

What cut-off(s) to use with the Washington Group Short Set of Questions?

Abstract:

The Washington Group Short Set (WG-SS) questions are increasingly integrated into national household surveys, censuses and international survey programs. They enable the monitoring of disability rights and the production of internationally comparable statistics. Disability statistics on prevalence and inequalities can be estimated using different cut-offs on the degree of functional difficulties based on the WG-SS. This commentary discusses what cut-offs to adopt for the purpose of investigating and monitoring disability gaps, i.e. differences in wellbeing or rights outcomes by disability status and among persons with disabilities. We recommend a three-way disaggregation comparing persons with (i) no difficulty, (ii) some difficulty and (iii) a lot of difficulty or unable to do. In addition, due to potential sample size constraints, we also recommend comparing persons with no difficulty to persons with any level of difficulty to enable disaggregations by disability status and another characteristic (e.g. sex, age) or by disability type.

Background

Producing internationally comparable statistics on disability inequalities is necessary to monitor whether the rights stipulated in the Convention on the Rights of Persons with Disabilities (CRPD) ratified by 185 countries are being enforced. Disability statistics are also important to inform national policies and strategic plans by providing information on whether persons with disabilities are left behind and in which spheres of life. In fact, Article 31 of the CRPD requires

that States Parties “collect appropriate information, including statistical and research data, to enable them to formulate and implement policies to give effect to the present Convention”. Similarly, the United Nations (UN) Sustainable Development Goals (SDGs) need disability data to monitor if persons with disabilities are left behind and monitor the achievement of the SDGs for this group. This comment discusses how current disability questions included in surveys and censuses globally can be used to construct disability measures for the disaggregation of data that enable the monitoring of disability rights and inequalities and inform disability-inclusive policy and practice.

Firstly, enabling disability rights monitoring requires producing statistics based on data that is internationally comparable and can be disaggregated by disability status and ideally by type of disability. There has been considerable progress in the development of survey questions to collect internationally comparable data on disability in the past two decades. The Washington Group (WG) on Disability Statistics, in collaboration with international organizations such as United Nations Children Fund (UNICEF) and International Labour Organisation (ILO) has developed and field tested several sets of disability questions ^{1,2}, including a short set (WG-SS) with six questions prompting functional difficulties, an enhanced set, an extended set, a child functioning module, an inclusive education module and a labor force survey module¹. These functional difficulty questions are increasingly integrated into national household surveys, population censuses and in some international survey programs such as the Multiple Indicator Cluster Survey (MICS) program and are used to identify persons with disabilities. With data

¹ Questionnaires are available at: <https://www.washingtongroup-disability.com/question-sets/>

collected using functional difficulty questions, researchers and policy makers can construct disability measures and analyze disability inequalities. Secondly, measuring disability inequalities needs to highlight which persons with disabilities are left behind. For this, we need to consider disability type, its degree and how this intersects with gender, age, race, socio-economic status, and geography.

The WG-SS is one of the disability questionnaires with many applications globally. It captures functional difficulties for adults in six functional domains (types of disability): seeing, hearing, walking, selfcare, remembering/concentrating, communication. For instance, for seeing, the question is as follows “[Do/Does] [you/he/she] have difficulty seeing, even if wearing glasses?”. For each question, the answer scale prompts the degree of difficulty with the following graded answer scales: “1. No difficulty 2. Some difficulty 3. A lot of difficulty 4. Cannot do at all”. This allows researchers to construct disability measures that exploit information on the degree and type of functional difficulties. In addition, the child functioning module has been implemented in many surveys. It includes two questionnaires, one for children 2 to 4 and one for children 5 to 17. The child functioning module has more functional domains than the WG-SS, including questions related to depression and anxiety.

Thanks to the growing adoption of the WG-SS questions as well as the child functioning module in recent years, it has become possible to monitor disability rights in different contexts³ and to disaggregate data based on disability for children⁴ and adults^{5,6}. Given that the WG-SS and the child functioning module include several functional domains and degrees, it is necessary to determine cut-off(s) to identify persons with disabilities. For example, the WG recommends

defining a person as having a disability if they report to have ‘a lot of difficulty’ or being ‘unable to do’ in at least one of the six functional domains. The WG recommends this strict inclusion criteria for international comparison as in their fieldwork testing revealed that this group was more consistently identified as a person with disability and were “at risk of exclusion”. However, physical and social environments determine if a person experiences exclusion and these environments vary across different cultures and countries. Hence, some studies also have included those who have some difficulty.

Aim

This commentary discusses what cut-offs to adopt for the purpose of investigating and monitoring disability gaps, i.e. differences in wellbeing or rights outcomes between persons with and without disabilities and among persons with disabilities. We review different cut-offs to estimate disability gaps and to reflect the diversity of the circumstances of persons with disabilities.

Possible cut-offs

Given questions on various functional domains with a graded answer scale for each question, there are various possible ways to create statistical measures of disability using WG-SS based data. Researchers need to apply cut-off points (or thresholds) when creating these disability measures - dividing the data in those who are identified as having a disability and those who are not. Where the cut-off for disability is set affects estimates of disability prevalence and inequalities in wellbeing between persons with and without disabilities, also called the disability

gap. Considering where to set the cut-off is timely as many countries are adopting the WG-SS in their national household surveys and population censuses and are new to producing disability statistics based on the WG-SS.

Broadly, four cut-offs have been considered with the WG-SS to create binaries (WG 2021): (1) Any level of difficulty; (2) At least 2 domains with some difficulty or any domain with a lot of difficulty or cannot do at all (3) At least one domain with a lot of difficulty or cannot do at all (recommendation of the WG); (4) At least one domain with cannot do at all.

Disability statistics on prevalence and inequalities can be estimated using different cut-offs depending on the purposes of the analysis. For example, if the goal is to provide access to public spaces for persons with disabilities, the most inclusive cutoff (1) seems appropriate, i.e. to consider a person with disability as a person who reports to have any level of difficulty (some, a lot and cannot do it at all). This cutoff will be most useful as it identifies all persons with difficulty functioning who would likely benefit from adaptations made to remove barriers and ease access (WG 2021). Cut off (1) can also help with resource allocation and policy planning on disability rights. In contrast, if the purpose is to identify persons with long-term care needs, the more restrictive cutoffs (3) and (4) may be more suitable.

When the objective is to provide a national prevalence rate, measures (2) and (3) have often been used^{7,8,9} while recent studies also used the most inclusive cut-off (1) showing much higher prevalence rates.^{5,10} National prevalence estimates are important for resource allocation and

awareness raising and often are the preambles to estimates of disability inequalities. The selection of the cut-offs (2) and (3) is based on the assumption that persons with some difficulty in one or multiple domains do not have a disability, do not require resources and can be grouped with persons with no difficulty in inequality analyses.

‘At least a lot’ as a cut-off and its limitations

The WG recommends a binary measure using as cut-off ‘At least a lot of difficulty’ (3 and above)¹¹. In other words, persons who report ‘A lot of difficulty’ or ‘Unable to do’ in one or more domains are considered to have a disability, while persons who report ‘No difficulty’ or ‘Some difficulty’ for all of the six domains are considered to have no disability. Such an approach only counts persons with ‘at least a lot of difficulty’ in one or more of the six domains. Based on recent research using other ways to define disability with data on the WG-SS, we argue below that this binary categorization of persons with no or some difficulty (no disability) and persons with at least a lot of difficulty (disability) should be reconsidered.

Firstly, persons who have some functional difficulty may experience disadvantages, that will not be seen if one puts this group together with persons with no difficulty. A study in South Africa on the economic vulnerability of persons with disabilities revealed that households with persons with communication difficulties of any degree had the lowest average earned income compared to those without and other disability types¹². In addition, households with persons with some difficulty earned on average R3477, while those with persons with at least lot of difficulties earned R3638 per month (cut-off 1 and 3 were applied). The difference in household funds

between those with some and a lot of difficulty increased after considering grant income, with households with persons with some difficulty having monthly R5083 available, while those with at least a lot of difficulty had R5618 available¹³. Therefore, there is a need for a nuanced analysis by functional domain and by degree of functional difficulty to highlight disability inequalities and how those differentiate by severity and type of disability. Such an analysis can also improve our understanding on how social protection mechanisms may compensate for increased cost experienced by persons with different types and degree of disabilities.

Secondly, using a different cut of points may also show how severity of disability relates to increased risk of certain outcomes. For instance, the global *WhatWorks Programme* has shown that women with any level of functional difficulty – from some difficulty to cannot do at all- are two times more likely to experience violence than women with no difficulty and that the risk of violence increases with the degree of functional difficulty^{13,14}. This is important information for implementers, who for instance already know that women are at increased risk of violence, but now also understand that women with visual impairment have higher risks, while those women who are blind have even higher risks of experiencing violence.

Similarly, using data from 68 countries, the Disability Data Initiative has calculated and analyzed disability inequalities using different cut-offs. The 2021 and 2022 reports show that persons with any functional difficulty on average have worse outcomes than persons with no difficulty in terms of educational attainment, personal activities, health, standard of living, multidimensional poverty, subjective wellbeing and insecurity (cut-off 1)^{5,6}. In addition, the reports consistently found a gradient across countries for educational attainment,

multidimensional poverty and subjective wellbeing (person with 'some difficulty' compared to person scoring on cut-off point 3&4). In other words, persons with 'some difficulty' are found to be worse off than persons with 'no difficulty' but better off than persons with 'at least a lot of difficulty' (using cut-off 3). For instance, women with functional difficulties have a higher multidimensional poverty headcount, with a gradient by level of difficulty. The headcount stands at 57%, 49%, and 44% for women with at least a lot of difficulty, some difficulty and no difficulty and differences across groups are statistically significant⁶. For each of these indicators with a gradient, using the cut-off recommended by the WG with a binary variable comparing people with at least a lot of difficulty vs people with no and some difficulty, may underestimate disability inequalities. It should be noted though that this gradient was not found for all socioeconomic indicators. For instance, for the employment population ratio, persons with some difficulty have been found to be worse off than persons with no difficulty in some countries but in other countries, persons with some difficulty have similar employment rates as persons with no difficulty⁵.

Overall, any analysis that bundles persons with some difficulty with persons with no difficulty would potentially result in underestimating disability gaps. It does not enable policy makers to see the potential difference in experience among those with no and some difficulty.

Understanding this difference is however important to target those who are left behind, inform social protection programs and respond to diverse support needs specific to degree and type of disability.

Recommended cut-offs

We recommend exploring data with the WG-SS questions using different cut-off points, as it allows researchers to adjust disability measures suitable to their empirical investigations and through this better understand the variety of experiences of persons with different degrees or types of disability. For this purpose we suggest to also consider persons with some difficulty as persons with disabilities and to categorize adults based on functional difficulty status in the following two ways.

First, we recommend a three-way disaggregation of a) persons with no difficulty; b) persons with some difficulty in one or more domains; and c) persons with at least a lot of difficulty in at least one domain. It helps us move away from a binary understanding and measure of disability and towards a range or continuum. It has the potential to identify disadvantages that may in their magnitudes be correlated with the degree of functional difficulty. It can provide a picture of whom is left behind and can direct government efforts and social protection mechanisms to reach such groups. The three-way disaggregation can also enable policy makers and implementers to identify disadvantaged subgroups of persons with disabilities that may not be reached by policies restricted to those with the most severe disabilities.

Second, we recommend that the two-way disaggregation of i) persons with no difficulty and ii) persons with any difficulty may be useful in addition to the three-way disaggregation above, when sample sizes of persons with some difficulty and at least a lot of difficulty taken separately may be too small for further disaggregation or analysis by functional domain (e.g.

seeing, hearing), by demographics (sex, age, race etc), or by region or area or residence. Indeed, persons with disabilities are a large and diverse group. Their experience varies depending on their type of functional difficulty. Prior research has shown that persons with disabilities have experiences of disadvantage and marginalization that intersect with other circumstances such as gender, age, race, sexual orientation and ethnicity³. For instance, for educational attainment, women have relatively larger disability gaps compared to men, while for work it is the opposite in some contexts⁵. Disadvantages can also vary via geographical area and urban and rural divides. Hence it is important to disaggregate by functional difficulty status as well as other characteristics. A binary of persons with no difficulty and persons with any difficulty may help do so when sample sizes of persons with some difficulty and at least a lot of difficulty taken separately may be too limited for further disaggregations.

Conclusion

For the purpose of investigating and monitoring disability inequalities using WG-SS based data, we recommend a three-way disaggregation via degree of a) persons with no difficulty, b) persons with some difficulty in one or more domain, and c) persons with at least a lot of difficulty in one domain, to identify potential disadvantages that may vary with the degree of functional difficulty. When sample sizes of persons with some difficulty and at least a lot of difficulty taken separately may be too small for further disaggregation or analysis by functional domain, gender, ethnicity, geography and other circumstances, we also recommend to disaggregate based on a binary variable of i) persons with no difficulty and ii) persons with any difficulty to make such further disaggregations and intersectional analyses possible. While

researchers and analysts may use other disaggregations, we recommend the two disaggregations above as a starting point as they may reflect the diversity of persons with disabilities and their circumstances, which needs to inform the design, implementation and evaluation of inclusive policies and accessible environments.

References

1. Altman, B. M. (Ed.) (2016). International measurement of disability: Purpose, method and application, the work of the Washington group. Social indicators research series 61. Switzerland: Springer.
2. Loeb, M., Mont, D., Cappa, C., De Palma, E., Madans, J., and Crialesi, R. 2018. The development and testing of a module on child functioning for identifying children with disabilities on surveys. I: Background. *Disability and health journal*, 11(4), 495-501.
3. United Nations (2019). *Disability and Development Report 2019*. United Nations. <https://social.un.org/publications/UN-Flagship-Report-Disability-Final.pdf>
4. UNICEF (2021). Seen, Counted, Included: Using Data to Shed Light on the Well-Being of Children with Disabilities. UNICEF Data, January 2022. Accessed on April 1st 2022 at: <https://data.unicef.org/resources/children-with-disabilities-report-2021/>.
5. Mitra, S. and Yap, J. (2021). The Disability Data Report. Disability Data Initiative. Fordham Research Consortium on Disability: New York. Accessed March 28, 2022 at: <https://disabilitydata.ace.fordham.edu/2021-report/>

6. Mitra, S. and Yap, J. (2022). The Disability Data Report. Disability Data Initiative. Fordham Research Consortium on Disability: New York. Accessed March 28, 2022 at: <https://disabilitydata.ace.fordham.edu/2022-report/>
7. Statistics South Africa. Profile of Persons with Disabilities. Census 2011, 2014.
8. Statistics South Africa. Community Survey 2016. Profiling socio-economic status and living arrangements of persons with disabilities in South Africa. Pretoria: Stats SA, 2016.
9. Development Initiatives (2020). Status of disability in Kenya. Accessed Jan. 10th 2023 at: https://devinit.org/documents/727/Status-of-disability-in-Kenya_IF.pdf
10. Mactaggart I, Hasan Bek A, Banks LM, Bright T, Dionicio C, Hameed S, Neupane S, Murthy G, Orucu A, Oye J, Naber J, Shakespeare T, Patterson A, Polack S, Kuper H. 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. *International Journal of Environmental Research and Public Health*. 2021; 18(17):9213. <https://doi.org/10.3390/ijerph18179213>
11. WG (2021), Creating Disability Severity Indicators Using the WG Short Set on Functioning (WG-SS) (Stata). Washington Group on Disability Statistics. Accessed on Dec. 13th 2022 at: https://www.washingtongroup-disability.com/fileadmin/uploads/wg/WG_Document_5G_-_Analytic_Guidelines_for_the_WG-SS_Severity_Indicators_-_STATA_.pdf

12. Department of Social Development. Elements of the financial and economic costs of disability to households in South Africa. Results from a pilot study. Johannesburg: DSD South Africa, 2015
13. Dunkle K, Van der Heijden I, Stern E, et al. Disability and violence against women and girls global programme. London: What Works, 2018.
14. Dunkle K, Gibbs A, Chirwa E, et al. How do programmes to prevent intimate partner violence among the general population impact women with disabilities? Post-hoc analysis of three randomized controlled trials. *BMJ Global Health* 2020;5:e002216. doi: 10.1136/bmjgh-2019-002216