

# BMJ Open Disability types, determinants and healthcare utilisation amongst Afghan adults: a secondary analysis of the Model Disability Survey of Afghanistan

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## ABSTRACT

**Objectives** The needs of people with disability in Afghanistan are not well understood. We describe the characteristics, healthcare utilisation patterns, and experience of care among Afghan adults with moderate or severe disability (MSD) by disability type.

**Design** We mapped 47 questions related to functional disability in the cross-sectional Model Disability Survey of Afghanistan (MDSA) 2019 into 7 disability domains based on the WHO Disability Assessment Schedule 2.0. We conducted multivariable hierarchical logistic regression to identify drivers of high disability burden.

**Setting** The MDSA primary sampling unit were villages in rural areas and neighbourhoods in urban areas, and the secondary sample units were the settlements within districts.

**Participants** The MDSA collected data for 14 520 households across all 34 provinces. The adult tool of the survey was administered to a randomly selected household member aged 18 years or older.

**Main outcome measures** The main outcome measured was moderate or severe disability (MSD), which was estimated using a Rasch composite score.

**Results** MSD prevalence was upwards of 35% in 6/7 domains. Across most disability types, being a woman, older age, residing in rural areas, being uneducated, non-Pashtun ethnicity, being unmarried, living in a household in the low-income tertiles and a non-working household had the highest levels of MSD ( $p < 0.05$ ). Determinants of MSD varied by domain; however, variables including better access to health facilities and better experience of care (higher satisfaction with time spent and respect during visits) were generally protective. People with MSD in the self-care and life activities domains had the highest and lowest healthcare utilisation, respectively.

**Conclusions** Disability in Afghanistan is at public health crisis levels, with vulnerable populations being impacted most severely. To ensure progress towards Afghanistan's 2030 Sustainable Development Goals, targeted interventions for disability types based on population risk factors should be implemented.

## INTRODUCTION

Afghanistan is a low-income country located in Central Asia that has been in a state of

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Use of a standardised and evidence-informed instrument for disability data collection.
- ⇒ Sample size of over 14 000 households in all 34 provinces despite ongoing insecurity, harsh geography and transportation difficulties.
- ⇒ The cross-sectional design limits comparison of trends from the 2005 National Disability Survey of Afghanistan.
- ⇒ Although some key geographies and populations that are often inadequately represented in surveys were well represented in our sample, selection bias is possible with a response rate of 78.7%.

instability and conflict for several decades. The COVID-19 pandemic has exposed the vulnerabilities in Afghanistan's healthcare system, which already faces significant challenges in achieving universal access to healthcare as stipulated in the 2030 Sustainable Development Goal 3.<sup>1</sup> This has resulted in the widening of existing gaps in access to care in a country where there are only 7.2 physicians per 10 000 people in urban areas, a number that drops to a meagre 0.6 per 10 000 in rural areas.<sup>2</sup> Furthermore, given the US withdrawal and subsequent Taliban takeover of Afghanistan, the country is at an alarming juncture with regard to its humanitarian and health needs.<sup>3</sup> The current humanitarian crisis and COVID-19 pandemic have compounded the several crises that Afghans already face: war and conflict, natural disasters such as extreme droughts and floods, endemic emerging infectious diseases such as polio and measles, persistent inequality for women's, minorities' and disability rights and a country with an uncertain short-term and long-term future.<sup>4,5</sup>

Afghans with disabilities are among the most vulnerable and marginalised in Afghan society. The WHO defines disability as 'the interaction between individuals with a health

condition (eg, cerebral palsy, Down syndrome and depression) and personal and environmental factors (eg, negative attitudes, inaccessible transportation and public buildings, and limited social supports)'.<sup>6</sup> The WHO estimates that over one billion people worldwide currently live with some form of disability, with about 3.8% of those requiring healthcare services due to severe functional difficulties.<sup>5</sup> In Afghanistan, severe disability prevalence was estimated as 2.7%<sup>7</sup> in 2005, and more recent national estimates have shown this to increase to 13.9% in 2019.<sup>8</sup> COVID-19 and the country's instability have likely increased this rate and widened inequalities within the country.

Although overall disability prevalence in Afghanistan has been previously measured, little to no validated data are available on the prevalence of specific types of disability. The UN Convention on the Rights of Persons with Disabilities emphasises that persons with disability have the right to the highest standard of healthcare without discrimination.<sup>9</sup> In order to achieve health equity and universal health coverage, it is crucial to better understand the social, physical and institutional needs of Afghan persons with disabilities, including the heterogeneities that exist in disability type. Earlier work from the 2005 National Disability Survey of Afghanistan (2005 NDSA) showed that among persons with severe disability, physical disabilities were higher in prevalence compared with other types of disabilities they measured.<sup>7</sup>

The 2016–2017 Afghan Living Conditions Survey showed that disabilities with mobility were slightly more common than the other types of disabilities they measured.<sup>10</sup> However, these surveys did not explore the breadth of disability types in Afghanistan and data are now outdated. The 2019 Model Disability Survey of Afghanistan (MDSA) collected in-depth data by disability type for both adults (18+ years) and children (age 2–17 years) and could be explored for deeper analyses.

In this study, we aim to further understand the Afghan adult population that has moderate or severe disability (MSD) by disability type. We explore the demographics, healthcare utilisation patterns and experience of care among Afghan adults with MSD by seven disability domains: communication and cognition, mobility, self-care, getting along with people, life activities, participation in society and body functions (figure 1). We also analysed the distal, intermediate and proximal determinants of MSD for each type of disability.

## METHODS

### Data source

This study is a secondary analysis of data from the MDSA 2019. The MDSA is a comprehensive survey on the status of persons with disabilities in Afghanistan. The MDSA was developed based on an adaptation of the WHO's and World Banks' Model Disability Survey (MDS), with the



**Figure 1** Disability domain definitions. Based on the WHO Model Disability Survey and Model Disability Survey of Afghanistan 2019 Final Report.<sup>8</sup> (Colour Image).

permission of the former. The MDS is a general population survey that was developed to serve as a standardised instrument for data collection on disability in a population.<sup>11</sup> It is based on the International Classification of Functioning, Disability, and Health, which characterises the concept of disability in the context of interactions between the person's body structure and function, health condition, activity and participation restrictions, and environmental and personal factors. The MDS unifies questions from 179 disability surveys through qualitative content analyses and quantitative analysis. The MDS has been pilot tested and is considered a reliable and valid tool.<sup>11</sup>

### Survey design and sampling

Extensive detail on the study design, sampling methodology, data quality control, as well as sample and household descriptive characteristics, are available elsewhere.<sup>8</sup> To summarise, the MDSA 2019 adopted a stratified multistage sample design using regions as domains and urban/rural area as strata. The primary sampling unit were villages in rural areas and gozars (neighbourhoods) in urban areas, and the secondary sample units were the settlements within districts. Information on these areas were provided by the National Statistics and Information Authority of the Government of Afghanistan. All 34 provinces in Afghanistan were sampled.

The survey consisted of three core tools: (1) household characteristics (157 questions), (2) adult disabilities (161 substantive questions covering sociodemographic characteristics, work history and benefits, environmental factors, functioning, health conditions, personal assistance, assistive devices, and facilitators, healthcare utilisation, well-being, and empowerment) and (3) child disabilities (53 questions covering functioning and health conditions). The MDSA 2019 survey and report is publicly available.<sup>8</sup> Our study analysed the results from adult participants aged 18 years or older.

The survey was translated and back translated into the local languages, Dari and Pashto, and health terminology was reviewed by the Ministry of Labor, Social Affairs, Martyrs, and Disabled and the Ministry of Public Health, and Afghan medical professionals, taking into consideration cultural sensitivities, consistency and reliability.

Data collection occurred between April and May 2019. Areas that were not accessible due to insecurity and physical barriers were excluded but had replacements. All households within our sample with a head of household over the age of 18 years old were included. The household tool was administered to the person who self-identified as most knowledgeable about the household. The adult tool was administered to a randomly selected household member aged 18 years or older regardless of disability. If a respondent had a disability or health condition that limited their ability to participate, a caregiver was permitted to assist them or complete the interview on their behalf. Written informed consent was obtained from each household informant and adult respondent

prior to initiating the interview. The response rate among households that were contacted was 78.7%. Data were collected for 14520 households across all 34 provinces. During the data entry process, 15 cases were removed due to missing or misprinted pages.

### Disability definition

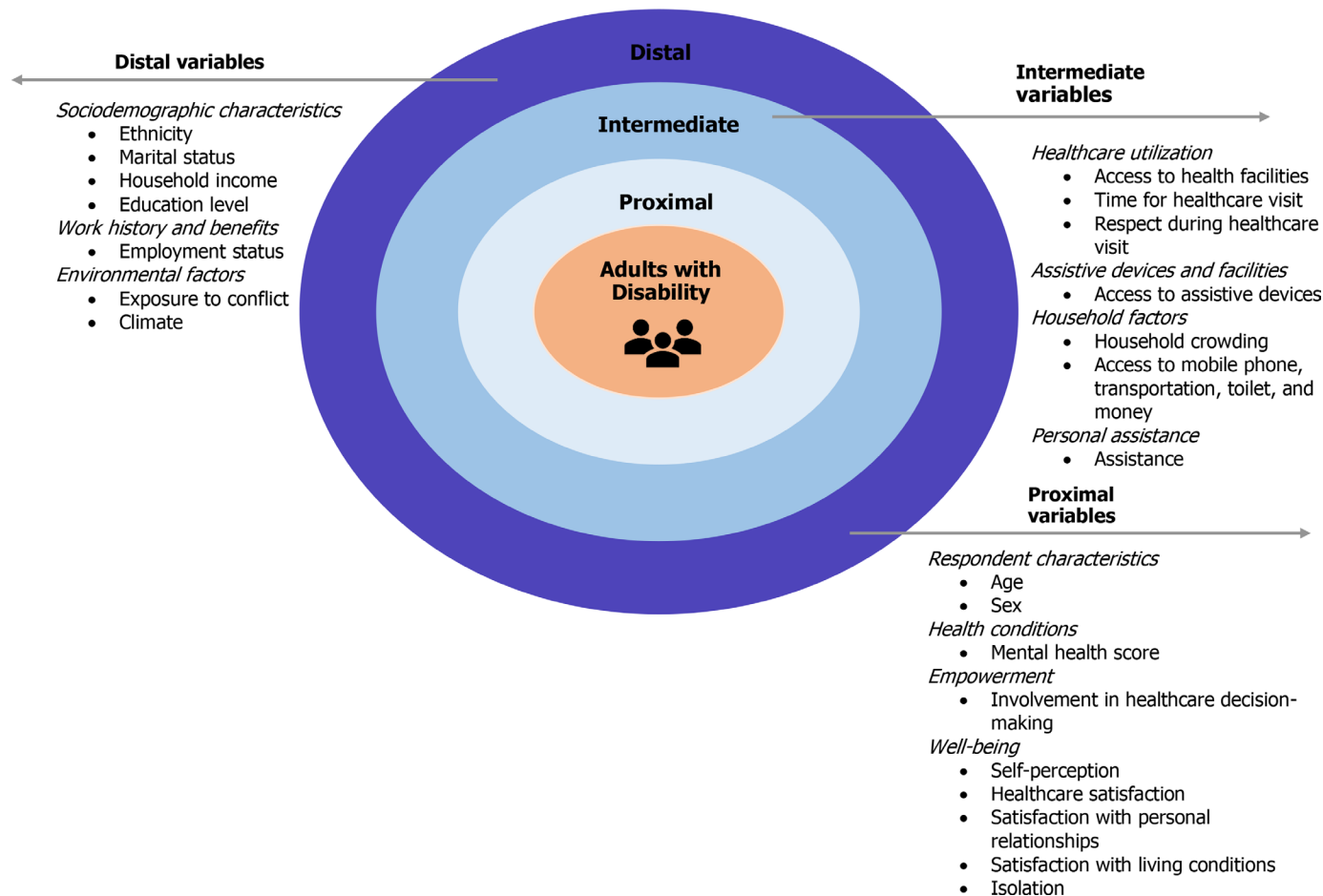
We ascertained disability type by mapping 47 questions related to functional disability in Module 4000 of the MDSA 2019 into seven disability domains based on the WHO Disability Assessment Schedule 2.0. Categorising the disabilities into domains allowed us to explore the characteristics and determinants of different disability types. The seven domains are: cognition and communication, mobility, self-care, getting along with people, life activities, participation in society and body functions (figure 1 shows a summary of these domains, while online supplemental table 1 details the questions that comprise the domain definitions).

For each individual, disability severity was estimated using a Rasch composite score that was derived using Item Response Theory.<sup>8</sup> This method was devised by WHO technical consultants and ranged from 0 (no disability) to 100 (high disability). In the current study, the process was as follows. For each individual, a sum score ranging from 5 to 25 was calculated for each domain. For example, for the cognition and communication domain, the sum score was the total of the ratings for the five questions related to the domain, which were rated on a scale of 1 (no problem at all) to 5 (extreme or cannot do at all) (online supplemental table 1). Based on standard cut-offs suggested by the WHO, this sum score was dichotomised into two categories: no or mild versus MSD. A sum score less than the average sum for that domain was designated no/mild disability severity and a score greater than the mean was designated MSD. This categorisation was used in order to investigate the characteristics and determinants of high disability burden (ie, MSD) for each domain.

### Determinants of disability

The conceptual framework we used for assessing the determinants of disability is shown in figure 2. This framework was developed based on questions from the MDSA 2019 and the literature.<sup>8</sup> Variables assessed included the following: distal (basic) level (ethnicity, marital status, household income tertile, household education level, employment, conflict status, rurality and climate), intermediate (community) level (access to health facilities, time for healthcare visit, respect during healthcare visit, access to mobile phone, internet, transportation, toilet, money, assistive devices, household crowding, peer support, assistance and proximal (immediate) level (age, gender, involvement in healthcare decision-making, mental health score, self-perception, relationship satisfaction, satisfaction with living conditions, isolation and healthcare satisfaction).

Respondent age was categorised for analysis. Conflict status was derived from a previously published conflict



**Figure 2** Conceptual framework for assessing disability determinants. Based on the Model Disability Survey of Afghanistan 2019 Final Report.<sup>8</sup> (Colour Image).

classification of provinces and grouped as minimal, moderate or severe.<sup>12</sup> Average household income was reported by respondents as a continuous variable and transformed into low-income, middle-income or high-income tertile. The presence of health conditions were reported as yes/no and similar families of health conditions were grouped together in order to facilitate identification of comorbidities. Overall, healthcare rating, health system responsiveness variables (wait times, respect, communication, decision-making, privacy, ease of use and cleanliness) and quality of life in the past 30 days were rated on a scale of 1 (very good) to 5 (very bad). Responses were grouped into very good/good, neutral and bad/very bad. Similarly, satisfaction was rated as 1 (very satisfied) and 5 (very dissatisfied), and this was grouped into very satisfied/satisfied, moderate and dissatisfied/very dissatisfied.

### Statistical analysis

Descriptive statistics stratified by disability domain were undertaken. Continuous variables were reported as medians and their corresponding IQRs. For categorical variables, we reported the row frequency, proportion and 95% CIs for the proportion. We conducted equity analyses of the proportion of adults with MSD in each domain

by household income tertile, household education level, age, gender, rurality, employment status, ethnicity and conflict status, and present results as figures.

To identify the drivers of high disability burden for each domain, we used multivariable hierarchical logistic regression. Separate models were used for each disability domain. The outcome variable for each model was high disability burden (MSD) versus low disability burden (no/mild disability) in the domain. A stepwise trilevel modelling approach was used. First, bivariable relationships between each exposure and outcome variable were assessed. Exposure variables that were significantly associated with a high disability burden at  $p < 0.20$  were retained for the multivariable model. Second, using backward elimination model building, the retained variables were entered into multivariable models at three hierarchical levels (distal, intermediate and proximal).<sup>13</sup> Exposure variables with  $p < 0.1$  were retained in the final model. ORs and their corresponding 95% CIs were reported for variables included in the final models. Multicollinearity was assessed using a variance inflation factor cut-off of three or higher.

Further details on the hierarchical model building approach and framework for the determinants are



available elsewhere.<sup>10</sup> SAS V.9.4 and R software were used for analysis.<sup>14 15</sup>

### Patient and public involvement

Stakeholders involved in Afghanistan's healthcare system and disability policy were engaged in the process of survey design, sampling and implementation, and translation. A stakeholder consultation was held in July 2019 with representatives from government, advocacy groups and non-governmental organisations (NGOs). Further consultations occurred from July 2018 to April 2019, including with the WHO. Afghans with disability in urban and rural areas of Kabul and Parwan, respectively, were involved in providing feedback on the survey tool. Male and female Afghans in each province were recruited to conduct the interviews.<sup>10</sup>

## RESULTS

### Descriptive characteristics

There were a maximum of 12781 respondents with valid data by disability type. Among those reporting on disability in cognition and communication, 37.9% had MSD; this prevalence was 35.7% for mobility, 24.6% for self-care, 35.9% for getting along with people, 41.2% for life activities, 39.1% for participation in society and 35.6% for body functions (table 1).

Crude prevalence with 95% CI for key demographics are listed in table 1 and online supplemental table 2), and select stratifiers are visually presented in figures 3 and 4 for two representative domains and in online supplemental figures 1–4 for the remaining four. Across most disability types, women, people of older age, those residing in rural areas, people who were uneducated, people of non-Pashtun ethnicities, people who were unmarried, people from low-income tertiles and non-working households had the highest levels of MSD. There were variations and exceptions by domain. For example, in the cognition and communication, self-care, body functions and mobility domains, age demonstrated a dose–response relationship with the prevalence of MSD increasing with age. This relationship was weaker for participation in society and is not observed for getting along with others and life activities. Across most domains, MSD was the highest in minimal conflict areas and in Central and Western regions of the country.

Among the MSD population, the most common comorbidities were renal, endocrine and gastrointestinal diseases followed by vision and hearing conditions (online supplemental figure 5). The last common comorbidity was communicable disease. This pattern was consistent across all disability domains.

Poorest overall reported health was found in the MSD population in cognition and communication, mobility, self-care and body functions domains (table 2). Receipt of inpatient care within the past 3 years did not vary across disability domains (range: 0.4%–0.8%). Within the past 12 months, inpatient care was needed but not received

most often among those with self-care and life activities disabilities (figure 5), although the 95% CIs overlapped. Across disability domains, the most common reason for being unable to receive inpatient care when it was needed was cost (range: 2.2%–3.0%).

Receipt of outpatient care within the last 12 months was lowest in the life activities domain (33.3%; 95% CI 30.5% to 36.2%) and about the same in all other domains (range: 42.4% to 46.7%) (table 2). The prevalence of outpatient care being needed but not received within the past 12 months was similar (range: 11.3% to 14.7%) (figure 5). Across domains, the most common reasons for being unable to receive outpatient care when it was needed was cost (range: 4.3% to 5.6%).

Online supplemental table 3 shows information on health system responsiveness, quality of life and health system satisfaction among the MSD population. Experiences of health system responsiveness were similar across all domains except for life activities, which were least likely to rate wait times, satisfaction and quality of life in the past 30 days poorly and most likely to rate respect, communication and privacy poorly.

### Determinants of MSD by domain

Table 3 is a visual summary of the results of multivariable analyses for the disability domains depicting protective and risk factors. Full results with point estimates and 95% CIs are available in online supplemental tables 2 and 3).

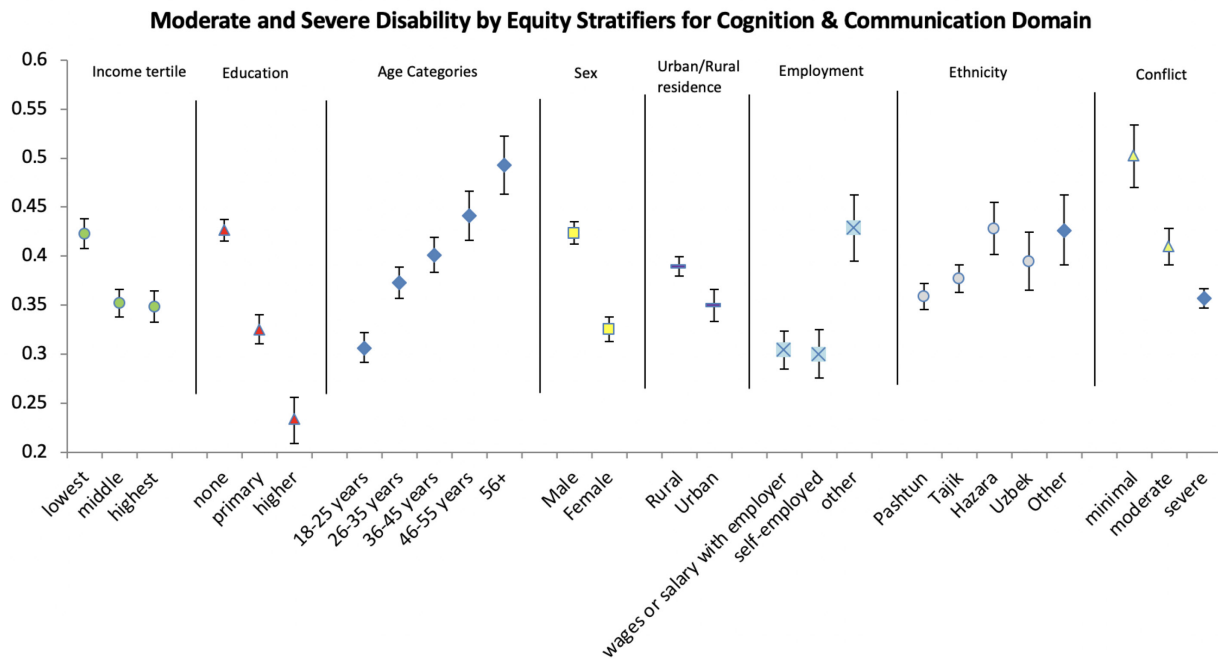
Factors to higher MSD in the cognition and communication domain were Pashtun ethnicity, being married or separated, having no education, not being employed, living in a rural region, receiving personal assistance, having access to assistive devices and female sex. Protective factors were being self-employed, living in a better climate, having access to health facilities, satisfaction with time and respect during healthcare visits, access to a mobile phone, internet, transportation, toilet, and money, peer support, greater mental health score, and satisfaction with relationships and living conditions (table 3; online supplemental table 4).

In the mobility domain, factors related to higher MSD were being married or separated, having no education, being unemployed, living in a rural area, receiving personal assistance, having access to assistive devices, being 56 years old or older and reporting greater healthcare satisfaction. Protective factors were living in areas with moderate or severe conflict status, having household income in the middle or highest tertile, living in a better climate, access to health facilities, satisfaction with respect during healthcare visits, access to a mobile phone, internet, transportation, and money, peer support, greater mental health score, positive self-perception, less isolation, and satisfaction with relationships and living conditions (table 3; online supplemental table 4).

In the self-care domain, risk factors for MSD were Pashtun ethnicity, being married or separated, living in a household in the middle or highest household income tertile, not being employed, living in an area with

**Table 1** Characteristics of adults with moderate or severe disability by domain, % (95% CI), n

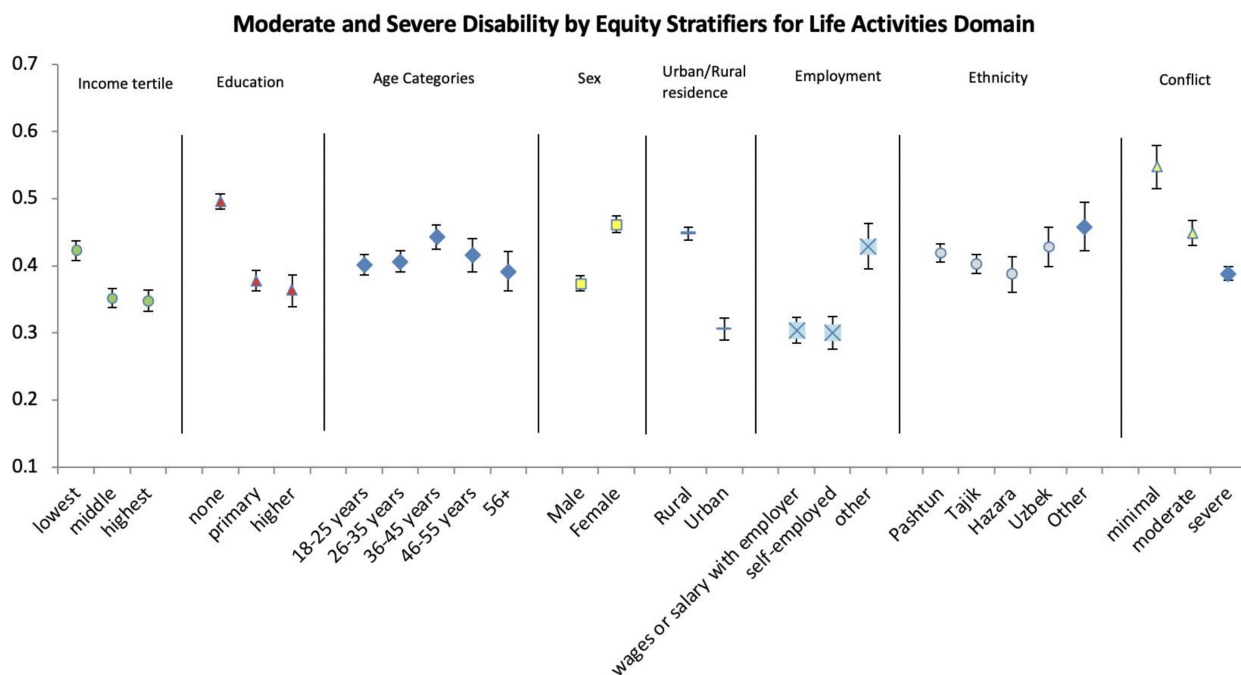
% (95% CI), n	Domain 1: cognition and communication N=12 770	Domain 2: mobility N=12 759	Domain 3: self-care N=12 781	Domain 4: getting along with people N=12 720	Domain 5: life activities N=2572	Domain 6: participation N=12 563	Domain 7: body functions N=12 682
<b>Moderate or severe disability</b>	37.9 (37.1 to 38.8) n=4844	35.7 (34.9 to 36.5) n=4555	24.6 (23.9 to 25.4) n=3145	35.9 (35.1 to 36.7) n=4565	41.2 (39.3 to 43.1) n=1060	39.1 (38.2 to 39.9) n=4910	35.6 (34.7 to 36.4) n=4511
<b>Gender</b>							
Male	32.5 (31.3 to 33.8) n=5758	28.9 (27.8 to 30.1) n=5743	24.9 (23.8 to 26.0) n=5755	32.3 (31.1 to 33.5) n=5748	37.4 (34.9 to 40.0) n=1457	31.6 (30.4 to 32.8) n=5727	32.2 (31.0 to 33.4) n=5691
Female	42.4 (41.2 to 43.5) n=7012	41.2 (40.1 to 43.4) n=7016	24.4 (23.4 to 25.4) n=7026	38.9 (37.7 to 40.0) n=6972	46.2 (43.2 to 49.2) n=1115	45.4 (44.2 to 46.6) n=6836	38.3 (37.2 to 39.5) n=6991
<b>Age group</b>							
18–25	30.6 (29.1 to 32.2) n=3610	22.9 (21.5 to 24.3) n=3604	19.6 (18.3 to 20.9) n=3611	33.8 (32.3 to 35.4) n=3599	40.2 (37.0 to 43.4) n=891	35.2 (33.7 to 36.8) n=3555	24.6 (23.2 to 26.1) n=3583
26–35	37.3 (35.7 to 38.9) n=3599	33.2 (31.7 to 34.8) n=3605	22.2 (20.8 to 23.6) n=3603	36.3 (34.7 to 37.9) n=3592	40.7 (37.1 to 44.4) n=718	39.4 (37.8 to 41.1) n=3539	32.9 (31.4 to 34.5) n=3584
36–45	40.1 (38.3 to 41.9) n=2897	38.5 (36.7 to 40.3) n=2885	25.2 (23.7 to 26.8) n=2899	37.0 (35.3 to 38.8) n=2876	44.3 (39.9 to 48.7) n=515	39.8 (38.0 to 41.6) n=2844	38.4 (36.7 to 40.2) n=2867
46–55	44.1 (41.6 to 46.6) n=1522	47.7 (45.2 to 50.2) n=1520	30.7 (28.4 to 33.1) n=1519	37.4 (35.0 to 39.9) n=1513	41.6 (35.6 to 47.8) n=267	40.4 (37.9 to 43.0) n=1496	46.3 (43.8 to 48.9) n=1507
56+	49.3 (46.4 to 52.2) n=1142	60.9 (58.0 to 63.7) n=1145	38.4 (35.6 to 41.3) n=1149	36.2 (33.4 to 39.1) n=1140	39.2 (32.1 to 46.8) n=181	46.5 (43.6 to 49.5) n=1129	56.8 (53.9 to 59.7) n=1141
<b>Rural residence</b>							
Rural	39.0 (38.0 to 39.9) n=9517	36.6 (35.6 to 37.5) n=9508	27.3 (26.4 to 28.2) n=9520	38.4 (37.5 to 39.4) n=9482	44.5 (42.3 to 46.7) n=1967	40.4 (39.4 to 41.4) n=9388	36.7 (35.7 to 37.7) n=9455
Urban	35.0 (33.3 to 36.6) n=3253	33.1 (31.5 to 34.8) n=3251	16.7 (15.5 to 18.1) n=3261	28.4 (26.9 to 30.0) n=3238	30.6 (27.0 to 34.4) n=605	35.1 (33.5 to 36.8) n=3175	32.2 (30.6 to 33.8) n=3227
<b>Ethnicity</b>							
Pashtun	35.9 (34.5 to 37.2) n=5043	35.7 (34.4 to 37.1) n=5031	29.6 (28.3 to 30.9) n=5037	36.7 (35.3 to 38.0) n=5028	41.9 (38.7 to 45.1) n=948	39.5 (38.2 to 40.9) n=4998	36.3 (35.0 to 37.7) n=4996
Tajik	37.7 (36.3 to 39.1) n=4481	36.6 (35.2 to 38.0) n=4480	21.5 (20.4 to 22.8) n=4492	34.3 (32.9 to 35.7) n=4457	40.2 (37.0 to 43.6) n=892	37.0 (35.6 to 38.5) n=4381	34.7 (33.3 to 36.1) n=4459
Uzbek	39.4 (36.5 to 42.4) n=1090	33.7 (30.9 to 36.6) n=1088	20.6 (18.2 to 23.1) n=1088	38.6 (35.7 to 41.6) n=1083	42.8 (36.9 to 48.9) n=271	42.1 (39.2 to 45.2) n=1070	36.0 (33.2 to 38.9) n=1086
Hazara	42.8 (40.1 to 45.4) n=1370	34.3 (31.8 to 36.9) n=1373	18.0 (16.0 to 20.2) n=1377	35.1 (32.6 to 37.7) n=1371	38.7 (33.4 to 44.4) n=315	39.0 (36.4 to 41.6) n=1345	35.3 (32.7 to 37.9) n=1364
Other	42.6 (39.1 to 46.2) n=767	35.8 (32.4 to 39.3) n=768	27.6 (24.5 to 30.9) n=768	37.9 (34.5 to 41.5) n=762	45.8 (37.6 to 54.3) n=144	44.0 (40.4 to 47.6) n=750	36.0 (32.6 to 39.6) n=758



**Figure 3** Moderate and severe disability by equity stratifiers among adults in Afghanistan for the cognition and communication domain. Similar pattern observed for the getting along with others and body functions domains.

moderate conflict status, living in a rural region, satisfaction with time during healthcare visits, receiving personal assistance and having access to assistive devices. Protective factors were living in an area with better climate, respect during healthcare visits, access to a mobile phone, transportation, toilet, and money, peer support, greater mental health score, positive self-perception, relationship satisfaction, and less isolation (table 3; online supplemental table 4).

In the getting along with people domain, risk factors for MSD were Pashtun ethnicity, having no education, being separated, living in a rural region, having access to assistive devices and reporting healthcare satisfaction. Protective factors were being self-employed, living in an area with severe conflict status, living in a better climate, access to health facilities, respect during healthcare visit, access to a mobile phone, internet, transportation, toilet, and money, peer support, being 56 years old or older, greater



**Figure 4** Moderate and severe disability by equity stratifiers among adults in Afghanistan for the life activities domain. Similar pattern observed for the mobility, self-care and participation in society domains.

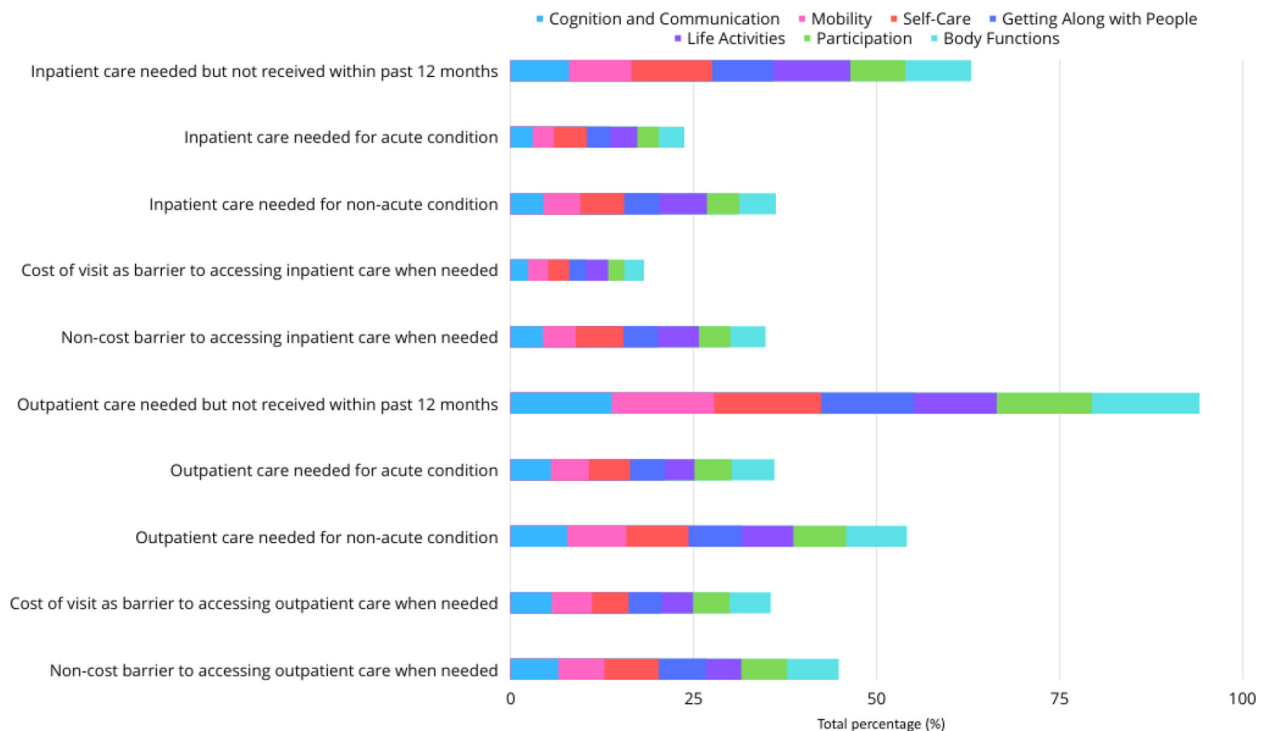
**Table 2** General healthcare utilisation patterns of adults with moderate or severe disability by disability domain, N(%)

	Domain 1: cognition & communication N=4844	Domain 2: mobility N=4555	Domain 3: self-care N=3145	Domain 4: getting along with people N=4565	Domain 5: life activities N=1060	Domain 6: participation N=4910	Domain 7: body functions N=4511
Overall health rating good or very good	67.8 (66.5–69.1) n=3285	64.3 (62.8–65.6) n=2927	68.2 (66.6–69.9) n=2146	72.8 (71.5–74.1) n=3324	78.5 (75.9–80.9) n=832	71.0 (69.7–72.3) n=3486	63.4 (62.0–64.8) n=2861
Overall health rating moderate	21.8 (20.6–23.0) n=1055	24.1 (22.9–25.4) n=1100	20.4 (19.0–21.8) N=641	19.3 (18.1–20.4) n=879	16.9 (14.7–19.3) n=179	19.5 (18.4–20.6) n=957	24.7 (23.4–26.0) n=1114
Overall health rating bad or very bad	10.1 (9.3–11.0) n=491	11.4 (10.5–12.3) n=517	11.2 (10.2–12.4) n=353	7.7 (6.9–8.5) n=350	4.6 (3.5–6.1) n=49	9.3 (8.5–10.1) n=456	11.7 (10.7–12.6) n=526
Location of last health system use within the past 3 years							
Private*	38.9 (37.5–40.3) n=1884	40.3 (38.9–41.7) n=1835	38.4 (36.7–40.1) n=1208	37.6 (36.2–39.1) n=1718	34.9 (32.0–37.9) n=370	38.6 (37.2–39.9) n=1893	40.3 (38.9–41.8) n=1820
Public†	31.3 (30.0–32.6) n=1516	31.7 (30.4–33.1) n=1444	30.1 (28.5–31.8) n=948	31.4 (30.1–32.8) n=1434	25.3 (22.7–28.0) n=268	31.3 (30.1–32.7) n=1539	31.5 (30.2–32.9) n=1421
Location of inpatient care received within the past 3 years							
Hospital	23.7 (22.6–25.0) n=1150	24.9 (23.6–26.1) n=1132	28.2 (26.7–29.9) n=888	23.9 (22.7–25.2) n=1091	24.4 (21.9–27.2) n=259	23 (21.8–24.2) n=1130	26.5 (25.3–27.9) n=1197
Rehab facility	1.9 (1.5–2.3) n=92	1.9 (1.5–2.3) n=85	3.4 (2.8–4.1) n=107	2.4 (2.0–2.9) n=109	5.1 (3.9–6.6) n=54	1.7 (1.3–2.1) n=82	2.3 (1.9–2.8) n=104
Long-term care facility	1.5 (1.2–1.9) n=72	1.4 (1.1–1.8) n=62	2.1 (1.7–2.7) n=67	1.3 (1.0–1.7) n=58	2.3 (1.5–3.4) n=24	1.1 (0.9–1.5) n=55	1.6 (1.2–2.0) n=71
Location of outpatient care within the last 12 months							
Private*	25.8 (24.6–27.1) n=1250	26.9 (25.6–28.2) n=1226	23.5 (22–25) n=738	23 (21.7–24.2) n=1048	18.8 (16.5–21.3) n=199	24.7 (23.5–26.0) n=1214	26 (24.8–27.3) n=1174
Public†	18.2 (17.2–19.4) n=884	19.1 (17.9–20.2) n=868	18.6 (17.3–20.0) n=585	18.6 (17.5–19.8) n=849	14 (12.0–16.2) n=148	19 (17.9–20.1) n=932	19.2 (18.1–20.4) n=868

\*Private: doctor's office, private clinic or healthcare facility, private hospital, private rehabilitation facility, charity or church-run clinic or hospital, or traditional healer such as a mullah (priest).

†Public: public clinic or healthcare facility, public hospital, or public rehabilitation facility.





**Figure 5** Healthcare utilisation patterns of adults with moderate or severe disability by disability domain, (%) (Colour Image). Acute conditions include diarrhoea, fever, influenza, headaches, cough and other. Non-acute conditions include communicable disease, maternal or perinatal disease, nutritional deficiency, neurological condition, musculoskeletal condition, psychiatric condition, sleep condition, chronic conditions, such as diabetes and heart disease, and injury. Non-cost-related barriers include transportation issues, negative experience and inadequate healthcare provider resources.

mental health score, positive self-perception, greater satisfaction with relationships and living conditions, and less isolation (table 3; online supplemental table 5).

Factors related to a higher odds of MSD in the life activities domain were having no education, not being employed, living in a rural region and receiving personal assistance. Protective factors were living in a better climate, access to health facilities, satisfaction with time during healthcare visit, access to a mobile phone and transportation, being between 26 and 35 years old or older than 46 and having a greater mental health score (table 3; online supplemental table 5).

In the participation domain, risk factors for MSD were having no education, being married or separated, not being employed, living in an area with moderate or severe conflict status, living in a rural region, receiving personal assistance and having access to assistive devices. Protective factors were living in an area with better climate, access to health facilities, respect during healthcare visit, access to a mobile phone, internet, transportation, toilet, and money, peer support, being 46 years old or older, greater mental health score, greater satisfaction with living conditions, and less isolation (table 3; online supplemental table 5).

Finally, for the body functions domain, risk factors for MSD were Pashtun ethnicity, being married or separated, having no education, not being employed, living in a region with moderate conflict status, living in a rural region, receiving personal assistance, access to

assistive devices, being 46 years old or older, female sex and greater healthcare satisfaction. Protective factors included living in a better climate, access to health facilities, satisfaction and respect with healthcare visit, access to a mobile phone, internet, transportation, toilet, and money, peer support, greater mental health score, positive self-perception, and satisfaction with relationships and living conditions (table 3; online supplemental table 5).

## DISCUSSION

### Statement of principle findings

Our analysis presents several important findings. First, MSD was at public health crisis levels or beyond in most functional domains, reaching upwards of 40% prevalence in six out of seven domains. There were notable differences in the determinants and healthcare utilisation patterns for different disability types. For example, we found that people with MSD in the life activities domain had the least needs and rated their health as good most often. People with MSD in the self-care domain had the most healthcare needs, particularly for acute medical problems and rated their overall health as bad most often along with the body function and mobility domains. The strongest associations with MSD were seen with women and older adults with cognition and communication and mobility disabilities, people with no education with mobility disabilities, those in rural areas and in poverty

**Table 3** Summary of multivariable analysis association between distal, intermediate and proximal variables and MSD among all domains\*

	Cognition and communication	Mobility	Self-care	Getting along with people	Life activities	Participation	Body functions
Distal (basic) factors							
Ethnicity							
Pashtun	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Tajik							
Uzbek							
Hazara							
Other							
Marital status							
Never Married	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Married							
Separated, Divorced, or Widowed							
Household income tertile							
Lowest	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Middle							
Highest							
Household education level							
None	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Primary							
Higher							
Employment							
Wages or salary with employer	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Self-employed							
Not employed							
Conflict status							
Minimal	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Moderate							
Severe							
Rurality							
Urban	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Rural							
Climate: ease of living in climate							
Intermediate (community) factors							
Access to health facilities							
Satisfaction with time spent for healthcare visit							
Respect during healthcare visit							
Mobile phone access (Ref: no)							
Internet access (Ref: no)							
Greater access to transportation							

Continued

Table 3 Continued

	Cognition and communication	Mobility	Self-care	Getting along with people	Life activities	Participation	Body functions
Greater access to toilet							
Greater access to money							
Higher household crowding							
Greater peer support							
Assistance (Ref: no)							
Any access to assistive devices (Ref: none)							
Proximal (immediate) factors							
Age							
18–25 years old	Ref	Ref	Ref	Ref	Ref	Ref	Ref
26–35 years old							
36–45 years old							
46–55 years old							
56+ years old							
Female sex (Ref: male)							
Greater involvement in healthcare decision-making							
Greater mental health score							
Positive self-perception							
Greater relationship satisfaction							
Greater satisfaction with living conditions							
Little isolation							
Greater healthcare satisfaction							

\*Green indicates a protective factor (multivariate OR<1), orange indicates a risk factor (multivariate OR>1).

with self-care disabilities, people who were not employed with mobility and body function disabilities and Pash-tuns with self-care disabilities. Audio and visual, as well as renal, endocrine and GI comorbidities are high among Afghans with MSD, with the former being most common with the body function domain and the latter being high with cognition and communication, mobility and body function disabilities. Living in a region with moderate or severe conflict status was sometimes associated with a lower risk of MSD, especially for the mobility domain, and other times was associated with a higher risk of MSD, especially for the participation domain. Healthcare costs were overall cited as the most common reason for why patients with MSD were unable to seek inpatient care—particularly for self-care and life activities disabilities—and outpatient care—particularly for cognition and communication, mobility and body function disabilities. Finally, with respect to health system responsiveness, Afghans

with MSD rated wait times poorly most often overall, especially by people with mobility and body function disabilities. People with participation disabilities were most often dissatisfied with the health system.

### Comparison with other literature

Compared with the 2016–2017 Afghan Living Conditions Survey, we observed a significant prevalence of MSD in sensory, mobility, self-care, cognition and communication domains (prevalence range between 0.5% and 1.5% vs 7.5% and 35%, respectively). It is difficult to compare findings of disability type with the 2005 NDSA because it used different definitions for the disability domains. For example, their physical disability domain included mobility, whereas we defined mobility as its own disability domain. Noh *et al*<sup>16</sup> analysed data from 31 343 households across 34 provinces in Afghanistan and similarly found that cognition and communication and self-care were

associated with healthcare access; however, in contrast to our findings, they did not find an association for mobility and body functions.

With respect to our equity analysis, Trani and Barbou-des-Courieres<sup>17</sup> found that disabled persons in Afghanistan had a higher use of healthcare facilities, and that disability was associated with older age, unemployment and lower education. Studies in other countries and regions have reported similar findings with respect to our equity analysis. In South Africa, Maart *et al*<sup>18</sup> reported an overall disability prevalence of 9.7%, with the prevalence of severe disability being higher in semirural areas compared with urban areas. In the neighbouring country of Iran, Soltani *et al*<sup>19 20</sup> report a disability prevalence of 13 per 10000 based on 2011 census results, with a higher prevalence among men and older ages. We found that age had a positive dose–response relationship, which intuitively makes sense as there are several processes related to ageing that can contribute to the development and exacerbation of disabilities. To further identify factors that interact with age, Salinas-Rodriguez *et al*<sup>21</sup> investigated disability among older adults (defined as aged 50 years old or greater) in low-income and middle-income countries (China, Ghana, India, Mexico, Russia and South Africa) and found that 15.3% had moderate disability and 8.0% had severe disability. Lower education and socioeconomic status were associated with severe disability. They also identified common comorbid conditions among older adults with severe disability: angina, arthritis, asthma, cataracts, chronic obstructive pulmonary disease (COPD), depression, diabetes, frailty, sarcopenia and mild cognitive impairment.

### Implications and future research

Our findings suggest that improving community-level determinants such as experience of care and access to healthcare can address high disability burden. Hashemi *et al*<sup>22</sup> developed a useful framework based on their meta-synthesis of 41 studies exploring barriers to primary healthcare access experienced by people with disabilities in low-income and middle-income countries. They classified barriers as three types: cultural/attitudinal barriers, informational barriers and practical/logistical barriers. For example, in our study, community-level determinants such as differences in mobile phone and internet access can be considered informational barriers, and these digital determinants of health are important for awareness of humanitarian assistance availability and access to information. Attitudinal barriers are relevant for clinicians. Healthcare professionals in Afghanistan reflect a medical model in their attitudes towards persons with disability.<sup>23</sup> There is a need to integrate a stronger understanding and awareness of disability and rehabilitations practices for healthcare professionals by incorporating these themes early on in their careers during their education and training stages. Our findings related to macro determinants reflect that empowerment and satisfaction with various areas of one's life are integral to addressing

the high burden of disability. As such, clinicians should take a biopsychosocial approach to patient care considering the structural determinants of health; for example, taking extra steps to ensure patients feel heard and making clinics accessible for patients with mobility issues. With respect to individual determinants, it may be that moderate or severe conflict status regions receive more attention and support from the government and NGOs often resulting in a lower risk of MSD. This points to the importance of access and aid as protective factors for people with MSD.

On a broader policy level, there is a need for an evidence-based public health policy approach that centres the social determinants of health to design prevention programmes, modify interventions and develop enabling environments that help severely disabled adults to preserve their autonomy, dignity and social participation.<sup>24</sup> Governments should promote a community-based approach to education campaigns that increase awareness of and destigmatise different types of disabilities.<sup>25</sup> Schools and employment need to become more accessible to people with a variety of disabilities, as being uneducated and not employed was almost universally associated with MSD.<sup>21 26</sup> Our findings demonstrate that investing in individual well-being, community engagement and healthcare responsiveness can result in tangible decreases in the risk of self-reported MSD; this requires a cross-sectoral and collaborative approach involving donors and funders, government, international bodies, local leaders, NGOs and civil society.<sup>21 27</sup> Afghanistan's National Disability Prevention and Physical Rehabilitation Strategic Plan (2017–2020) should be updated to reflect emerging needs of persons with disability. Given the recent Taliban takeover, the importance of continued dialogue with Taliban appointed health leaders cannot be understated. The Taliban government in Afghanistan has not been recognised by the international community and as such, donor funds for the World Bank-administered Afghanistan Reconstruction Trust Fund are currently being withheld.<sup>3</sup> Other routes of providing financial support for health services to continue in Afghanistan including funding national and international NGOs within Afghanistan, WHO and UNICEF.<sup>3 28</sup> Dialogue with the Taliban government should emphasise the need for a strong and well compensated health workforce including community health workers (both men and women) and midwives, benefits of girls and women's education, highlighting mental health, disability, and non-communicable diseases as emerging priorities, maternal and child health, routine immunisation, COVID-19 vaccination and adolescent health.<sup>29–31</sup>

There is a dearth of research investigating the needs of persons with different disability types.<sup>32 33</sup> Future research should further explore the experiences that people with different disabilities have in various facets of their life; this will help guide effective strategising and programming by the government, NGOs and healthcare system. Our study provides preliminary targets for developing and testing



effective interventions that decrease MSD. More consistent high-quality data, monitoring and trend analysis will help guide interventions and monitor progress.

### Strengths and limitations of the study

Strengths and limitations of the MDSA have been previously described in detail elsewhere.<sup>8</sup> Strengths include the use of a standardised and evidence-informed instrument for disability data collection. Our sample is nationally representative, which permitted estimates of the country as a whole. Our analysis is thorough in terms of investigating various types of disabilities and respondent characteristics across sectors (healthcare, finance, education, empowerment and more). We also used hierarchical modelling which decreased the number of covariates at each level of analysis (distal, intermediate and proximal) and thus ensured that important predictive factors were adequately captured. Finally, we used the latest definitions and standards from the WHO for assessing disability that considers disability not only a physical phenomenon, but one that involves environmental features.<sup>6</sup>

Several limitations should be recognised in considering these findings. While we have compared trends in disability overtime, the MDSA is a cross-sectional survey and uses different questions than NDSA 2005 to estimate the disability continuum. Selection bias arising from respondents who agreed to participate is a possibility due to the response rate of 78.7%<sup>9</sup>; although some key geographies and populations that are often inadequately represented in surveys were adequately represented in our sample (eg, urban vs rural proportions were 25.5% and 74.5%, respectively, and there was approximately equal male–female representation), other marginalised populations were not (eg, Kuchi nomads). Some subanalyses had low sample sizes thus limiting our ability to make inferences; however, our sample size overall is respectable with over 14000 households despite ongoing insecurity, harsh geography and transportation difficulties in Afghanistan. Recall bias is a possibility particularly in questions around respondent utilisation and experience with healthcare within the past 3 years.

### CONCLUSION

Disability in Afghanistan is quite high, with over 35% of the population having a disability in most domains. Risk factors for MSD include being unmarried, unemployed and living in a rural setting. Protective factors include higher education level, easier climate conditions, greater feelings of respect during healthcare visits, greater self-rated mental well-being and self-perception, little isolation, greater peer support, and greater relationship and living condition satisfaction. Importantly, access to a variety of tools such as health facilities, internet, mobile, transportation, money were also protective factors for MSD. Healthcare needs and utilisation differed by type of disability, with people with MSD in the self-care domain

having the most healthcare needs and people with MSD in the life activities having the least.

In order to effectively address MSD in Afghanistan, targeted interventions based on an individual's disability type and context are critical. We call on Afghanistan's long-term donors, humanitarian actors and the new government to take the issues of disability in Afghanistan seriously and to plan for and prioritise high-impact interventions for these disadvantaged populations in order to attain the country's SDG targets.

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### REFERENCES

- 1 UN (United Nations) General Assembly. Resolution adopted by the general assembly on 25 September 2015 -- transforming our world:

- the 2030 agenda for sustainable development. Seventieth session. A/RES/70/1. 2015. Available: [https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A\\_RES\\_70\\_1\\_E.pdf](https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf)
- 2 World Health Organization. A universal truth: no health without a workforce. Geneva (Switzerland), Available: [https://www.who.int/workforcealliance/knowledge/resources/GHWA-a\\_universal\\_truth\\_report.pdf](https://www.who.int/workforcealliance/knowledge/resources/GHWA-a_universal_truth_report.pdf)
  - 3 Salehi AS, Akseer N, Bhutta ZA, *et al.* The women and children of Afghanistan need urgent assistance. In: *The BMJ Opinion*. 2021. Available: <https://blogs.bmj.com/bmj/2021/09/08/the-women-and-children-of-afghanistan-need-urgent-assistance/>
  - 4 Shah J, Karimzadeh S, Al-Ahdal TMA, *et al.* COVID-19: the current situation in Afghanistan. *Lancet Glob Health* 2020;8:e771–2.
  - 5 Ashraf Ghani HE. The lancet COVID-19 commission. Available: <https://covid19commission.org/statements-from-unga-2020-a-1-angola-34at4> [Accessed 1 May 2021].
  - 6 World Health Organization. Disability and health. Available: <https://www.who.int/news-room/fact-sheets/detail/disability-and-health> [Accessed 1 May 2021].
  - 7 Handicap International. National disability survey in Afghanistan. Lyon (France) Handicap International; 2006.
  - 8 The Asia Foundation. Model disability survey of Afghanistan 2019. San Francisco (CA), Available: [https://pdf.usaid.gov/pdf\\_docs/PA00Z3TKR.pdf](https://pdf.usaid.gov/pdf_docs/PA00Z3TKR.pdf)
  - 9 United Nations Department of Economic and Social Affairs. Convention on the rights of persons with disabilities (CRPD) article 25 – health. Available: <https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/article-25-health.html> [Accessed 1 May 2021].
  - 10 Islamic Republic of Afghanistan Central Statistics Organization. Afghanistan living conditions survey 2016–2017. Report no.: 978-9936-8050-7-1. Kabul (Afghanistan) European Union; 2018.
  - 11 World Health Organization, The World Bank. Model disability survey (MDS) survey manual. Geneva (Switzerland), Available: <https://apps.who.int/iris/bitstream/handle/10665/258513/9789241512862-eng.pdf;jsessionid=2CFBEF1C5310D3DD1FBFE6AE093AC676?sequence=1>
  - 12 Akseer N, Rizvi A, Bhatti Z, *et al.* Association of exposure to civil conflict with maternal resilience and maternal and child health and health system performance in Afghanistan. *JAMA Netw Open* 2019;2:e1914819.
  - 13 Victora CG, Huttly SR, Fuchs SC, *et al.* The role of conceptual frameworks in epidemiological analysis: a hierarchical approach. *Int J Epidemiol* 1997;26:224–7.
  - 14 SAS Institute Inc. SAS 9.3. Cary, NC, USA,
  - 15 R Core Team. R foundation for statistical computing. In: *R: A language and environment for statistical computing*. Vienna, Austria, 2022.
  - 16 Noh J-W, Im Y-M, Kim K-B, *et al.* Digital and economic determinants of healthcare in the crisis-affected population in Afghanistan: access to mobile phone and socioeconomic barriers. *Healthcare (Basel)* 2021;9:506.
  - 17 Trani J-F, Barbou-des-Courieres C. Measuring equity in disability and healthcare utilization in Afghanistan. *Med Confl Surviv* 2012;28:219–46.
  - 18 Maart S, Amosun S, Jelsma J. Disability prevalence-context matters: a descriptive community-based survey. *Afr J Disabil* 2019;8:512.
  - 19 Soltani S, Khosravi B, Salehiniya H. Prevalence of disability in Iran. *Iran J Public Health* 2015;44:1436–7.
  - 20 Soltani S, Hafshejani AM, Salehiniya H. Trend of disability prevalence in Iran: an evidence to improve disability data. *J Res Med Sci* 2015;20:531–2.
  - 21 Salinas-Rodríguez A, Rivera-Almaraz A, Scott A, *et al.* Severity levels of disability among older adults in low- and middle-income countries: results from the study on global ageing and adult health (SAGE). *Front Med (Lausanne)* 2020;7:562963.
  - 22 Hashemi G, Wickenden M, Bright T, *et al.* Barriers to accessing primary healthcare services for people with disabilities in low and middle-income countries, a meta-synthesis of qualitative studies. *Disabil Rehabil* 2020;1:14.
  - 23 Armstrong J, Ager A. Perspectives on disability in Afghanistan and their implications for rehabilitation services. *Int J Rehabil Res* 2005;28:87–92. 10.1097/00004356-200503000-00013 Available: <https://doi.org/10.1097/00004356-200503000-00013>
  - 24 Banks LM, Mearkle R, Mactaggart I, *et al.* Disability and social protection programmes in low- and middle-income countries: a systematic review. *Oxf Dev Stud* 2017;45:223–39.
  - 25 Eleweke CJ, Rodda M. The challenge of enhancing inclusive education in developing countries. *Int J Incl Educ* 2002;6:113–26.
  - 26 Mizunoya S, Mitra S, Yamasaki I. Disability and school attendance in 15 low- and middle-income countries. *World Development* 2018;104:388–403.
  - 27 Essar MY, Hasan MM, Islam Z, *et al.* COVID-19 and multiple crises in Afghanistan: an urgent battle. *Confl Health* 2021;15:70.
  - 28 Ahmad A, Rassa N, Orcutt M, *et al.* Urgent health and humanitarian needs of the afghan population under the Taliban. *Lancet* 2021;398:822–5.
  - 29 Bhutta ZA, Akseer N, Dalil S, *et al.* Afghanistan is at a crossroads again – preventing a descent into chaos. The BMJ Opinion, 2021. Available: <https://blogs.bmj.com/bmj/2021/08/19/afghanistan-is-at-a-crossroads-again-preventing-a-descent-into-chaos/> [accessed 24 Nov 2021].
  - 30 Mohd Saleem S, Shoib S, Dazhamyar AR, *et al.* Afghanistan: decades of collective trauma, ongoing humanitarian crises, taliban rulers, and mental health of the displaced population. *Asian J Psychiatr* 2021;65:102854.
  - 31 Casebolt MT. Barriers to reproductive health services for women with disability in low- and middle-income countries: a review of the literature. *Sex Reprod Healthc* 2020;24:100485.
  - 32 Tripney J, Hogrebe N, Schmidt E, *et al.* Employment supports for adults with disabilities in low- and middle-income countries: a campbell systematic review. *Res Soc Work Pract* 2019;29:243–55.
  - 33 Jagoe C, McDonald C, Rivas M, *et al.* Direct participation of people with communication disabilities in research on poverty and disabilities in low and middle income countries: a critical review. *PLoS One* 2021;16:e0258575.