

## Review

# Disability Identification Instruments in Low- and Lower-Middle-Income Countries: A Literature Review of Prevalence, Populations, and Characteristics

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## Abstract

International agreements require reducing and eliminating the exclusion faced by persons with disabilities. Achieving this goal depends on having reliable data on persons with disabilities, yet a wide variety of instruments are used to identify who is counted as disabled. This literature review aims to investigate different approaches to disability identification in terms of the prevalence rates they produce, the population they capture, and their defining characteristics. We searched five databases and identified fifteen studies conducted in an international development context. The results show that prevalence estimates and populations vary considerably across instruments. We inductively identify four main approaches to disability identification and discuss key characteristics of each. The results reiterate that there is no ‘gold standard’ for identifying disability; there are multiple conceptualizations of what disability is, each reflected in different instruments and assumptions. Promoting greater reflexivity amongst practitioners can foster transparency and accountability in data collection and use.

**Keywords:** disability data; Washington group questions; categorization; prevalence; literature review; low- and lower-middle income countries

## 1. Introduction

Disability is commonly understood as a multidimensional phenomenon arising from the interaction between individuals with impairments and the social, environmental, and institutional contexts in which they live. Its meaning and boundaries vary considerably across contexts and conceptual frameworks [1]. Disability is conceptualized in multiple ways—including medical, charity, spiritual, social, human-rights, or ecological models. Each of these paradigms highlights different causes and solutions, and influences how (and why) we identify which part of the population is—and is not—disabled. As a result, different conceptualizations of disability lead to different approaches to identifying and measuring it. Measurement instruments do not merely capture disability; they operationalize particular understandings of what disability is.

A variety of instruments are used to identify and categorize human beings as disabled, all based on one or more different conceptualizations of what disability is. The Washington Group Short Set of questions—which asks respondents whether they have difficulty seeing, hearing, walking, remembering, with self-care, and communicating—and



Academic Editor: Daniel Mont

Received: 6 January 2026

Revised: 31 March 2026

Accepted: 14 April 2026

Published: 16 April 2026

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its variations [2–4] are an example of an instrument used to identify disability in a population. Alternative approaches to categorizing persons as disabled include variations in a subjective question (e.g., asking respondents, “Do you have a disability?”), clinical diagnoses of conditions considered disabling, assessments of functioning, or inquiries into participation, among many others.

Development organizations and international agencies are increasingly paying attention to the needs of persons with disabilities. International frameworks such as the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) and the Sustainable Development Goals (SDGs) call for reducing and eliminating the exclusion faced by persons with disabilities. Most recently, in early 2025, the international disability community presented the Amman-Berlin Declaration on Global Disability Inclusion, declaring that endorsers would “strengthen our efforts to gather data and evidence on the situation of persons with disabilities and on disability-inclusive international development cooperation as well as humanitarian action” [5] (p. 3). These and many more global and local declarations provide a strong impetus for disability data collection within the development agenda, as data disaggregation by disability is increasingly considered necessary to achieve inclusive action [3].

Effective design, monitoring, and resource allocation towards disability-inclusive development require clarity on who is identified as disabled. Yet, there is no consensus on how disability should be identified and categorized. This lack of consensus is compounded by the fact that disability is conceptualized in multiple ways, and that different instruments operationalize different dimensions of the concept [6]. In addition, there is increased debate on how best to collect data and which instrument serves this purpose best, taking into account the low-resource settings and cultural diversity in which many non-governmental organizations (NGOs) and international agencies operate. These elements contribute to a lack of information and evidence on the effectiveness of disability-inclusive development [7,8].

So far, the relative strengths and weaknesses of different disability identification instruments have been described in isolated studies [9–12], often in global Northern contexts. Most of these studies have examined and compared instruments at the individual study level, often focusing on one or a few instruments. What is missing is a systematic synthesis that maps the broader range of instruments and assesses how they differ and overlap. We lack a consolidated overview of the advantages and limitations of the main types of instruments, and clear criteria indicating under which conditions specific instruments are most suitable for use in practice and policy in the context of international development.

This literature review examines comparative studies of disability identification instruments in low and lower-middle income countries (LMIC) contexts. It asks: how do different approaches to identifying and categorizing disability compare in terms of the prevalence rates, captured populations, and reported suitability for research, policy, and practice?

## 2. Materials and Methods

A literature review was chosen as the approach for this study, as the purpose is to identify available evidence in the literature, summarize results, identify research gaps, and assess the size and scope of the available literature. A protocol is available from the authors upon request.

For studies to be included, they had to meet several criteria. Included studies were peer-reviewed articles for which a full-text version was available in English. All studies had to be original research comparing two or more instruments for identifying disability in the same population, which discuss the strengths and weaknesses of the different instruments, either explicitly or implicitly.

The year 2011 was chosen as the point of departure, as this was the year the first World Report on Disability was published, a catalyst to urging further implementation of the UNCRPD. This report concluded that “a lack of rigorous and comparable data on disability and evidence on programmes that work often impedes understanding and action” [13] (p. 263). This review concentrates on populations in or from LMIC contexts because these are the settings where international agencies and NGOs frequently operate and disability data are most limited. We, therefore, included studies conducted in LMICs, as classified by the World Bank in 2025 [14], as well as studies carried out in higher-income countries that focused on populations originating from LMICs (e.g., refugees) in humanitarian aid contexts. This allowed us to examine how these instruments perform across populations with different social and cultural understandings of disability. We excluded articles that were limited to studying a specific impairment (e.g., visual impairment), as these do not cover the breadth of the concept of ‘disability’, and articles that only discussed one instrument for categorizing disability.

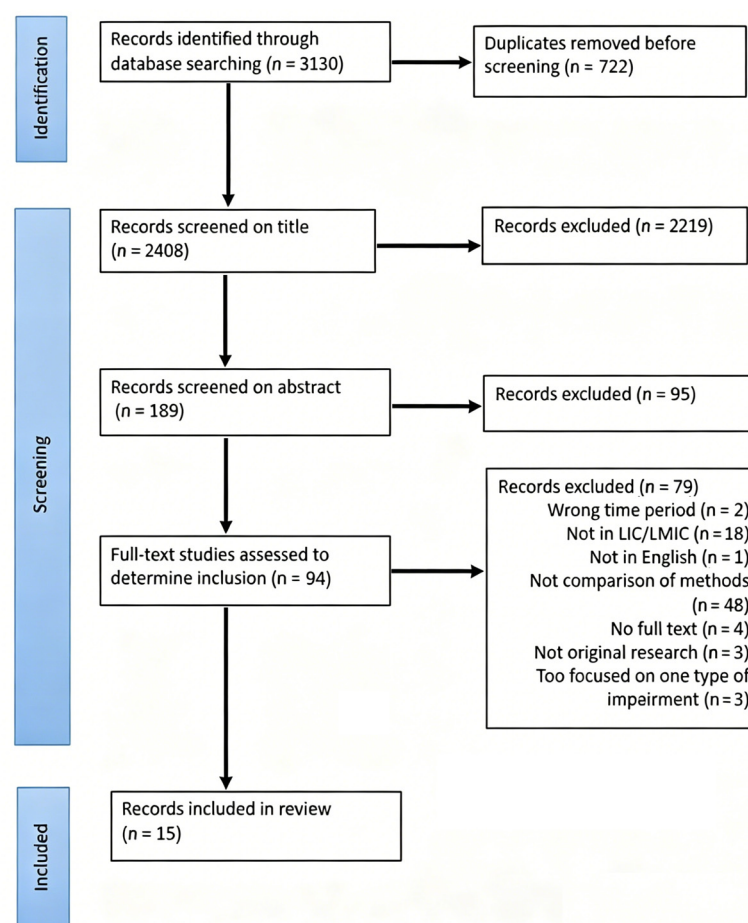
The search was conducted in May 2025. Searches were conducted in bibliographic databases (WorldCat, Scopus, Web of Science, and Google Scholar), supplemented by targeted searches of relevant sources, including the International Centre for Evidence in Disability website. An initial search was conducted in PubMed; however, this yielded predominantly clinical and biomedical studies that fell outside the scope of this review. PubMed was therefore excluded from the final set of databases searched. Given the declining accuracy of Google Scholar, the studies in the first 10 pages were included for review.

As there are few studies that compare two or more measures of disability, a broad array of search terms was used to ensure none were missed. The search terms ‘disability’, ‘disability data’ or ‘impairment’ were combined using the Boolean AND, with one or more of the terms ‘measur\*’, ‘Washington Group’, ‘WGSS’, ‘inclusion’, ‘direct question’, ‘UNCRPD’, ‘SDG’, ‘categori\*’, and ‘classification’ (see Table 1). Originally, the authors had planned to also search for additional terms such as ‘clinical’, ‘strength’, ‘weakness’, ‘measure’, and ‘self-report’, but these returned too many studies reporting on physical/medical strengths and weaknesses of individuals with disabilities or impairments, clinical trials, or physical assessments. These search terms were therefore excluded. Broad search terms were used in order to maximize sensitivity to comparative original studies. Searches were filtered for English language and publication date 2011 and beyond. Although filtering for English language studies is a clear limitation in a review focused on the Global South, disability as a concept is often untranslatable. Translating non-English articles without correct cultural understanding might lead to linguistic incompatibility and mistranslation of study results.

During the identification of studies, records were entered into Rayyan, an app for conducting systematic reviews and scoping studies [15]. Over the course of the search, we identified 3130 articles for inclusion, of which 722 were then removed as duplicates. The remaining 2408 articles were screened based on title. Subsequently, 2219 articles were excluded: 3 because they were not located in low and lower-middle income countries (LIC/LMIC) as defined by the World Bank, and the rest because they were not on the topic. The remaining 189 articles were screened by abstract; 95 articles were further excluded, as they did not fit our criteria. Then, 94 articles were read fully, after which 79 were excluded, because they neither focused on LIC/LMIC settings nor on populations originating from LIC/LMICs, and/or they did not compare two or more disability identification methods. The remaining 15 articles were included in this review. This process is demonstrated in Figure 1. Screening was done by the first author; any doubtful cases were discussed with the other author until a consensus was reached.

**Table 1.** Search strategy used in electronic databases.

| #  | Search Strategy                                 | Database                                        |
|----|-------------------------------------------------|-------------------------------------------------|
| 1  | disability AND measure AND Washington Group     | WorldCat, Scopus, Google Scholar                |
| 2  | measuring AND disability AND inclusion          | WorldCat, Scopus                                |
| 3  | measur* AND impairment AND WGSS                 | WorldCat, Scopus                                |
| 4  | disability data AND WGSS                        | WorldCat, Scopus, Web of Science                |
| 5  | disability data AND Washington Group            | WorldCat, Scopus, Web of Science                |
| 6  | washington AND group AND measur* AND impairment | Scopus                                          |
| 7  | disability AND measure AND direct AND question  | Scopus                                          |
| 8  | uncrpd AND data disability                      | Scopus, Web of Science                          |
| 9  | sdg AND data AND disability AND method          | Scopus                                          |
| 10 | disability data AND LMIC                        | Web of Science, Google Scholar                  |
| 11 | washington group AND measur* AND impairment     | Web of Science                                  |
| 12 | disability AND measure AND direct question      | Web of Science, Google Scholar                  |
| 13 | <i>Searched entire database</i>                 | International Centre for Evidence in Disability |
| 14 | categoris* AND disability                       | Scopus                                          |
| 15 | categor* AND disabil*                           | Scopus                                          |
| 16 | clinical AND washington AND group               | Scopus                                          |
| 17 | disability AND classification AND method        | Google Scholar                                  |

**Figure 1.** Flow Chart of included articles.

The first author did a thorough reading of the studies and recorded the study location, population, and instruments used in the study. Where studies reported prevalence and population overlap of two or more instruments, the details were extracted and analyzed to detect and describe patterns consistently across the studies. Inductive thematic content analysis was used as the analytic approach, with the specific instruments being the unit of observation. In the first step, we noted per study which instruments were used, prevalence data (if any), and key points that the authors make about the instruments. Next, in order to make further analysis easier, the specific instruments were clustered together based on similar features. This resulted in the development of four main clusters of instruments. Going forward, segments were coded in an iterative process; the main themes being the characteristics (i.e., perceived strengths and weaknesses) of the various (clusters of) instruments.

### 3. Results

In this section, we first present the fifteen included studies. We then look at the overall prevalence and population patterns that were observed across the various studies. Following that, we analyze how these instruments can be grouped into different clusters of disability identification instruments based on their intended use and other characteristics.

#### 3.1. Studies Included

The fifteen studies included in this review represent twelve original data sets: studies 6 and 7 and studies 12–14 analyze overlapping samples. Table 2 summarizes the publications, including authors, year, country, study population, and the disability identification instruments used. The studies span a range of contexts—from small samples of 161 respondents to national censuses involving thousands. Collectively, they employ more than twenty-three standardized and non-standardized instruments to identify disability, with all studies incorporating a version of the Washington Group questions. Full instrument details are provided in Appendix A.

**Table 2.** The studies included in the review.

| # | Author(s) (Year)                | Location of Study                             | Study Population                                                                    | Disability Identification Instruments Used                                                                                                                                                                                                                                                                                                                                                       |
|---|---------------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Baart et al. (2025) [16]        | Turkey                                        | 1555 adult Syrian refugees in Istanbul                                              | <ul style="list-style-type: none"> <li>Washington Group Short Set (WGSS)</li> <li>WGSS-Enhanced (SS-E)</li> <li>Subjective question: Two-question sequence asking about limitations due to disability or illness</li> </ul>                                                                                                                                                                      |
| 2 | Baart et al. (2023) [17]        | Cambodia                                      | 422 respondents aged 4–91                                                           | <ul style="list-style-type: none"> <li>Washington Group Short Set (WGSS)</li> <li>Subjective question: “what type of disability do you have?”</li> </ul>                                                                                                                                                                                                                                         |
| 3 | Boggs et al. (2022) [18]        | The Gambia, Cameroon, Chile, India and Turkey | Children (Cameroon, India, Turkey), adults 35+ (The Gambia) and adults 50+ (Chile). | <ul style="list-style-type: none"> <li>Washington Group Short Set (WGSS)</li> <li>WGSS-Enhanced (SS-E)</li> <li>Washington Group Extended Set (WGES)</li> <li>Washington Group Child Functioning Module (CFM)</li> <li>Clinical assessment (Tumbling E single optotype; Otoacoustic Emissions Testing; Rapid Assessment of Musculoskeletal Impairment; Mini Mental State Examination)</li> </ul> |
| 4 | Dunne et al. (2022) [19]        | Zimbabwe                                      | 1920 children aged 24 months                                                        | <ul style="list-style-type: none"> <li>Washington Group Child Functioning Module (CFM)</li> <li>Malawi Development Assessment Tool (MDAT)</li> </ul>                                                                                                                                                                                                                                             |
| 5 | Emerson & Llewellyn (2025) [20] | 40 LMICs                                      | 45,370 adolescents (15–17 yrs) and 178,689 young adults (18–25 yrs)                 | <ul style="list-style-type: none"> <li>Washington Group Short Set (WGSS)</li> <li>WG Child Functioning Module (CFM)</li> </ul>                                                                                                                                                                                                                                                                   |

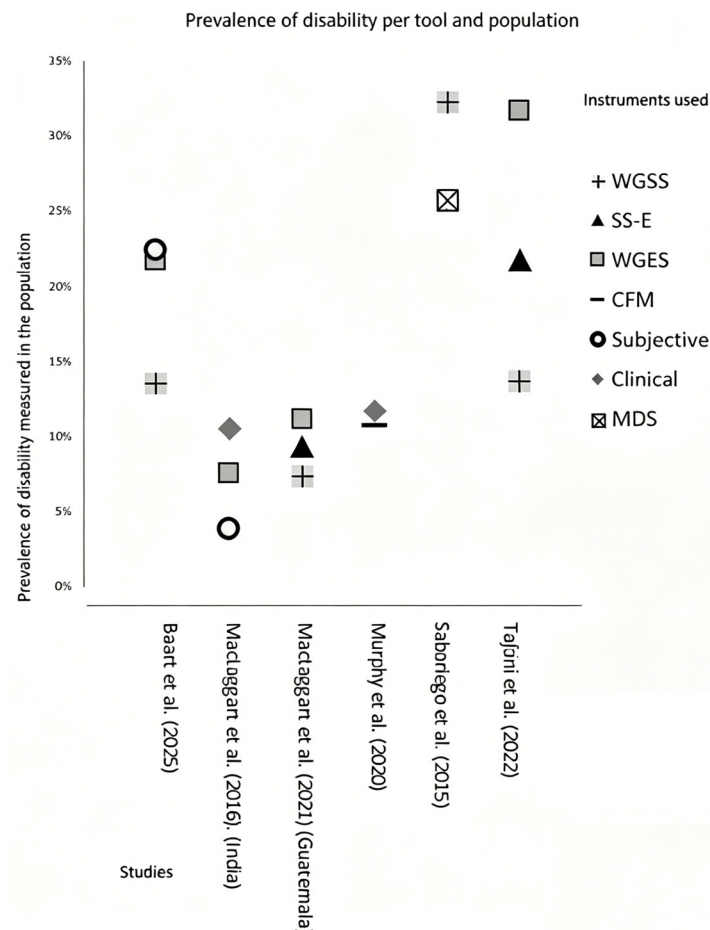
Table 2. Cont.

| #  | Author(s) (Year)              | Location of Study                                               | Study Population                                                            | Disability Identification Instruments Used                                                                                                                                                                                                                                                                                                                                                                     |
|----|-------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6  | Mactaggart et al. (2016) [21] | Cameroon and India                                              | Population-based survey of 3567 people in India and 3574 people in Cameroon | <ul style="list-style-type: none"> <li>• Washington Group Extended Set (WGES)</li> <li>• Clinical assessment (Adapted Rapid Assessment of Avoidable Blindness (RAAB); Otoacoustic Emissions Testing; Rapid Assessment of Musculoskeletal Impairment; Patient Health Questionnaire (PHQ9))</li> <li>• Subjective question: “Do you consider yourself to have a disability?” (India only)</li> </ul>             |
| 7  | Mactaggart et al. (2021) [22] | Cameroon, Guatemala, India, Maldives, Nepal, Turkey and Vanuatu | 53,000 adults from 7 countries                                              | <ul style="list-style-type: none"> <li>• Washington Group Short Set (WGSS)</li> <li>• Labor Force Survey Disability Module (LFS-DM)</li> <li>• WGSS-Enhanced (SS-E)</li> <li>• Washington Group Extended Set (WGES)</li> </ul>                                                                                                                                                                                 |
| 8  | Mörchen et al. (2019) [23]    | Paraguay                                                        | 999 patients visiting a rural satellite eye hospital                        | <ul style="list-style-type: none"> <li>• Washington Group Short Set (WGSS)</li> <li>• Washington Group Extended Set (WG-ES)</li> </ul>                                                                                                                                                                                                                                                                         |
| 9  | Murphy et al. (2020) [24]     | Malawi                                                          | 960 children attending preschool centers in Thyolo district                 | <ul style="list-style-type: none"> <li>• WG Child Functioning Module (CFM)</li> <li>• Malawi Development Assessment Tool (MDAT)</li> </ul>                                                                                                                                                                                                                                                                     |
| 10 | Sabariego et al. (2015) [25]  | Cambodia                                                        | Convenience sample of 500 adults in Kampong Thom and Kampot provinces       | <ul style="list-style-type: none"> <li>• Washington Group Short Set (WGSS)</li> <li>• Model Disability Survey (MDS)</li> </ul>                                                                                                                                                                                                                                                                                 |
| 11 | Simo Fotso et al. (2019) [26] | Cameroon                                                        | Secondary analysis of four census datasets                                  | <ul style="list-style-type: none"> <li>• Subjective question: “Has the person any chronic disease or any predominant handicap?”</li> <li>• Subjective question: “Is (Name) the victim of a handicap?”</li> <li>• Washington Group Short Set (WGSS)</li> <li>• Other screening instrument: asking about missing limbs, functioning and disorders</li> </ul>                                                     |
| 12 | Sprunt et al. (2017) [27]     | Fiji                                                            | 472 children aged 5–15 from special and mainstream schools                  | <ul style="list-style-type: none"> <li>• WG Child Functioning Module (CFM)</li> <li>• Clinical: (visual assessment, hearing assessment, Rapid Assessment of Musculoskeletal Impairment)</li> </ul>                                                                                                                                                                                                             |
| 13 | Sprunt et al. (2019) [28]     | Fiji                                                            | 472 children aged 5–15 from special and mainstream schools                  | <ul style="list-style-type: none"> <li>• WG Child Functioning Module (CFM)</li> <li>• Clinical: (visual assessment, hearing assessment, Rapid Assessment of Musculoskeletal Impairment; Intelligibility in Context Scale; Cambridge Neuropsychological Test Automated Battery)</li> </ul>                                                                                                                      |
| 14 | Sprunt & Marella (2021) [29]  | Fiji                                                            | 472 children aged 5–15 years special and mainstream schools                 | <ul style="list-style-type: none"> <li>• WG Child Functioning Module (CFM)</li> <li>• Learning and Support Needs (LSN) (does child need personal assistance, adaptations or assistive devices?)</li> <li>• Clinical: (visual assessment, hearing assessment, Rapid Assessment of Musculoskeletal Impairment; Intelligibility in Context Scale; Cambridge Neuropsychological Test Automated Battery)</li> </ul> |
| 15 | Tofani et al. (2022) [30]     | Italy                                                           | 161 adult migrants                                                          | <ul style="list-style-type: none"> <li>• Washington Group Short Set (WGSS)</li> <li>• WGSS-Enhanced (SS-E)</li> <li>• Washington Group Extended Set (WG-ES)</li> </ul>                                                                                                                                                                                                                                         |

### 3.2. The Prevalence of Disability in the Population

Individual studies have shown that the instrument used to identify disability influences the prevalence rate for disability in that population. Bringing together multiple studies, this review extends and systematizes this insight across diverse study contexts. We focused on the six studies included in this review that reported prevalence data using more than one instrument within the same population, i.e., the same people were assessed for two or more instruments [16,21,22,24,25,30]. The figure includes six studies in which multiple instruments were applied to the same population, allowing direct comparison of how different instruments produce different prevalence estimates. Each symbol represents

a prevalence estimate identified using a specific disability identification instrument within a study population. Visualizing the data (Figure 2) emphasizes and reinforces what each of the individual studies demonstrates separately: the relative measured prevalence of disability is highly dependent on the instrument used and the cut-off points applied. Mactaggart et al. assessed two separate populations in Cameroon and in India [21]. For this analysis, we have included the data from India. Mactaggart et al. also assessed the same questions in multiple countries; for this analysis, we chose the data set from Guatemala [22].



**Figure 2.** Prevalence of disability per instrument and study population [16,21,22,24,25,30].

The variation in prevalence is inherent to the instruments and what they intend to capture. Notably, the Washington Group Short Set (WGSS) consistently yields lower disability prevalence estimates when compared to the Washington Group Short Set—Enhanced (SS-E), the Washington Group Extended Set (WGES), or the Washington Group Child Functioning Module (CFM). These latter instruments incorporate the WGSS’s six core domains but add supplementary questions targeting psychosocial aspects. This discrepancy highlights the critical role of whether or not mental health is included in the assessment of disability, and reflects the fact that adding more domains to an instrument will be reflected in the prevalence, as this means more people will qualify for inclusion in the category.

The variation in prevalence, however, also demonstrates methodological inconsistency across studies. Mactaggart et al., for example, used the Washington Group Extended Set, but excluded four of the domains (pain, fatigue, anxiety, and depression) from the final analysis [21]. And where most used the Washington Group’s recommended guidelines for the disability cut-off, namely, to count as disabled anyone who reported ‘a lot of difficulty’ or ‘cannot do at all’ for one or more domains, Sabariego et al. used a different cut-off and

included anyone with at least two questions answered with ‘some difficulty’ in the category of the disabled [25]. This is reflected in the relative prevalence, with Sabariego et al.’s WGSS counting more people as disabled than the other studies. It is thus not only different instruments that affect the results but also the cut-off points as chosen by the researchers.

Additionally, the relative ranking of subjective questions fluctuates greatly across the studies. In Mactaggart et al.’s study, the subjective question is phrased as “Do you consider yourself to have a disability?”, resulting in a disability prevalence of 3.8% [21]; the Baart et al. study uses the phrase “Do you have any long-standing illness, disability or infirmity?” and has a prevalence of 22.4% [16]. This is partly due to varying populations and contexts, but most likely also due to the inherent variability and differing nuances in the questions. Our visualization shows that differences in how disability is defined and measured influence prevalence estimates, echoing earlier observations that “definitions, terminology, measurement, and instructions to respondents and enumerators matter for understanding disability prevalence” [31] (p. 275).

### 3.3. *Overlap in Disabled Populations Across Instruments*

An intuitive assumption is that differences in prevalence rates simply reflect that different instruments capture larger or smaller portions of the same population. Earlier research, however, suggests that this is not the case: different instruments often identify different individuals as disabled [32]. Of the studies included in this review, five explicitly examine population overlap across instruments [16,17,21,28,29], providing direct evidence for this claim.

Baart et al., in a study among self-identified persons with disabilities in Cambodia, found that only 91% of these individuals would be classified as disabled using the Washington Group Short Set [17]. In addition, they report only limited correspondence between functional difficulties and the corresponding impairments as self-identified by respondents. Specifically, the overlap is 69% for visual difficulty, 23% for hearing difficulty, 70% for walking difficulty, and 45% for difficulty remembering.

In a study of Syrian refugees in Turkey, Baart et al. observed that only 32% of persons categorized as disabled using the WGSS and a subjective question were consistently identified as disabled across instruments [16]. Similarly, Mactaggart et al. report limited overlap between the WGSS and clinical assessments: 33% of the individuals identified as disabled in Cameroon, and 45% of the people in India were classified as disabled by both approaches [21]. Sprunt and colleagues further demonstrated this discrepancy by cross-tabulating clinical assessments with the Child Functional Module. They found that a significant number of children without clinical impairments were nonetheless reported as having ‘a lot of difficulty/cannot do’, particularly in learning, remembering, and focusing, which are easily missed domains in one-time clinical assessments [28]. In another study, Sprunt and Marella compared Learning and Support Needs with the Washington Group’s Child Functioning Module (CFM) and a clinical assessment, noting that there is a group of children with high learning and support needs, but that would not be considered disabled based on the CFM or a clinical assessment of disability [29].

Together, these findings underscore a critical point: different disability identification instruments not only produce different prevalence rates but also classify distinct—and often only partially overlapping—populations as disabled. The specific choice of instrument, therefore, determines which segments of the population are included within the category of disability and which are excluded.

### 3.4. Clusters of Disability Identification Approaches

Across the included studies, more than twenty different instruments were used to categorize respondents as disabled. To synthesize these diverse approaches and facilitate analysis, we grouped them into four clusters. These clusters were not predefined but were derived inductively during the analysis, based on their understandings of disability and modes of implementation. Each group reflects a different way of conceptualizing disability and therefore uses a different logic of categorization. The clusters are:

1. **Functioning approaches:** Disability is understood as difficulties in performing everyday activities. These instruments ask respondents about limitations or difficulties in domains such as seeing, hearing, walking, remembering, or participation in the community. Examples include the Washington Group variations and the Model Disability Survey. Respondents report their own difficulties and can subsequently be placed on a spectrum ranging from no difficulties to severely disabled. The specific cut-off defining what counts as disabled depends on analyst-defined thresholds.
2. **Clinical approaches:** Disability is defined as the presence of an impairment or diagnosis. These approaches rely on standardized medical or psychological tests (e.g., vision or hearing tests and cognitive screening instruments), which vary per (potential) diagnosis. Here, the authority to categorize lies with the external professional conducting the assessment.
3. **Subjective question approaches:** Disability is treated as a matter of self-identity. Respondents are asked directly, for example, “Do you have a disability?” or “Are you limited by a long-standing health condition?” The categorization is based entirely on self-report, shaped by respondents’ own understandings of disability and the surrounding cultural or social context.
4. **Service-based approaches:** Disability is conceptualized as eligibility for, need of, and/or use of disability-specific services and support. These approaches identify individuals through administrative data (e.g., use of assistive devices, enrolment in special education programs, and recipient of government grants) or through questions about support needs. The categorization authority rests with external systems or providers.

Although the clusters of instruments were derived inductively from the reviewed studies, they also reflect the analytic approaches of different ways of considering disability. Functioning-based instruments reflect the ICF and social models of disability, as they define disability through limitations in everyday functioning. Clinical instruments are more likely to align with the medical model, viewing disability primarily as impairment or diagnosis to be detected at the individual level. Questions that ask persons to self-identify can emphasize and require self-definition, akin to an identity-based model of disability. Service-based instruments mirror welfare or administrative logics, where disability is constructed through eligibility for benefits or services. Disability identification instruments are not merely technical instruments, but are all rooted in distinct conceptual paradigms of disability, which shape who is counted and for what purpose.

These four clusters capture the major conceptual pathways through which disability has been operationalized in the studies included in this review: as activity limitation, impairment, identity, or service eligibility. While some instruments straddle more than one cluster, this typology provides a clear and practical framework for comparing how approaches to disability categorization function in research, policy, and practice.

### 3.5. Cluster Characteristics

Using thematic content analysis, we distilled the key characteristics for each cluster of disability categorization instruments from the included studies. These themes were derived inductively from the data rather than predefined in advance. The themes covered include:

- Population captured: what is the population that is identified as disabled using this cluster of instruments?
- Who assesses: is the respondent themselves or is an external ‘expert’ responsible for the identification of said respondent as disabled?
- Level of analysis: is the instrument intended to identify disability within a specific individual or is it intended for use in population-level surveys?
- Ease of implementation: is the assessment simple, low-cost, and easy to execute?
- Policy relevance: is the information produced by these instruments useful for designing and implementing policies and programs?
- (Ethical) considerations: what questions and ethical considerations should be considered when deciding on the use of these instruments?

One key finding is that only the subjective question allows an individual to self-identify as disabled. In all other cases, the categorization of an individual as abled or disabled is determined by a party external to the person being categorized: for most approaches, disability status is determined by the analyst or external assessor, who applies thresholds that may not be communicated to respondents. The inclusion or exclusion of individuals from the disability category may thus be based on criteria that are not transparent to those being categorized, and can be adjusted post hoc [17,25,29].

We also note differences in whether instruments are intended to measure disability across a population or whether instruments are intended to categorize a specific individual as being disabled. The Washington Group questions, for example, take a margin of error in ‘incorrectly’ identifying those with temporary difficulties [19]. This is not seen to be a problem as the questions are designed for population-level data disaggregation, where small inaccuracies do not substantially affect overall estimates [33]. By contrast, subjective questions, the clinical assessment, and the service-based assessment are intended to label a specific person as being abled or disabled, and can therefore be more suitable for assigning individual resources or targeting interventions [29]. We note that all instruments can be used at all levels and that this is done in practice, but care must be taken if an instrument is used at a level beyond their intent as mistakes can be made, such as development organizations using the Washington Group questions to determine individual access requirements [4], which could lead to error and (unintended) exclusion.

Another important aspect is whether the instruments are easy to implement for those collecting and providing the data. Some of the assessment instruments (e.g., Washington Group questions; subjective questions) consist of only a few questions, meaning they can be more easily integrated into existing surveys and take only a few minutes of time for both respondents and data collectors [22,30]. Others, such as clinical assessments and question sets such as the Model Disability Survey, can take a long time (30+ min) to carry out the assessment or to ask all the questions. In addition, they require specialized and trained staff to collect the data and perform the analysis [22,25,30]. This makes them resource- and time-intensive and thus less suitable for low-resource contexts or regular monitoring.

Different approaches also support different policy and programmatic purposes. For example, functioning-based instruments are useful for cross-cultural and over-time monitoring [19,21,26,29], whereas clinical assessments can identify specific health conditions and support referral to rehabilitation and interventions [30].

No instrument is universally suitable. For instance, the Washington Group questions as a stand-alone instrument are not appropriate for screening individuals in need of rehabil-

itation services and assistive products [18,21,25,28]. Clinical diagnoses are not appropriate to assign resources, as they do not assess broader functioning [18,19,29]. Subjective questions do not provide consistent data across time and culture due to untranslatable and/or stigmatizing wordings [23,27] and do not provide enough specific information to be useful for planning and prioritization [22]. Question sets with a posteriori analysis, such as the MDS, do not allow for referral of those with unmet needs to services [22] and may not be appropriate for cross-country comparison, given that the cut-off changes depending on the population [25]. Service-based instruments are not appropriate for international comparison and disaggregation, as they are dependent on the environment, policies, and resourcing [29].

Each approach also carries distinct (ethical) implications:

- Functioning instruments may reduce exclusion because they avoid stigmatizing language [16].
- Some variations of functioning instruments undercount psychosocial disabilities [16,20,22,30].
- Clinical instruments exclude those without formal diagnoses for any health or body structure issues, access to testing, or with impairments for which no clinical tests exist [21,27,28].
- Subjective questions may exclude those who do not (wish to) identify as disabled because of stigma or cultural understandings [26].
- Service-based approaches may omit individuals who are unable to access services or undercount those who function well in inclusive environments. Services are also dependent on policies and resourcing [29].
- Self-reported instruments risk over-reporting when financial incentives are involved [28].

At a broader level, some instruments—particularly clinical and subjective ones—are less aligned with the social and rights-based paradigm of disability as framed in the UN-CRPD. Others place the power to categorize in the hands of professionals or institutions, challenging the notion that individuals should self-identify as disabled. Finally, measurement choices may have political implications, as some approaches yield higher or lower prevalence estimates and can therefore serve strategic interests.

A summary of these findings is presented in Table 3.

**Table 3.** Characteristics of the four clusters.

| Cluster     | Population Captured                                                             | Who Assesses | Level of Analysis | Ease of Implementation                                                                                                                                                                                                | Policy Relevance                                                                                                                                                                                                                                                                                    | (Ethical) Considerations                                                                                                                                                                                                                                                                                       |
|-------------|---------------------------------------------------------------------------------|--------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Functioning | Respondents who state they have difficulties functioning in certain life areas. | External     | Population        | <ul style="list-style-type: none"> <li>• Can be low-cost</li> <li>• Short</li> <li>• Easy analysis</li> <li>• Some variations such as the MDS are resource-intensive and require trained analytical staff.</li> </ul> | <ul style="list-style-type: none"> <li>• Not appropriate for targeted interventions at individual level</li> <li>• Good for monitoring across countries and time if analysis is done similarly each time</li> <li>• Good for data disaggregation if analysis is done similarly each time</li> </ul> | <ul style="list-style-type: none"> <li>• Some variations may undercount psychosocial disability</li> <li>• Avoids the term “disability”</li> <li>• Can reflect the spectrum from no to severe impairments or difficulties</li> <li>• Criteria for categorization as disabled may not be transparent</li> </ul> |

Table 3. *Cont.*

| Cluster    | Population Captured                                                                                                                    | Who Assesses | Level of Analysis | Ease of Implementation                                                                                          | Policy Relevance                                                                                                                                                                                          | (Ethical) Considerations                                                                                                                                                                                                                                                                                                                                                                                           |
|------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Clinical   | Respondents who have a measurable impairment as assessed by the specific test undertaken.                                              | External     | Individual        | <ul style="list-style-type: none"> <li>Resource-intensive</li> <li>Requires trained clinical staff</li> </ul>   | <ul style="list-style-type: none"> <li>Useful for planning rehabilitation</li> <li>Less useful for assigning resources and developing policies as functional abilities within diagnoses differ</li> </ul> | <ul style="list-style-type: none"> <li>Reinforces medical model</li> <li>Power to categorize as disabled lies with authority figure (i.e., medical professional)</li> <li>Limited to tested impairments</li> <li>Excludes those who experience exclusion but have no 'diagnosis'</li> <li>Lack of instruments to measure psychosocial domains</li> <li>Tests/assessments may not be culturally relevant</li> </ul> |
| Subjective | Respondents who identify themselves with the term 'disability'                                                                         | Respondent   | Individual        | <ul style="list-style-type: none"> <li>Low-cost</li> <li>Short</li> </ul>                                       | <ul style="list-style-type: none"> <li>Not appropriate for monitoring across countries and time</li> <li>Provides little information for planning and prioritization of needs</li> </ul>                  | <ul style="list-style-type: none"> <li>Allows respondents to self-identify</li> <li>Excludes those who do not understand the question or feel stigma associated with disability</li> <li>Ignores co-morbidity</li> </ul>                                                                                                                                                                                           |
| Services   | Respondents who are already receiving services intended for persons with disabilities or who are identified as needing those services. | External     | Individual        | <ul style="list-style-type: none"> <li>Simple if data is already available in administrative systems</li> </ul> | <ul style="list-style-type: none"> <li>Asking about needs may be appropriate for resource planning</li> <li>Appropriate for monitoring across time if inclusion criteria are not changed</li> </ul>       | <ul style="list-style-type: none"> <li>Context-dependent</li> <li>In/exclusion criteria can be changed</li> <li>May exclude respondents who are not able to access services</li> <li>In an inclusive environment, may undercount those who might need services in any other place</li> </ul>                                                                                                                       |

#### 4. Discussion

This literature review examines how different instruments—such as the Washington Group questions—function as instruments for identifying and categorizing disability, including the power dynamics inherent in this process. It contributes to ongoing debates about the measurement of disability by synthesizing how different identification instruments conceptualize disability and how these conceptualizations shape who is counted as disabled. With this review, we aim to synthesize insights about the use and characteristics of different categorization instruments used, drawing from fifteen studies which compare two or more instruments to categorize people as disabled in low- and lower-middle-income countries.

Through this review, we identified over 23 specific instruments, clustered them into four main approaches, and outlined the key characteristics of each. Our meta-level analysis of these studies aligns with earlier research [6,31], confirming that the instrument used to categorize disability in research influences results, including disability prevalence rates and inclusion criteria. The findings underscore and emphasize that measurement choices are not merely technical but reflect different underlying models of disability, whereby each privileges certain experiences and excludes others. Each instrument captures different aspects of disability, leading to distinct demographic and health profiles among those identified [10,34,35]. In addition, some instruments include the option to employ different cut-off points between disability and non-disability, meaning that even when using the same instrument, the delineation between the two may vary. Where disability lies on a

continuum of abled–disabled will be context-dependent. This has practical implications for who is and is not identified as disabled.

Such variation is not inherently problematic—provided that researchers and other users of these instruments acknowledge the specific purpose and limitations of each instrument. Each instrument captures a particular dimension of disability. These dimensions might include, for example, individuals with a clinical diagnosis, those who self-identify as disabled, or those at risk of participation restrictions. This understanding suggests that striving for an objective ‘gold standard’ in quantitative disability measurement may be misguided [36]. Instead, the focus should shift toward reflexivity and transparency in instrument choice—acknowledging that each captures a particular dimension of disability shaped by theoretical and contextual assumptions. By making these choices transparent, we can enhance the validity of findings and foster more consistent and accountable research and policy practices.

Each approach to identifying disability has characteristics that make it suitable for certain purposes but not others. To support an informed reflection, we have developed criteria that clarify when and why a particular type of instrument may be appropriate (see Table 4). These criteria have been derived from the patterns identified in Table 3. Rather than prescribing a hierarchy, these criteria are intended to guide deliberate, context-sensitive decision-making. They represent a first step to helping researchers and policy makers make deliberate decisions, as the choice of instrument should be guided by the specific objectives, resources, and context of measurement. For a concise overview of instrument suitability by purpose, see Appendix B.

**Table 4.** Criteria for use of different disability identification approaches.

| Cluster             | Use When. . .                                                                                                                                                                                                                                                                                                                                                                                                                                     | Do Not Use When. . .                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Functioning         | <ul style="list-style-type: none"> <li>• Aim is monitoring of the population across countries or time (WG)</li> <li>• Surveys must be low-cost and quick (WG)</li> <li>• Stigma towards and misunderstanding of the label ‘disability’ might lead to exclusion of relevant parts of the population</li> <li>• In-depth analysis across severity levels is of interest</li> <li>• Time, resources, and analytic capacity are sufficient</li> </ul> | <ul style="list-style-type: none"> <li>• Goal is individual diagnosis, clinical intervention or service referral</li> <li>• Need to capture compensated impairments (e.g., corrected vision)</li> <li>• Need to capture nuanced psychosocial issues</li> <li>• Criteria for categorization need to be transparent to respondents</li> <li>• Aim is comparison of the population across countries or time (MDS)</li> </ul> |
| Clinical            | <ul style="list-style-type: none"> <li>• Purpose is to detect specific health conditions or diagnoses</li> <li>• Purpose is to refer to rehabilitation or clinical intervention</li> <li>• Resources and trained staff are available</li> <li>• Precision at individual level is needed</li> </ul>                                                                                                                                                | <ul style="list-style-type: none"> <li>• Goal is broad monitoring, policy planning or assigning of resources</li> <li>• Setting is low-resource</li> <li>• Psychosocial or functional limitations beyond diagnoses are important</li> <li>• Tests/assessments are not adapted to specific cultural context</li> </ul>                                                                                                     |
| Subjective question | <ul style="list-style-type: none"> <li>• Interest lies in self-identification</li> <li>• Resources are very limited</li> <li>• Identity (rather than prevalence) is the key focus</li> </ul>                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>• Comparability across contexts or time is required</li> <li>• Multiple and/or specific domains of functioning must be captured</li> <li>• Stigma makes self-reporting unreliable</li> <li>• Goal is service referral, monitoring or policy planning</li> </ul>                                                                                                                    |
| Services            | <ul style="list-style-type: none"> <li>• Reliable administrative data on service use and/or needs exist</li> <li>• Aim is resource planning or tracking beneficiaries</li> <li>• Low additional data-collection costs are preferred</li> </ul>                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>• True prevalence or unmet need must be estimated</li> <li>• Service eligibility rules are narrow, shifting, or exclude many people</li> <li>• International comparability is needed</li> <li>• Criteria for access to services are unclear or nontransparent</li> </ul>                                                                                                           |

Beyond these practical considerations, it is crucial to acknowledge that the act of categorization itself is not neutral. As Bowker & Leigh Star and Bennani remind us, classification systems are never merely technical tools but social and political constructions [37,38].

This is as true for the categorization of disability as it is for any other social category. The categorization of disability, like any social classification, is not neutral—it actively constructs what it claims to describe. Those who select and apply disability identification instruments and determine the cut-off between disabled and not-disabled should therefore take responsibility for using these instruments accurately and for being transparent about how their category is constructed.

The global origins of most disability measurement tools make this issue especially pertinent. Even though data gaps are largest in LMICs [39], many instruments for categorizing individuals as disabled are rooted in Western epistemologies [40]. This means that the categorization and quantification of disability in the South is often based on instruments and assumptions implemented by Northern specialists [41–43], presuming a universal understanding that may not hold in different cultural contexts. In addition, the concept of ‘disability’ is not universally translatable, further complicating application across cultural contexts [44]. Instruments may not fully reflect the lived reality and disability paradigms in the South, which may differ significantly [44–47], requiring increased reflection and transparency when choosing which instrument to use.

Taken together, these reflections underline that disability statistics are not only technical artifacts but also political acts of boundary-making. Understanding who is counted—and who is left out—requires attention not only to methodological design but also to the cultural, linguistic, and ethical assumptions embedded in the instruments themselves.

#### 4.1. Implications

The above means that future research should focus on three main avenues. First, understanding instrument differences in the demographic that is captured by the instrument. Understanding the exact demographic that is captured by, e.g., the WGSS as opposed to a clinical assessment, can help future researchers and development practitioners make more effective choices on which instrument to use to capture the population they aim to reach. An example could be whether certain instruments are more favorable towards including or excluding individuals by gender or age. Second, experimenting with combinations of instruments to better capture the multidimensional nature of disability: could combining a subjective question with the Washington Group questions better capture both those with difficulties functioning physically, as well as those who may have difficulty participating in society due to the (self)-label of being disabled? Third, disability studies and their funding structures should ensure that research is increasingly steered and conducted by disabled people from the Global South, addressing concerns about the mismatch between measurement instruments and the lived realities of those being categorized.

For praxis, the above proposes a reflection on the choices made when categorizing persons as abled or disabled: encouraging reflexivity at the design stage of data collection and documenting the rationale behind instrument selection. Acknowledging context and purpose, considering culture and politics, and recognizing potential consequences for the categorized persons provide opportunities to work in more transparent and consistent ways. This reflection could be reported in the methodology of any study to invite discussion and provide accountability. Including such reflections in the methodological sections of research publications would strengthen transparency and foster dialog about the implications of measurement choices.

#### 4.2. Limitations

Although this review focused on populations in or originating from low- and lower-middle-income countries, limiting inclusion to English-language articles may have affected the results, as relevant locally published research may have been excluded. In addition,

some studies were conducted in languages other than English, but the study results were published in English, leading to additional potential misunderstanding of the concept of disability as the words are translated back. However, given the conceptual subtlety of disability and the linguistic experience of the term itself [40,48] we concluded that relying on machine-translated articles would not adequately capture the necessary nuance, particularly as non-native speakers.

The criteria for included studies to be peer-reviewed, chosen to set quality standards, and ease access, also excluded the potentially relevant gray literature, particularly national disability reports and NGO publications. This would be valuable to investigate in the future. Screening was conducted by the first author, with uncertain cases being discussed with the second author. Double independent screening could strengthen the methodological rigor of such a study; however, this was not done, given the aim to compare approaches rather than evaluate the quality of the included studies. Any studies prior to 2011 were excluded to limit results, which means some relevant information could have been missed as well. Broad search terms were used to maximize sensitivity; however, additional terms, such as disaggregation, could have been used to identify additional studies. Nevertheless, the included studies cover a diverse range of countries, instruments, and research designs, providing a sufficiently broad evidence base to identify major trends and conceptual patterns in how disability is categorized. This suggests that the findings therefore offer a meaningful overview of current practices and highlight key areas where further empirical work is needed.

## 5. Conclusions

In this review, we grouped over 23 specific disability identification instruments into four main clusters: functional, clinical, subjective questions, and services. For each cluster, we detailed who performs the categorization, whether the instrument is designed for individual or population-level categorization, and other characteristics as highlighted across 15 studies. Finally, we translated these insights into practical criteria to guide researchers and data collectors in choosing appropriate methods. We note that there is no ‘gold standard’ for identifying disability, but multiple conceptualizations of what disability is, each translating into a different instrument to categorize individuals in the abled/disabled binary. Recognizing that each instrument reflects a particular way of understanding disability helps clarify that measurement is never neutral but shaped by underlying assumptions and purposes. We call for increased reflexivity amongst decision-makers.

Further research could develop the criteria for use into practical guidelines for practitioners and decision-makers, as well as reflect further on what the impact would be—financial, practical, personal, and political—when favoring one method of categorization over the other. In addition, future Southern-based studies could enhance the debate on how globally used disability identification instruments align or diverge from locally grounded approaches.

**Author Contributions:** Conceptualization, J.B. and W.E.; methodology, J.B. and W.E.; formal analysis, J.B.; data curation, J.B.; writing—original draft preparation, J.B.; writing—review and editing, J.B. and W.E.; visualization, J.B. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** No new data were created or analyzed in this study. Data sharing is not applicable to this article.

**Conflicts of Interest:** The authors declare no conflicts of interest.

## Disability Language/Terminology Positionality Statement

In this text, we use persons with disabilities to refer to the people; we use the terms disabled and non-disabled/abled to reflect the social categories constructed by those doing the labeling.

## Abbreviations

The following abbreviations are used in this manuscript:

|         |                                                                      |
|---------|----------------------------------------------------------------------|
| CFM     | Washington Group Child Functioning Module                            |
| LFS-DSM | Labor Force Survey Disability Module                                 |
| LIC     | Low-Income Countries                                                 |
| LMIC    | Low and Lower-Middle Income Countries                                |
| LSN     | Learning and Support Needs                                           |
| MDAT    | Malawi Development Assessment Tool                                   |
| MDS     | Model Disability Survey                                              |
| NGO     | Non-Governmental Organization                                        |
| SDG     | Sustainable Development Goals                                        |
| SS-E    | Washington Group Short Set Enhanced                                  |
| UNCRPD  | United Nations Convention on the Rights of Persons with Disabilities |
| WG      | Washington Group                                                     |
| WGES    | Washington Group Extended Set                                        |
| WGSS    | Washington Group Short Set                                           |

## Appendix A

**Table A1.** Description of included instruments.

| Instrument | Full Name                            | Developer                                                                     | Short Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------|--------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WGSS       | Washington Group Short Set           | Washington Group on Disability Statistics                                     | Six question sequence asking:<br>Because of a health problem, do you have difficulty (1) seeing, (2) hearing, (3) walking or climbing steps, (4) remembering or concentrating, (5) with self-care such as washing all over or dressing or (6) communicating?<br>Four possible responses follow each of the questions, namely: No, no difficulty; Yes, some difficulty; Yes, a lot of difficulty; Cannot do at all.                                                                |
| LFS-DM     | Labor Force Disability Survey Module | Washington Group on Disability Statistics & International Labour Organization | WGSS as above, as well as 4 additional questions to cover anxiety and depression:<br>How often do you feel worried, nervous or anxious?<br>Thinking about the last time you felt worried, nervous or anxious, how would you describe the level of these feelings?<br>How often do you feel depressed? Thinking about the last time you felt depressed, how depressed did you feel?<br>Answer options for anxiety and depression include how often and the extent of the feelings. |
| SS-E       | Washington Group Short Set Enhanced  | Washington Group on Disability Statistics                                     | Labor Force Survey Disability Module as above, plus 2 upper body function questions:<br>Do you have difficulty raising a 2-liter bottle of water or soda from waist to eye level? Do you have difficulty using your hands and fingers, such as picking up small objects, for example, a button or pencil, or opening or closing containers or bottles?<br>Answer options are the same as for WGSS.                                                                                |

Table A1. Cont.

| Instrument | Full Name                                      | Developer                                                                  | Short Description                                                                                                                                                                                                                                                              |
|------------|------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WGES       | Washington Group Extended Set                  | Washington Group on Disability Statistics                                  | Questions as above, but additional five questions to cover pain and fatigue. Questions cover how often and if yes, how much pain and fatigue respondent has.                                                                                                                   |
| CFM        | Child Functioning Module                       | Washington Group & UNICEF                                                  | Questionnaire on functioning in children, adapted to developmental stage. Includes 24 questions covering seeing, hearing, walking, self-care, speaking, learning, remembering, concentrating, behavior, socialization, and mood. Scoring as with the WGSS above.               |
| MDAT       | Malawi Development Assessment Tool             | University of Liverpool                                                    | For use in children. Assesses four domains: (1) gross motor coordination (36 items), (2) fine motor coordination (36 items), (3) social (30 items), and (4) language (36 items), with 138 items in the published version of the tool.                                          |
| n/a        | Subjective question                            | n/a                                                                        | Question: What type of disability would you say you have? Answer options were: Auditory, Intellectual, Physical, Visual, Speaking, or Multiple.                                                                                                                                |
| n/a        | Two question set                               | UK office for National Statistics                                          | 1. Do you have any long-standing illness, disability or infirmity?<br>2. Does this limit your activities in any way?                                                                                                                                                           |
| n/a        | Tumbling E single optotype                     | n/a                                                                        | Chart depicts E's which get increasingly smaller. People need to describe the direction of the E.                                                                                                                                                                              |
| n/a        | Snellen chart                                  | n/a                                                                        | Similar to tumbling E, but consisting of a variety of capital letters becoming increasingly smaller.                                                                                                                                                                           |
| n/a        | Otoacoustic Emissions Testing                  | n/a                                                                        | A specialized probe equipped with speakers and a microphone is placed in the ear canal, with the intent of picking up the sounds produced by the movement of outer hair cells.                                                                                                 |
| RAM        | Rapid Assessment of Musculoskeletal Impairment | Oxford University & International Centre for Evidence in Disability (ICED) | Six questions asking about misshapen body, difficulty using arms and legs or other parts of the body, need for mobility aids and convulsions or involuntary movement. If answering Yes to any question respondents is referred to clinical specialist for further examination. |
| MMSE       | Mini Mental State Examination                  | MF Folstein                                                                | Brief neurophysiological test                                                                                                                                                                                                                                                  |
| RAAB       | Rapid Assessment of Avoidable Blindness        | International Centre for Eye Health, LSHTM                                 | Population eye health survey that assesses prevalence and cause of vision impairment and blindness.                                                                                                                                                                            |
| PHQ9       | Patient Health Questionnaire                   | K Kroenke, RL Spitzer and JB Williams                                      | Three self-reported screening questions with a further six questions if screen is positive; measures frequency of depression.                                                                                                                                                  |
| n/a        | Subjective question                            | Developed for one context                                                  | Question: "Do you consider yourself to have a disability?"                                                                                                                                                                                                                     |
| MDS        | Model Disability Survey                        | World Health Organization and World Bank                                   | 60–120 min interview, covering socio-demographic characteristics; work history and benefits; environmental factors; functioning; health conditions and capacity; health-care utilization; and satisfaction, personality and well-being.                                        |
| 3RGPH      | Subjective question                            | n/a                                                                        | Question: "Has the person any chronic disease or any predominant handicap?"                                                                                                                                                                                                    |
| ECAM3      | Subjective question                            | n/a                                                                        | Question: "Is (Name) the victim of a handicap?"                                                                                                                                                                                                                                |
| DHS-MICS   | Subjective question                            | Cameroonian DHS                                                            | Question set, asking whether respondents is missing a body part; missing an extremity; with deformed limbs; can hardly see; can hardly hear; has behavioral disorders.                                                                                                         |

Table A1. Cont.

| Instrument | Full Name                                           | Developer                     | Short Description                                                                                                                                                                                                                                                                                                                                                |
|------------|-----------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LSN        | Learning and Support Needs                          | Developed for one context     | 3 questions:<br>1. "Compared with children of the same age, how much personal assistance at school does (child's name) require with any of the following tasks?<br>2. "Are there any adaptations to learning or assessment that you currently make for (child's name)?<br>3. "Is (child's name) currently using any of the following types of assistive devices? |
| ICS        | Intelligibility in Context Scale                    | McLeod, Harrison, & McCormack | Parent-completed questionnaire consisting of 7 items, to rate the degree to which children's speech is understood by different communication partners on a 5-point scale.                                                                                                                                                                                        |
| CNTAB      | Cambridge Neuropsychological Test Automated Battery | University of Cambridge       | Battery of subtests, intended to assess cognitive function.                                                                                                                                                                                                                                                                                                      |

## Appendix B

Table A2. Overview of instrument suitability by purpose.

| Purpose of Use                                   | Functioning                                                                                      | Clinical                                       | Subjective                                   | Services                                                                     |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------|
| Population monitoring & cross-country comparison | Well-suited, can be low-cost depending on the instrument, widely applicable                      | Not suitable                                   | Limited: prone to stigma/cultural bias       | Not suitable (criteria vary)                                                 |
| Clinical care & intervention                     | Not suitable for diagnosis                                                                       | Well suited for identifying health conditions  | Not suitable                                 | Not suitable                                                                 |
| Self-identification & empowerment                | Limited suitability: dependent on self-report                                                    | Not suitable                                   | Well-suited, aligns with self-identification | Not suitable                                                                 |
| Policy & administrative planning                 | Suitable for population level policy development and planning, not independent allocation        | Limited: suitable for planning health services | Not suitable                                 | Limited: suited where administrative data exist and criteria are transparent |
| In-depth analysis of functioning                 | Suitable at population level where it captures spectrum of disability and participation measures | Not suitable                                   | Not suitable                                 | Not suitable                                                                 |

## References

1. Cote, A.; Banks, M. *Global Disability Inclusion Report*; UNICEF: New York, NY, USA, 2025.
2. Duell-Piening, P. *Refugee Displacement, Disability and Human Rights; The Production, Processing and Power of Data*; Routledge: England, UK, 2025.
3. O'Reilly, C.F.; Jagoe, C. Disaggregation of Humanitarian Data by Disability: A Realist Evaluation of the Use of the Washington Group Questions to Support More Inclusive Practices. *J. Int. Humanit. Action* **2024**, *9*, 6. [CrossRef]
4. Robinson, A.; Nguyen, L.; Smith, F. Use of the Washington Group Questions in Non-Government Programming. *Int. J. Environ. Res. Public Health* **2021**, *18*, 11143. [CrossRef]
5. Global Disability Summit. Amman-Berlin Declaration on Global Disability Inclusion. 2025. Available online: <https://www.globaldisabilitysummit.org/resource/aman-berlin-declaration/>.
6. Cockburn, L.; Roberts, J.; Lee, S.; Nganji, J.; Ho, N.C.W.; Kuntjoro, A.; Mbibeh, L.; Sikapa, L.; Animbon, P.N.; Fru, S.; et al. Considerations When Asking about "Disability" in Disability Inclusive Research. *Disabil. Rehabil.* **2024**, *46*, 5114–5133. [CrossRef]

7. Goujon, N.; Devine, A.; Baker, S.M.; Sprunt, B.; Edmonds, T.J.; Booth, J.K.; Keffe, J.E. A Comparative Review of Measurement Instruments to Inform and Evaluate Effectiveness of Disability Inclusive Development. *Disabil. Rehabil.* **2014**, *36*, 804–812. [CrossRef] [PubMed]
8. Kuper, H.; Davey, C.; Banks, L.M.; Shakespeare, T. Trials and Tribulations of Collecting Evidence on Effectiveness in Disability-Inclusive Development: A Narrative Review. *Sustainability* **2020**, *12*, 7823. [CrossRef]
9. Amilon, A.; Christensen, M.L. Changing Disability Status and Changes in Health, Participation Restrictions and Activity Limitations in Denmark: Does the Choice of Measure Matter? *Scand. J. Disabil. Res.* **2025**, *27*, 15–29. [CrossRef]
10. Bourke, J.A.; Nichols-Dunsmuir, A.; Begg, A.; Dong, H.; Schluter, P.J. Measuring Disability: An Agreement Study between Two Disability Measures. *Disabil. Health J.* **2021**, *14*, 100995. [CrossRef]
11. Landes, S.D.; Hall, J.P.; Swenor, B.K.; Vaitsakhovich, N. Comparative Performance of Disability Measures. *PLoS ONE* **2025**, *20*, e0318745. [CrossRef]
12. Shogren, K.A.; Pace, J.R.; Wittenburg, D.C.; Raley, S.K.; Hicks, T.A.; Rifenburg, G.G.; Lane, K.L.; Anderson, M.H. Self-Report and Administrative Data on Disability and IEP Status: Examining Differences and Impacts on Intervention Outcomes. *J. Disabil. Policy Stud.* **2022**, *33*, 253–266. [CrossRef]
13. World Health Organization; World Bank. *World Report on Disability*; World Health Organization: Geneva, Switzerland, 2011.
14. World Bank. World Bank Country and Lending Groups. Available online: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups> (accessed on 22 April 2025).
15. Ouzzani, M.; Hammady, H.; Fedorowicz, Z.; Elmagarmid, A. Rayyan—A web and mobile app for systematic reviews. *Syst. Rev.* **2016**, *5*, 210. [CrossRef]
16. Baart, J.; Elbers, W.; Schippers, A.; Polack, S. The Definition Dilemma: How Definitions of Disability Shape Statistics on Social Participation. *Int. J. Environ. Res. Public Health* **2025**, *22*, 603. [CrossRef]
17. Baart, J.; Elbers, W.; Schippers, A. Who Is Disabled? On Whether the Functional Definition of Disability Targets the Same Individuals as the Subjective Definition. *Front. Sustain.* **2023**, *4*, 1163128. [CrossRef]
18. Boggs, D.; Kuper, H.; Mactaggart, I.; Bright, T.; Murthy, G.; Hydera, A.; McCormick, I.; Tamblay, N.; Alvarez, M.L.; Atijosan-Ayodele, O.; et al. Exploring the Use of Washington Group Questions to Identify People with Clinical Impairments Who Need Services Including Assistive Products: Results from Five Population-Based Surveys. *Int. J. Environ. Res. Public Health* **2022**, *19*, 4304. [CrossRef]
19. Dunne, T.F.; Chandna, J.; Majo, F.; Tavengwa, N.; Mutasa, B.; Chasekwa, B.; Ntozini, R.; Prendergast, A.J.; Humphrey, J.H.; Gladstone, M.J. Performance of the UNICEF/UN Washington Group Tool for Identifying Functional Difficulty in Rural Zimbabwean Children. *PLoS ONE* **2022**, *17*, e0274664. [CrossRef]
20. Emerson, E.; Llewellyn, G. The Prevalence of Disability among Adolescents and Young Adults in Low and Middle-Income Countries: A Cross-Sectional Comparison of Two Measures. *Disabil. Health J.* **2025**, *18*, 101777. [CrossRef]
21. Mactaggart, I.; Kuper, H.; Murthy, G.V.S.; Oye, J.; Polack, S. Measuring Disability in Population Based Surveys: The Interrelationship between Clinical Impairments and Reported Functional Limitations in Cameroon and India. *PLoS ONE* **2016**, *11*, e0164470. [CrossRef]
22. Mactaggart, I.; Bek, A.H.; Banks, L.M.; Bright, T.; Dionicio, C.; Hameed, S.; Neupane, S.; Murthy, G.V.S.; Orucu, A.; Oye, J.; et al. Interrogating and Reflecting on Disability Prevalence Data Collected Using the Washington Group Tools: Results from Population-Based Surveys in Cameroon, Guatemala, India, Maldives, Nepal, Turkey and Vanuatu. *Int. J. Environ. Res. Public Health* **2021**, *18*, 9213. [CrossRef]
23. Mörchen, M.; Zambrano, O.; Páez, A.; Salgado, P.; Penniecook, J.; von Lindau, A.B.; Lewis, D. Disability-Disaggregated Data Collection: Hospital-Based Application of the Washington Group Questions in an Eye Hospital in Paraguay. *Int. J. Environ. Res. Public Health* **2019**, *16*, 3085. [CrossRef] [PubMed]
24. Murphy, R.; Jolley, E.; Lynch, P.; Mankhwazi, M.; Mbukwa, J.; Bechange, S.; Gladstone, M.J.; Schmidt, E. Estimated Prevalence of Disability and Developmental Delay among Preschool Children in Rural Malawi: Findings from “Tikule Limodzi,” a Cross-Sectional Survey. *Child Care Health Dev.* **2020**, *46*, 187–194. [CrossRef] [PubMed]
25. Sabariego, C.; Oberhauser, C.; Posarac, A.; Bickenbach, J.; Kostanjsek, N.; Chatterji, S.; Officer, A.; Coenen, M.; Chhan, L.; Cieza, A. Measuring Disability: Comparing the Impact of Two Data Collection Approaches on Disability Rates. *Int. J. Environ. Res. Public Health* **2015**, *12*, 10329–10351. [CrossRef]
26. Simo Fotso, A.; Duthé, G.; Odimegwu, C. A Comparative Analysis of Disability Measures in Cameroonian Surveys. *Popul. Health Metr.* **2019**, *17*, 16. [CrossRef] [PubMed]
27. Sprunt, B.; Hoq, M.; Sharma, U.; Marella, M. Validating the UNICEF/Washington Group Child Functioning Module for Fijian Schools to Identify Seeing, Hearing and Walking Difficulties. *Disabil. Rehabil.* **2017**, *41*, 201–211. [CrossRef] [PubMed]
28. Sprunt, B.; McPake, B.; Marella, M. The UNICEF/Washington Group Child Functioning Module—Accuracy, Inter-Rater Reliability and Cut-off Level for Disability Disaggregation of Fiji’s Education Management Information System. *Int. J. Environ. Res. Public Health* **2019**, *16*, 806. [CrossRef]

29. Sprunt, B.; Marella, M. Combining Child Functioning Data with Learning and Support Needs Data to Create Disability-Identification Algorithms in Fiji's Education-Management Information System. *Int. J. Environ. Res. Public Health* **2021**, *18*, 9413. [CrossRef]
30. Tofani, M.; Galeoto, G.; Berardi, A.; Iorio, S.; Conte, A.; Fabbri, G.; Valente, D.; Marceca, M. Measuring Disability among Migrants with Washington Group Tools: Reflections for Field Use. *Healthcare* **2022**, *10*, 1860. [CrossRef]
31. Pettinicchio, D.; Maroto, M. Who Counts? Measuring Disability Cross-Nationally in Census Data. *J. Surv. Stat. Methodol.* **2021**, *9*, 257–284. [CrossRef]
32. Molden, T.H.; Tøssebro, J. Disability Measurements: Impact on Research Results. *Scand. J. Disabil. Res.* **2012**, *14*, 340–357. [CrossRef]
33. The Washington Group on Disability Statistics. Frequently Asked Questions. Available online: <https://www.washingtongroup-disability.com/resources/frequently-asked-questions/> (accessed on 17 July 2025).
34. Amilon, A.; Hansen, K.M.; Kjær, A.A.; Steffensen, T. Estimating Disability Prevalence and Disability-Related Inequalities: Does the Choice of Measure Matter? *Soc. Sci. Med.* **2021**, *272*, 113740. [CrossRef]
35. Lauer, E.A.; Henly, M.; Coleman, R. Comparing Estimates of Disability Prevalence Using Federal and International Disability Measures in National Surveillance. *Disabil. Health J.* **2019**, *12*, 195–202. [CrossRef]
36. Jamieson, M.K.; Govaart, G.H.; Pownall, M. Reflexivity in Quantitative Research: A Rationale and Beginner's Guide. *Soc. Personal. Psychol. Compass* **2023**, *17*, e12735. [CrossRef]
37. Bowker, G.C.; Leigh Star, S. *Sorting Things Out: Classification and Its Consequences*; MIT Press: Cambridge, MA, USA, 1999.
38. Bennani, H. From Experiences to Numbers: The Production of International Disability Statistics. *Disabil. Soc.* **2024**, *39*, 1859–1883. [CrossRef]
39. Chataika, T.; McKenzie, J.A. Global Institutions and Their Engagement with Disability Mainstreaming in the South: Development and (Dis)Connections. In *Disability in the Global South: The Critical Handbook*; Grech, S., Soldatic, K., Eds.; Springer: Cham, Switzerland, 2016.
40. Roy, A. Decolonizing Disability Studies: Identities, Epistemologies and Global South Perspectives. *Creat. Launcher* **2024**, *9*, 70–81. [CrossRef]
41. Goodley, D.; Lawthom, R.; Liddiard, K.; Runswick-Cole, K. Key Concerns for Critical Disability Studies. *Int. J. Disabil. Soc. Justice* **2021**, *1*, 27–49. [CrossRef]
42. Hickey-Moody, A.; Garg, D. Disability, Intersectionality and Decolonial Perspectives from the Global South. In *The Routledge International Handbook of Critical Disability Studies*; Ellis, K., Kent, M., Cousins, K., Eds.; Routledge: England, UK, 2025.
43. Mupoperi, M.W. Challenging Knowledge Production in Disability Issues from the Global North to the Global South. *Glob. Sci. J.* **2021**, *9*, 1380–1387.
44. Rao, S.; Kalyanpur, M. Universal Notions of Development and Disability: Towards Whose Imagined Vision? *Disabil. Glob. South* **2020**, *7*, 1830–1851.
45. Grech, S.; Soldatic, K. (Eds.) *Disability in the Global South: The Critical Handbook*; Springer International Publishing: Cham, Switzerland, 2016. [CrossRef]
46. Grischow, J.; Naami, A.; Mprah, W.; Mfoafo-M'carthy, M. Methodologically Thinking: Doing Disability Research in Ghanaian Cultural Communities. *Scand. J. Disabil. Res.* **2021**, *23*, 169–179. [CrossRef]
47. Meekosha, H.; Soldatic, K. Human Rights and the Global South: The Case of Disability. *Third World Q.* **2011**, *32*, 1383–1397. [CrossRef]
48. Ghosh, N.; Bhaduri, S. Categorizing Disability: Perspectives from West Bengal, India. *Rev. Disabil. Stud. Int. J.* **2024**, *19*, 1–33.

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