disease Control and Prevention; 2009.

20. Brault MW. Americans with Disabilities: 2010. Household Economic Studies: U.S. Department of Commerce: Economics and Statistics Administration. U.S. Census Bureau; 2012.

21. Disability in the United Kingdom 2012: Facts and Figures. Cambridge, UK: Papworth Trust; 2012.

22. Fondo Nacional de la Discapacidad. Primer Estudio Nacional para Discapacidad en Chile. Santiago, Chile: Fondo Nacional de la Discapacidad; 2004.

23. Lozano R, Soliz P. Measurement of disability in Mexico: a different approach. Mexico City, Mexico: CEMECE, Ministry of Health; 2005.

24. Central Statistics Office. National Disability Survey 2006: Fists results. Dublin, Ireland: Central Statistics Office; 2008.

25. National Coordinating Agency for Population and Development. Kenya National Survey for Persons with Disability. Nairobi,, Kenya: National Coordinating Agency for Population and Development; 2008.

26. Guzman JM, Salazar EG. Disability and rehabilitation in Mexico. Am J Phys Med Rehabil 2014;93(1 Suppl 1):S36-8.

27. Mitra S, Sambamoorthi U. Disability prevalence among adults: estimates for 54 countries and progress toward a global estimate. Disabil Rehabil 2014;36(11):940-7.

28. World Health Organization. World Report on Disability. Geneva, Switzerland: WHO; 2011.

29. Aron L, Loprest P. Disability and the education system. Future Child 2012;22(1):97-122.

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