HESABIKA USSD DATA COLLECTION ANALYTIC REPORT

THIS ABILITY TRUST

DECEMBER 14, 2021

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A. INTRODUCTION

Introduction

This Ability Trust is a women-led non-profit organization whose mission is to advance the rights and inclusion of women and girls with disabilities in Kenya. We envision a society in which women and girls with disabilities live fully integrated lives socially, economically and politically, with their rights respected and upheld. Our business model focuses on using business principles of marketing and advertising to make the case for investing in women and girls with disabilities where we prioritize amplify the voices of women and girls with disabilities, build partnerships and facilitate dialogue and engagement with key stakeholders and policy makers, and create visibility for the rights of women and girls with disabilities. We work to increase access to sexual and reproductive health rights and economic empowerment for women and girls with disabilities across 8 counties (Kisumu, Kakamega, Uasin Gishu, Kajiado, Nairobi, Kilifi, Kwale and Mombasa).

Our Strategic Solution

The lack of data exacerbates the invisibility of women with disabilities, and for duty bearers and policy makers - it is critical to have the right data to be able to develop the right policies and budgets. With support from UNFPA, This Ability Trust developed a USSD (Unstructured Supplementary Service Data) platform using mobile technology to collect specific data on women with disabilities, to address the lack of data and to improve the knowledge on women with disabilities demographic data.[1]
We have to date registered over 14,000 men, women and children with disabilities on our platform across the country. To successfully continue to achieve this, we are actively conducting mobilization campaigns to create awareness among communities of women with disabilities across 8 counties (Kajiado, Nairobi, Kisumu, Kakamega, Uasin Gishu, Kilifi, Kwale and Mombasa). The data acquired shall be used to build evidence to influence policy advocacy on the rights of women with disabilities.

Our USSD Customer Journey (available on both Safaricom and Airtel):

Language	Are you Disabled	Gender	Name	Year of Birth	National ID No.	Type of Disability	County

[1]International Journal of Computer Science and Information Security (IJCSIS) Vol.18 No.1, January 2020

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This report will give us a first approach to the collected data, and is trying to provide curated evidence on basic demographic data among people with disabilities in Kenya.

B. BACKGROUND, OBJECTIVES, AND OVERVIEW OF AVAILABLE DATA

B.1 BACKGROUND

Disability statistics in Kenya have over the years recorded a significantly lower disability prevalence compared to the global 15% prevalence rate estimated by the World Health Organization. According to the 2019 census, 2.2% (0.9 million people) of Kenyans live with some form of disability. Direct comparison of disability prevalence in 2009 and 2019 is problematic due to differences in data collection methodologies, ages covered and size of administrative units. The 2019 census also indicates that 1.9% of men have a disability compared with 2.5% of women. The 2009 census reported 3.4% of men and 3.5% of women had a disability.[2] Documented studies have shown that due to several causes there is a higher prevalence of disability among women than men, the increased incidence in sexual and gender based violence among women in addition to poor reproductive healthcare services and nutrition, women and girls with disabilities experience disproportionate levels of exclusion due to gender and disability.[3]

B.2 OBJECTIVES

Long Term Objective

To increase the visibility of women with disabilities in the national and international level, by improving the quantitative curated data.

Short Term Objective

This Ability Trust would like to use the data analysis reports towards policy advocacy and inform the policy makers and duty bearers on the accurate percentage of persons with disabilities segregated into the gender segments of the country's population. In order to achieve our collective goals, we are partnering with other stakeholders to utilize the USSD data collection system and work in tandem to create visibility and join the campaign to mobilize registrations countrywide, in addition to the data analysis and dissemination.

[2] Development Initiatives 2020. Status of disability in Kenya.

[3] S. Thompson. 2017. Disability prevalence and trends. Institute of Development Studies

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C.2 OVERVIEW OF AVAILABLE DATA

Full dataset was downloaded from the Hesabika platform and preliminary exploratory analysis conducted on it to assess the quality, mainly validity of the variables and the number of enrolled individuals that would be meaningfully included in the analysis. The dataset had a total of 14 861 of validated and non-validated individual level data. Validation refers to the process that was undertaken manually to verify and even update the information earlier provided by the participants. Up to now, we have validated nearly a quarter (3 532/14 861) of the total records (Figure 1). A close examination of the non – validated data showed a very high level of missingness (>90%) for each of the variables and filling in of missing data through imputation approaches would not yield plausible values hence may lead to less reliable results. Based on this, the non – validated records were excluded from the analysis.

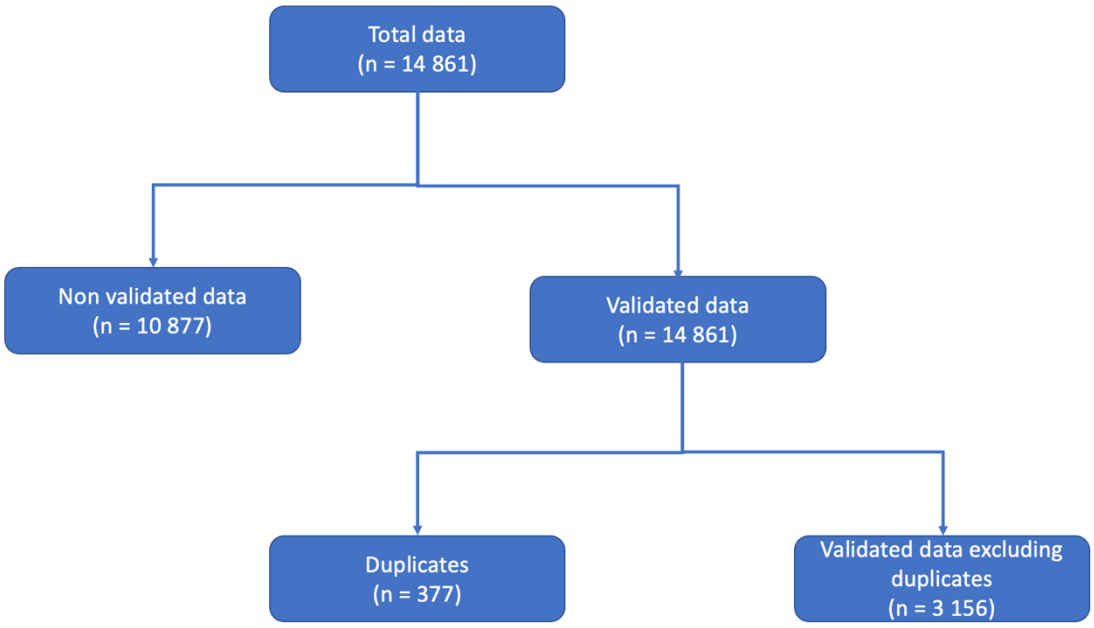

Figure 1: Validated and non – validated data

Further assessment of the validated data we found 377 duplicates (using phone number as a unique identifier). This resulted in 3 156 records that formed effective sample size for this analysis. Distributions by the collected variables were also examined and none of the participants indicated data on education level and all of them were unemployed. The variables that are examined in this analysis include: year of birth, gender, county, and category of disability. These variables, particularly year of birth and category of disability were further cleaned before beginning analysis. For instance, 102 individuals inaccurately reported year of birth – some indicated their age while others fully entered the day month and year of birth (**Figure 2**). These were standardized for all the participants. While assessment of the category of disability showed quite a lot of similarities in the captured texts (though written in different ways) and further categorized.

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Downloaded data had forty-five categories of disabilities, since we ask every participant to identify their own type of disability, for us it is crucial to understand how every person could identify themselves.
Only for analysis purposes, that were further reclassified into six categories namely; Physical, Mental, Hearing, Visual, Progressive forms and Albinism[4]. We used the classification from the Ministry of Health, although we believe it doesn't reflect the reality of the disability community from a Human Rights standpoint. We will expand more on this idea in the conclusion segment.

C. METHODOLOGY

C.1 DESCRIPTIVE ANALYSIS

As a first step, analysis of distribution of participants by age, category, county, and disability category was conducted using frequencies and percentages, while also disaggregating the results by gender. Cut-offs for age category were informed by age distribution in the cleaned dataset. For us to understand any nuances around associations between these variables, three cross tabulations are examined, that is, between: (i) age category and gender, (ii) age category and disability category, and (iii) gender and disability category. We examine whether these associations are significant or not using chi – square tests.
The distribution of these participants is visualized using the Kenyan map (with county boundaries). Two maps are presented showing distribution of: (i) actual number of participants across the counties (ii) numbers standardized by the population of each county[5]. The latter will aim to examine and report a proxy for prevalence of disability while providing visual presentation of comparison across the counties.

C.2 REGRESSION ANALYSIS

In a further analysis, we examine the association between the predominant disabilities and gender & age category using logistic regression. Compared to chi – square test, logistic regression has the advantage of simultaneously adjusting for multiple individual level factors. In this case, we adjust for age category and gender simultaneously. We do not adjust for county as other counties reported very few numbers. This may result in biased findings due to data sparsity.

[4] DISABILITY MEDICAL ASSESSMENT AND CATEGORIZATION GUIDELINES, Ministry of Health 2021

[5] The population numbers are derived from census compiled by the Kenya National Bureau of Statistics.

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D. RESULTS

D.1 PARTICIPANT CHARACTERISTICS

The 3 156 participants were distributed in all the 47 counties in Kenya (**Figure 2**). Majority of them were from Nairobi (n = 573; 18.4%) and Mombasa (n = 574; 18.4%). Participants from these two counties formed slightly more than a third of the effective sample size analyzed. See Appendix Table G.1 for full description of distribution of participants in the remaining 45 counties.

D.2 ANALYSIS OF FORMS OF DISABILITY

Standardizing the participant numbers by population in each county showed the prevalence of disability could be higher in Kisumu County followed by Mombasa and Nairobi.

Figure 2: Distribution of adults and children above five years of age by disability prevalence rate

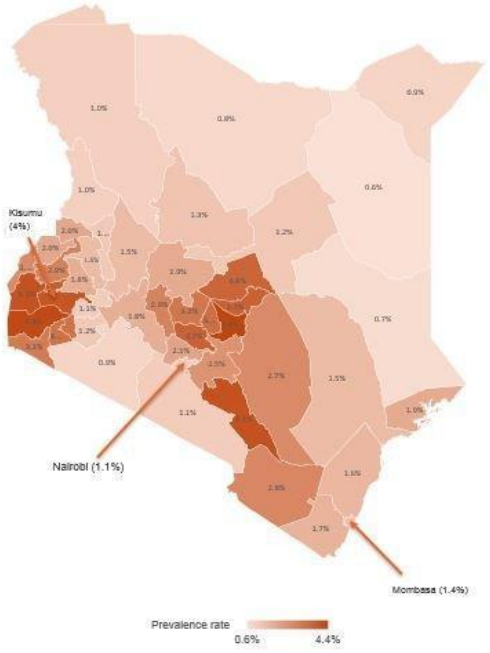

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Figure 3: Participant distribution by county

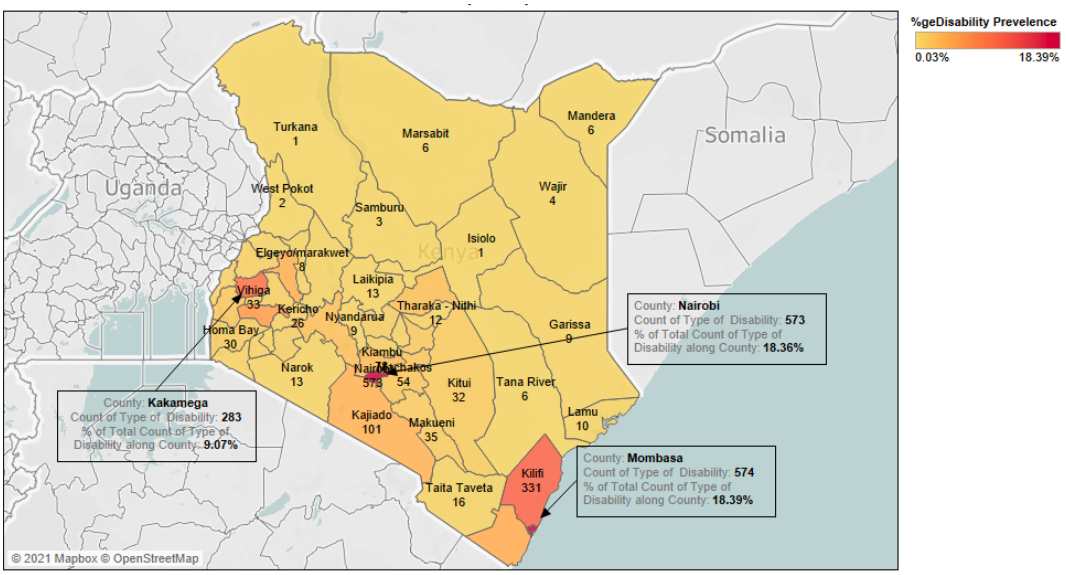
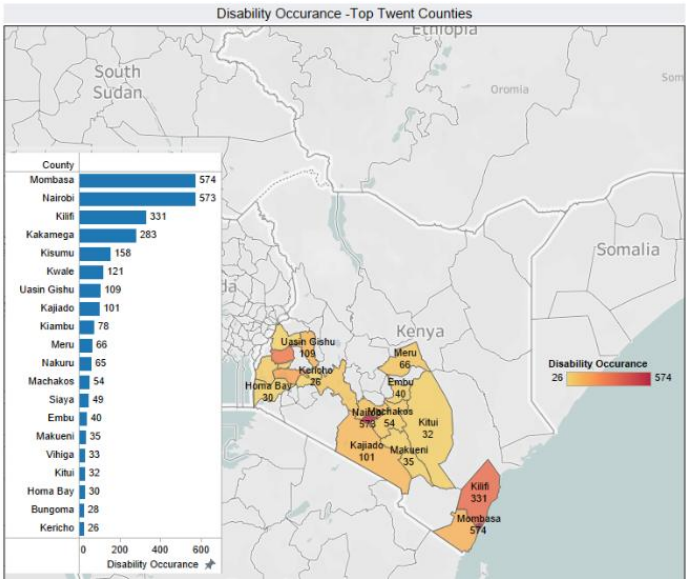


Figure 4: Disability Distribution -Top Twenty Counties



Mombasa, Kilifi, Nairobi, Kakamega, Uasin-Gishu, Kisumu and Kajiado show higher numbers of participants. This is attributed to the fact that This-Ability Trust has run intensified below the line media campaigns in these counties.

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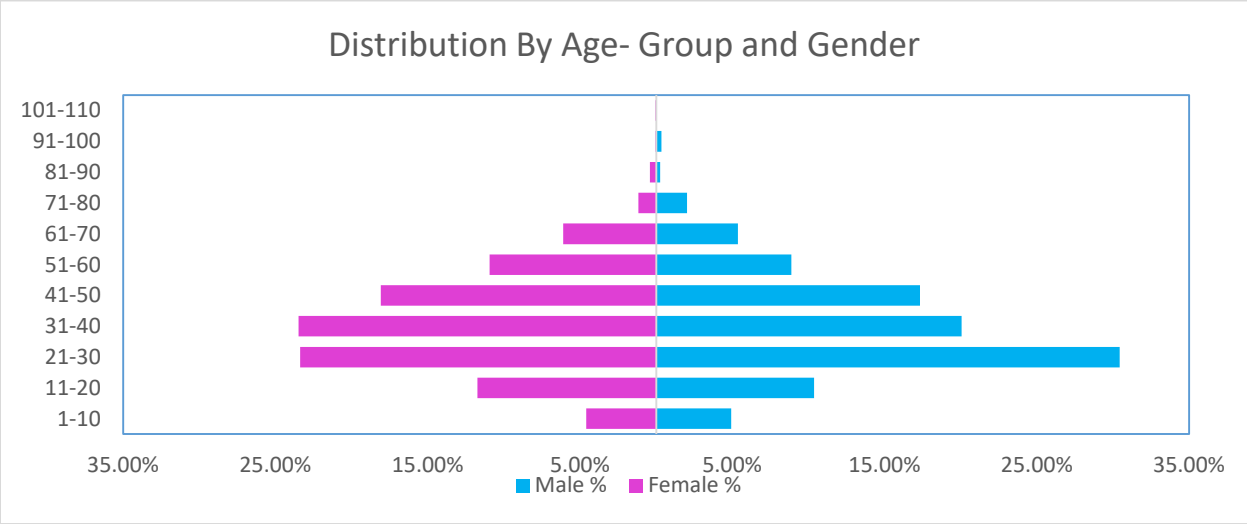
Figure 5: Distribution by Age Group and Gender



Age group (20-40) forms the highest number of cases of disability compared to other ages for both male and female.

Females were the majority (63.6%) with their number being close to two times that of males. A consistent pattern between males and females was observed in the distribution by age category – in which slightly more than a third in each case constituted those aged above 40 years (**Table 1**). Younger participants (<20 years) formed approximately 15% of the records examined.

Table 1: Participant distribution by age category (stratified by gender)

	Total (n = 3156		**Male (n = 1137; 36.4%)**		**Female (n = 1984 63.6%)**	
	N	**%**	**n**	**%**	**n**	**%**
Age category						
< 20 years	457	14.6	156	13.7	301	15.2
20 - 30 years	851	27.3	364	32	487	24.5
>30 - 40 years	694	22.2	228	20.1	466	23.5
>40 years	1119	35.9	389	34.2	730	36.8

Figure 6: Category of Disability Vs Gender

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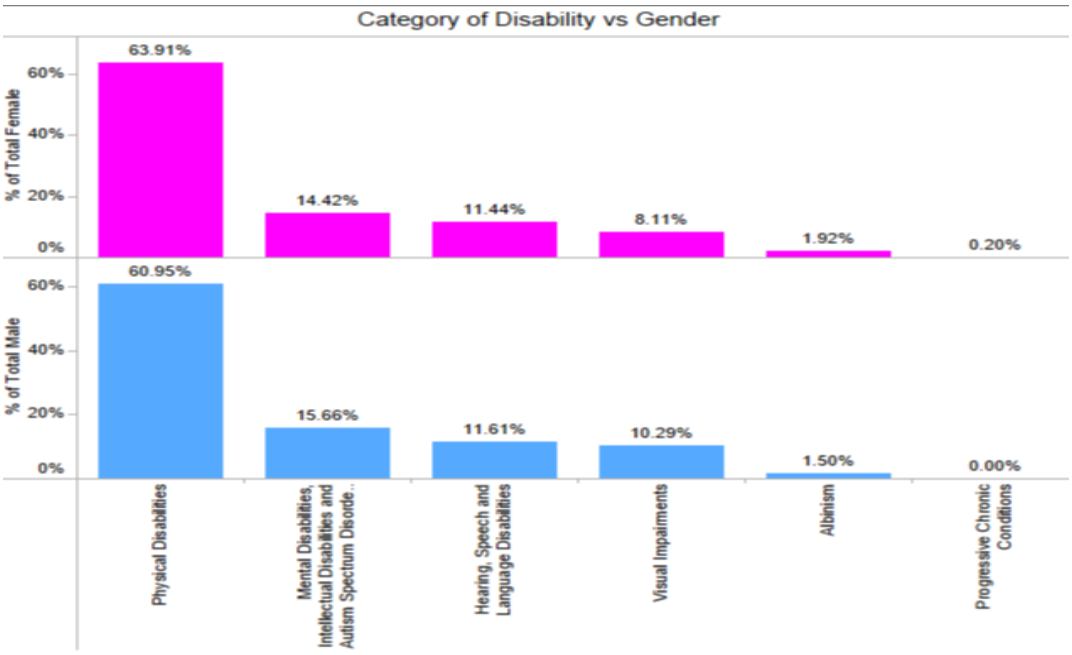

The dominating form of disability was physical at 62.8% (men – 60.9% and women – 63.9%). This was followed by mental (overall – 14.8%; men – 15.7% and women – 14.4%), hearing/speech/language disabilities (overall – 11.5%; men – 11.6% and women – 11.4%), and visual impairment (overall – 8.9%; men – 10.3% and women – 8.1%). Albinism, progressive chronic conditions, and social relationships related disabilities were less common cumulatively forming less than 2%.
The prevalence of disability in women could be related with several forms of gender based violence, we don't have curated data in Kenya about it, but physical violence could cause physical disabilities, other forms of hidden violence, like obstetric violence are causes of conditions like fistula and newborns with disabilities, sexual violence is one of the main reasons for depression and trauma, which could became a disability.

[6]Statistics show that each year between 50 000 to 100 000 women worldwide are affected by obstetric fistula. Of these, only 1 in 50 will have access to treatment. It is estimated that more than 2 million young women live with untreated obstetric fistula in Asia and sub-Saharan Africa

Figure 7: Category of Disability Vs Gender in all counties

[6] https://www.who.int/news-room/facts-in-pictures/detail/10-facts-on-obstetric-fistula

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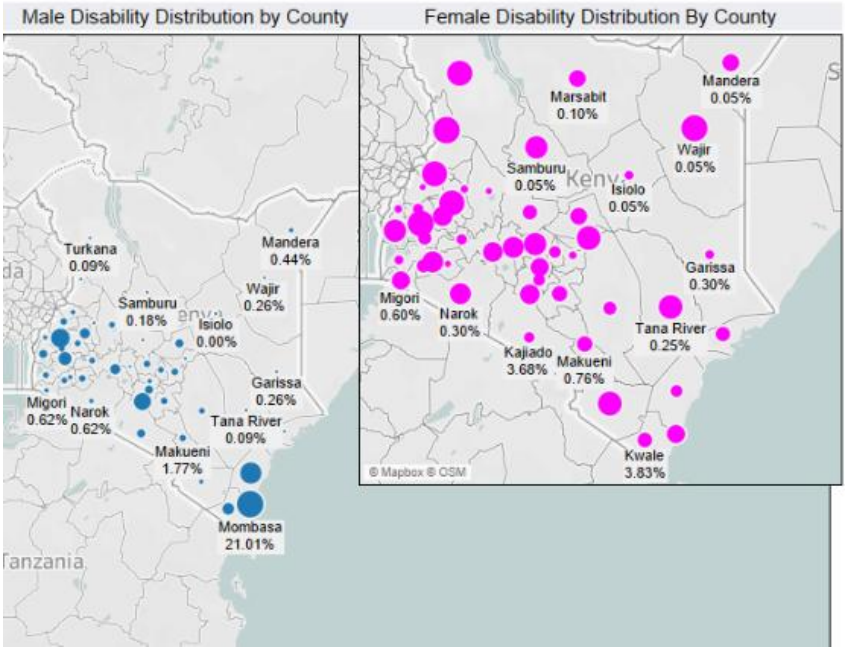

Female gender shows dominance in all counties except Turkana.

D.3 ASSOCIATION BETWEEN FORMS OF DISABILITY AND AGE CATEGORY AND GENDER

The regression results assessing the association between each of the dominating forms of disability and gender and age are presented in Table 2.

Table 2: Regression coefficients

	Physical		Mental		Hearing		Visual	
	OR	P-Value	OR	P-Value	OR	P-Value	OR	P-Value
Gender:Male(ref=Female)	0.91	0.2018	1.10	0.3770	0.97	0.8273	1.29	0.0473
Agecategory:20-30(ref=<20 Years)	1.29	0.0282	0.52	0.0000	1.11	0.5215	1.46	0.0961
Agecategory:30-40(ref=<20 Years)	2.15	0.0000	0.39	0.0000	0.69	0.0436	1.03	0.9144
Agecategory:>40(ref=<20 Years)	2.40	0.0000	0.29	0.0000	0.46	0.0000	1.87	0.0034

Deductions from Inferential Analysis
Note: Considerations are only taken when the P-value<0.5

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1. **Gender and Disability**

There is no significant relationship between gender and all the four Categories of disability, except Visual disability.
Men are more likely to have visual disability compared to women

2. **Age and Physical Disability**

Age group	Comment
>40	2.4 times more likely to develop physical disability than age (30-40).
30-40	2.1 times more likely to develop physical disabilities than Age (20-30)
20-30	1.2 times more likely to develop physical disability compared to age <20 years
<20	Low chance of developing physical disability

As one ages, they are more likely to be physically disabled.

3. **Age and Mental Disability**

Age Group	Association with Mental Disability
<20	1.09 times more likely to develop mental disability compared age group (20-30)
(20-30)	0.5 times more likely to develop mental disability compared to age group (30-40)
(30-40)	0.4 times more likely to develop mental disability compared to age >40.
>40	0.3 % chances of developing mental disorder

There seems to be a very close association between age and mental disability.

4. **Age and Hearing Disabilities**

There is a very close association between hearing disability and age group >40.
As people age, chances of developing hearing conditions increases, though this progression is not sighted in other age groups.

5. **Age and Visual Disabilities**

There is a very close association between Visual disability and age group >40.
As people age, chances of developing Visual conditions increases.

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E. DISCUSSION

To start this segment we would like to highlight that there is not an official classification for disabilities in the country, which is a challenge when it comes to analysis, as well as creating programs and budgets. The lack of classification shows the invisibility of disabled population. We used the Ministry of Health classification, although it comes from a very medical standpoint, that doesn't take into consideration the diversity of the population. We believe it is crucial to create an official classification from a gender and human rights standpoint.

This analytics project found that physical disability is the most prevalent form of disability; this is well in line with Kenya National Bureau of statistics (KNBS) census report (KNBS, 2009). The participants sampled in this project showed some level of bias towards eight counties where This Ability Trust has intensified campaigns since 2020. Indeed, as evidenced in Fig 2-distribution by county, we saw high levels of participation in Nairobi, Mombasa, Kilifi, Kakamega, Uasin-Gishu, Kisumu and Kajiado. These are the counties where This Ability Trust, seemingly has more active programs. Apart from physical disability, other forms of disability that were predominant include: Mental, Hearing and Visual.

From the analysis of the data presented, age is significantly associated with forms of disability. Physical disability is associated with age advancement. Of interest to note, is that Mental disability (a broad term that the Ministry of Health uses to refer to Intellectual, Developmental and Psychosocial disabilities), is predominant in younger people compared to older people, it is related with the fact some neurological and genetic conditions are hereditary. We believe it is urgent to rethink this kind of classification and have conversations that explore intellectual, developmental, psychosocial disorders, avoiding the broad definition of mental disability. On the other hand, mental disability doesn't reflect diversity and the word is perceived with a lot of stigma in our laws and policies.

Investigations on hearing disability and age revealed that, older people tend to have hearing disability compared to younger people. This finding is in line with the National institute on aging study which suggests that hearing loss is a common problem caused by noise, aging, disease, and heredity (www.nia.nih.gov). According to (Dayna S, Karen J, Barbara E, K. Klein, R. Klein, Terry L. Wiley, and David M.), Hearing loss is a common chronic condition affecting older adults. These two studies confirm the results of the analysis that was conducted on This Ability "Hesabika" platform data.

Visual disabilities were found to be associated with both gender and age. Analysis conducted showed that Male are more likely to develop visual disabilities compared to Female, the analysis also showed that older people are more likely to develop visual disabilities compared to younger people. The analysis of age and visual disability is well in line with (J.Evans, E. Fletcher, RPL Wormald, E Siu-Woon Ng, S Stirling, L Smeeth, E Breeze, C J Bulpitt, M Nunes, D Jones, A Tulloch, 2002), which seems to share the thought that older people and women were less likely to be examined. The prevalence of visual impairment is thus higher in these groups ,however (L. Doyal , R. Das-Bhaumik, 2018) seem to contradict this analysis by suggesting that that although women outlive men nearly everywhere in the world, they do not necessarily enjoy a good quality of life in their later years. This is often a result of disability caused by a range of chronic conditions, including but not limited to those affecting the eyes.

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F. RECOMMENDATIONS

1. Data Collection

During data entry, participants, were not limited by the system to the type of data and data format that they could key in the platform, for instance some participants entered date of birth as MM/DD while others simply entered their age as say “34” This posed a big challenge when standardizing records for the age variable. Different variables can be categorized and grouped, for instance Age variable can be clustered in-terms of (1.0- 10, 2.10-20,3.30-40). This will help in avoiding the error of participants entering wrong age data, which presents immense data cleaning challenges. All other variables on the Hesabika platform can be clustered to avoid the same issue; the system developer for Hesabika platform can adjust the recommended changes. Data validation process on the “Hesabika Platform” is a bit more complex and data must be thoroughly revalidated during exploratory analysis. Controlling data that can be entered in the platform will ensure that the platform holds clean data that can easily be validated.

Socio-economic parameters such as, participants' level of education and employment status were not included in this analysis or in the data collection and should be include in the future, this can be done by the system developer for the data entry platform,
Cause of disability should also be included as a parameter to determine whether forms/Categories of disability are related to specific causes. This will help in solving the question on whether physical disability in women is related to gender-based violence.

2. Re-Classification of Categories of Disability

During the stakeholder engagements and in the process of analysis it was realized that there exists no government document that provides a clear framework for classification of disability. However, when looking at Kenya National bureau of Statistics reports, some form of classification exists, but the categories are not well defined. This Ability Trust will engage KNBS and other stakeholders so that a good solution can be done. In the USA (www.cdc.gov/ncbddd/disabilityandhealth/disability.html) for example CDC categorizes disability into eight different categories which are properly defined and documented.

3. Live Analytics

Since “Hesabika Platform performs continuous data collection, it would be necessary to incorporate live analytics front end to the platform so that outliers and other valuable insights can be picked as early as possible. Live analytics is more proactive and alerts users or triggers responses as events happen.

4. Community Sensitization

Educate the society on the specific language on disability and provide accurate data collected to the Kenya National Bureau of Statistics as well as the Ministry of Health to help in proper classification and allocation of funds on disability initiatives in the Country.

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G. APPENDIX

G.1 PARTICIPANT DISTRIBUTION BY COUNTY STRATIFIED BY GENDER

	Total (n = 3156)		Male (n =1137)		Female (n = 1984)	
	N	%	n	%	n	%
Age category						
< 20 years	457	14.6	156	13.7	301	15.2
20 - 30 years	851	27.3	364	32	487	24.5
>30 - 40 years	694	22.2	228	20.1	466	23.5
>40 years	1119	35.9	389	34.2	730	36.8
County						
Baringo	16	0.5	9	0.8	7	0.4
Bomet	23	0.7	14	1.2	9	0.5
Bungoma	28	0.9	16	1.4	12	0.6
Busia	21	0.7	6	0.5	15	0.8
Elgeyo/marakwet	8	0.3	4	0.4	4	0.2
Embu	40	1.3	19	1.7	21	1.1
Garissa	9	0.3	3	0.3	6	0.3
Homa Bay	30	1	12	1.1	18	0.9
Isiolo	1	0	28	2.5	1	0.1
Kajiado	101	3.2	118	10.4	73	3.7
Kakamega	283	9.1	13	1.1	165	8.3
Kericho	26	0.8	21	1.8	13	0.7
Kiambu	78	2.5	153	13.5	57	2.9
Kilifi	331	10.6	9	0.8	178	9
Kirinyaga	19	0.6	13	1.1	10	0.5
Kisii	24	0.8	58	5.1	11	0.6
Kisumu	158	5.1	12	1.1	100	5
Kitui	32	1	45	4	20	1
Kwale	121	3.9	3	0.3	76	3.8
Laikipia	13	0.4	4	0.4	10	0.5
Lamu	10	0.3	15	1.3	6	0.3
Machakos	54	1.7	20	1.8	39	2
Makueni	35	1.1	5	0.4	15	0.8
Mandera	6	0.2	4	0.4	1	0.1
Marsabit	6	0.2	25	2.2	2	0.1
Meru	66	2.1	7	0.6	41	2.1
Migori	19	0.6	238	20.9	12	0.6
Mombasa	574	18.4	8	0.7	336	16.9

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Muranga	21	0.7	98	8.6	13	0.7
Nairobi	573	18.4	30	2.6	475	23.9
Nakuru	65	2.1	9	0.8	35	1.8
Nandi	24	0.8	7	0.6	15	0.8
Narok	13	0.4	5	0.4	6	0.3
Nyamira	13	0.4	4	0.4	8	0.4
Nyandarua	9	0.3	14	1.2	5	0.3
Nyeri	23	0.7	2	0.2	9	0.5
Samburu	3	0.1	22	1.9	1	0.1
Siaya	49	1.6	5	0.4	27	1.4
Taita Taveta	16	0.5	1	0.1	11	0.6
Tana River	6	0.2	2	0.2	5	0.3
Tharaka - Nithi	12	0.4	6	0.5	10	0.5
Trans Nzoia	13	0.4	1	0.1	7	0.4
Turkana	1	0	34	3	75	3.8
Uasin Gishu	109	3.5	11	1	22	1.1
Vihiga	33	1.1	3	0.3	1	0.1
Wajir	4	0.1	1	0.1	1	0.1
West Pokot	2	0.1	132	11.6	227	11.4

H. REFERENCES

Evans JR, Fletcher AE, Wormald RP, Ng ES, Stirling S, Smeeth L, Breeze E, Bulpitt CJ, Nunes M, Jones D, Tulloch A, Br J Ophthalmol. (2002). Prevalence of visual impairment in people aged 75 years and older in Britain: results from the MRC trial of assessment and management of older people in the community. *Jul;86(7):795-800. doi: 10.1136/bjo.86.7.795. PMID: 12084753; PMCID: PMC1771210.*

Doyal,L and Das-Bhaumik,R.(2018). Sex, gender and blindness: a new framework for equity. BMJ Open Ophthalmology *Vol.3*

Hearing Loss: A Common Problem for Older Adults. National institute on aging -***www.nia.nih.gov***

Disability and Health Overvie*w - www.cdc.gov/ncbddd/disabilityandhealth/disability.html –*

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