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Employment among Women with Disabilities in Somalia: Evidence from the Somali Integrated Household Budget Survey 2022

Mohamed Farah Hassan

mfarahwebi@gmail.com

Jamhuriya University of Science and Technology

Ahmed Mahdi Abdi

Jamhuriya University of Science and Technology

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Abstract

Background: Women with disabilities residing in fragile and conflict-affected states encounter exacerbated disadvantages resulting from the interplay of gender and disability. In the context of Somalia, empirical data concerning employment outcomes for this demographic remains critically scarce.

Objective: The primary aim of this investigation was to analyze the correlation between disability status and employment among women aged 15 years and older in Somalia, while controlling for various demographic, socioeconomic, and geographic variables.

Methods: A cross-sectional methodological framework was employed utilizing secondary data derived from the Somali Integrated Household Budget Survey (SIHBS 2022), which is a nationally representative survey encompassing 17 of Somalia's 18 regions, with the exclusion of Middle Juba due to security challenges. The analytical cohort consisted of 12,162 women. Disability was evaluated according to the Washington Group Short Set (WG-SS) inclusive threshold (any domain score ≥ 2). Employment was operationalized in accordance with the ICLS-19 framework. Survey-weighted logistic regression analyses were conducted using R, estimating both unadjusted (Model 1) and adjusted (Model 2) models.

Findings: The prevalence of disability within the sample was determined to be 11.7% (95% CI: 10.5–12.1%). The overall employment rate for women was found to be 12.2%. In the unadjusted model, women with disabilities exhibited non-significantly diminished odds of employment (COR = 0.896; p = 0.258). Upon adjustment, disability status was significantly correlated with reduced employment odds (AOR = 0.678; 95% CI: 0.521–0.880; p = 0.004), indicating approximately a 32% decrease in employment odds. Age, educational attainment, marital status, and geographic region emerged as the principal determinants influencing employment.

Conclusion: Women with disabilities in Somalia experience a pronounced and independent disadvantage in employment opportunities when structural variables are taken into account. The immediate implementation of disability-inclusive employment policies, enhancement of educational access, and development of region-specific interventions is imperative to foster equitable participation in the labor market.

1. Introduction

Employment is widely recognized as a fundamental determinant of economic independence, social inclusion, and overall well-being. Access to decent work enables individuals to secure income, improve their quality of life, and participate actively in society. However, persons with disabilities continue to face significant barriers to employment across the world. According to the World Health Organization (WHO, 2022), Approximately 16% of the global population lives with some form of disability, making disability one of the largest minority groups worldwide. Despite international efforts to promote equal opportunities, persons with disabilities consistently experience lower labour force participation rates,

higher unemployment, lower earnings, and reduced career advancement opportunities compared with persons without disabilities (WHO, 2022). The right to work for persons with disabilities is recognized under Article 27 of the United Nations Convention on the Rights of Persons with Disabilities (CRPD), which emphasizes equal access to employment, fair working conditions, and protection against discrimination (United Nations, 2006). Nevertheless, employment inequalities remain widespread, particularly in low- and middle-income countries (LMICs), where economic opportunities are limited and disability-inclusive policies are often inadequately implemented. The International Labour Organization (ILO, 2015) reports that persons with disabilities continue to encounter structural barriers that restrict their participation in labour markets and limit their economic independence.

The employment challenges faced by persons with disabilities are often linked to limited access to education, vocational training, transportation, assistive technologies, and workplace accommodations. Educational attainment is one of the strongest predictors of employment outcomes, yet persons with disabilities frequently experience exclusion from formal education systems(Mitra & Vick, 2013). Reduced educational opportunities limit the acquisition of skills and qualifications required for labour market participation, resulting in lower employment prospects and earnings. In many developing countries, these disadvantages begin early in life and accumulate over time, creating persistent inequalities in adulthood (WHO & World Bank, 2011).The relationship between disability and poverty is well documented. Disability can contribute to poverty through reduced access to employment and income-generating opportunities, while poverty can increase the risk of disability through inadequate healthcare, poor nutrition, unsafe living conditions, and exposure to conflict and violence (Banks et al., 2017).This bidirectional relationship creates a cycle of disadvantage that often traps persons with disabilities and their families in long-term poverty. Research from developing countries consistently demonstrates that households containing persons with disabilities are more likely to experience multidimensional poverty than households without disabled members (Mitra & Vick, 2013).

Labour market discrimination further contributes to employment inequalities among people with disabilities. Negative employer attitudes, stereotypes regarding productivity, and concerns about workplace accommodation frequently limit hiring opportunities (Naami et al., n.d.). (Bialik, 2022) identified stigma, discrimination, denial of educational opportunities, and limited access to employment programmes as major barriers faced by people with disabilities in low- and middle-income countries. These barriers often result in exclusion from formal employment and force many individuals into vulnerable forms of work characterized by low wages, poor working conditions, and limited social protection.

Gender compounds the disadvantages associated with disability. Women with disabilities often experience a “double disadvantage” resulting from the intersection of gender-based and disability-based discrimination (Chan & Hutchings, 2023). Intersectionality theory suggests that multiple social identities interact to create unique forms of inequality that cannot be understood by examining gender or disability independently. Consequently, women with disabilities frequently face lower levels of education, reduced access to economic resources, and fewer employment opportunities than both men with disabilities and

women without disabilities (Chan & Hutchings, 2023) .Evidence from both developed and developing countries indicates that women with disabilities experience lower labour force participation rates and poorer employment outcomes than other population groups. In a comprehensive scoping review, (Chan & Hutchings, 2023) found that women with disabilities face numerous barriers to career development, including workplace discrimination, occupational segregation, wage inequalities, and limited opportunities for promotion. These barriers contribute to economic dependence and increased vulnerability to poverty.

Research from Africa demonstrates similar patterns. In Ghana, (Naami et al., n.d.) Found that women with disabilities experienced higher unemployment rates and greater poverty than men with disabilities. Those who were employed were often concentrated in marginal, seasonal, and low-paying occupations characterized by limited job security and inadequate benefits. The study identified discrimination, low educational attainment, and negative societal attitudes as major barriers to employment. These findings suggest that disability and gender inequalities reinforce one another, resulting in heightened economic exclusion among women with disabilities.

Studies from other developing countries provide further evidence of disability-related employment disadvantages. Using nationally representative data from Lebanon, (Boutros et al., 2023) found that persons with disabilities were significantly less likely to participate in the labour force than persons without disabilities, even after controlling for age, education, and marital status. Their findings highlight the persistence of employment inequalities and the need for targeted policy interventions to improve labour market inclusion for people with disabilities.

Theoretical explanations for employment inequalities among persons with disabilities are often grounded in the social model of disability and human capital theory. The social model argues that disability-related disadvantage results primarily from social, environmental, and institutional barriers rather than individual impairments (Oliver & Oliver, 2013).According to this perspective, inaccessible environments, discriminatory attitudes, and exclusionary policies limit participation in education and employment. Human capital theory, in contrast, emphasizes the importance of education, training, and work experience in determining labour market outcomes (Becker, 1993). Women with disabilities often encounter barriers to acquiring human capital, which subsequently reduces their employment opportunities. Together, these theoretical perspectives provide a useful framework for understanding labour market inequalities among women with disabilities.

The challenges facing women with disabilities are particularly pronounced in fragile and conflict-affected contexts. Armed conflict, displacement, insecurity, and weak institutions often increase disability prevalence while simultaneously reducing access to education, healthcare, and employment opportunities. Women with disabilities living in humanitarian settings frequently experience exclusion from livelihood programmes and vocational training initiatives, limiting their economic participation (Hossain et al., 2020). Furthermore, exposure to violence, displacement, and social exclusion can negatively affect mental health and overall well-being, creating additional barriers to employment.

Somalia provides an important context for examining the relationship between disability and employment. Decades of armed conflict, political instability, recurrent droughts, forced displacement, and widespread poverty have contributed to significant social and economic challenges. These conditions have disproportionately affected persons with disabilities, many of whom face barriers to healthcare, education, transportation, and employment (Manku, 2018). Reports indicate that women and children with disabilities are among the most marginalized groups in Somali society and are frequently overlooked in development and humanitarian programming (Manku, 2018). Research conducted in Somalia has documented substantial challenges faced by persons with disabilities. (Moallim Abdullahi, 2019) found that persons with disabilities in Mogadishu experienced limited access to education, healthcare services, and employment opportunities. Social stigma and discrimination were identified as major obstacles to social and economic participation. Similarly, (Hossain et al., 2020) reported that Somali women with disabilities experience elevated risks of violence, mental health challenges, and social exclusion, factors that may further reduce opportunities for labour market participation.

Recent nationally representative evidence suggests that disability is both prevalent and closely associated with socioeconomic disadvantage in Somalia. Using data from the Somali Integrated Household Budget Survey (SIHBS) 2022, (Ahmed & Warsame, 2026) estimated that approximately 12% of adults in Somalia live with a disability, with prevalence rates higher among women than men. The study found significant associations between disability and age, educational attainment, employment status, and place of residence. Similarly, (Koome et al., 2025) reported substantial gaps in access to disability-inclusive social protection programmes, assistive devices, and specialized services. Women, rural residents, and conflict-affected populations were identified as particularly vulnerable groups.

Despite increasing attention to disability issues in Somalia, empirical research examining employment among women with disabilities remains limited. Existing studies have primarily focused on disability prevalence, healthcare access, social protection, and humanitarian concerns, while labour market participation has received relatively little attention. This represents a significant knowledge gap given the central role of employment in reducing poverty, promoting social inclusion, and enhancing quality of life.

According to the Somali Integrated Household Budget Survey (SIHBS) 2022, only 12.2% of women aged 15 years and above were employed, while 11.7% were living with a disability. These findings highlight the importance of understanding the relationship between disability and employment among women in Somalia. Identifying factors associated with employment is essential for developing effective policies and programmes aimed at promoting disability-inclusive economic development and gender equality.

This study addresses an important gap in the literature by examining employment among women with disabilities in Somalia using nationally representative data from the Somali Integrated Household Budget Survey (SIHBS) 2022. Specifically, the study investigates whether disability status influences employment outcomes among women after controlling for demographic, socioeconomic, and geographic characteristics. By providing evidence from a fragile and conflict-affected setting, this study contributes to the growing literature on disability and labour market participation and offers insights for

policymakers seeking to promote inclusive employment opportunities for women with disabilities in Somalia.

2. Methods and Materials

2.1 Study Setting

Somalia, the Federal Republic, is in the Horn of Africa, bordered by the Federal Democratic Republic of Ethiopia to the west, the Republic of Djibouti to the northwest, and the Republic of Kenya to the southwest, with a maritime boundary shared with Yemen. Covering approximately 637,657 km², Somalia possesses the longest continental coastline in Africa, extending 3,330 km. The country's nationally recognized languages are Somali, Arabic, and English. Two major rivers, the Jubba and Shabelle, originate in the Ethiopian highlands and traverse Somali territory, forming the backbone of agricultural livelihoods across the country.

2.2 Study Design and Data Source

This study employed a cross-sectional design using secondary data from the 2022 Somali Integrated Household Budget Survey (SIHBS), a nationally representative household survey coordinated by the Somalia National Bureau of Statistics (SNBS). The SIHBS 2022 was designed to capture socioeconomic conditions, household welfare, and demographic characteristics across urban, rural, and nomadic populations in 17 out of 18 regions of Somalia. The cross-sectional approach is appropriate for estimating the prevalence of employment outcomes among women with disabilities and identifying associated determinants at a single point in time.

2.3 Sample and Sampling Design

This study used secondary data from the 2022 Somali Integrated Household Budget Survey (SIHBS), a nationally representative cross-sectional household survey. A cross-sectional design was applied to assess the prevalence of disability among women and its association with employment outcomes. The target population for this analysis comprised women aged 15 years and above residing in Somalia. The SIHBS employed a stratified multistage sampling design covering urban, rural, and nomadic populations across 17 regions of Somalia, ensuring both national and regional representativeness. In urban and rural strata, a three-stage cluster sampling approach was used: Enumeration Areas (EAs) were selected as Primary Sampling Units (PSUs) using probability proportional to size (PPS), followed by household listing and PPS-based household selection within each EA. Nomadic areas followed a comparable two-stage stratified design appropriate to mobile populations. Data was collected using digitally administered structured questionnaires (Computer-Assisted Personal Interviewing), with interviews conducted with eligible household members. After applying the analytical restriction to women aged 15 years and above with complete information on the outcome and exposure variables, the final analytical sample comprised 12,162 women, representing a weighted population of approximately 3,953,288 Somali women aged 15 and above.

2.4 Study Variables

Dependent Variable

The dependent variable was employment status, constructed in accordance with the 19th International Conference of Labour Statisticians (ICLS-19) framework for measuring work and employment. A woman was classified as employed if she reported having worked for pay or profit, worked in a family business or on family land/livestock for at least one hour during the reference week, was temporarily absent from such work due to leave, illness, or seasonal factors, or was engaged in agricultural or livestock production for household consumption and mainly for sale. All other women were classified as not employed. The outcome was coded as a binary variable (1 = Employed, 0 = Not employed) for the purpose of logistic regression analysis.

Main Independent Variable

The main independent variable, disability status, was constructed using the Washington Group Short Set of Questions on Functioning (WG-SS), which assesses difficulty across six functional domains: seeing, hearing, mobility (walking or climbing steps), cognition (remembering or concentrating), self-care, and communication. Each domain was rated on a four-point scale: “1 = no difficulty,” “2 = some difficulty,” “3 = a lot of difficulty,” and “4 = cannot do at all.” Following the Washington Group inclusive threshold, a woman was classified as having a disability if she reported “some difficulty,” “a lot of difficulty,” or “cannot do at all” (i.e., a score of ≥ 2) in at least one of the six functional domains. Women reporting “no difficulty” (score = 1) across all six domains were classified as without disability. The variable was recoded into a binary indicator (1 = With disability, 0 = Without disability). Responses indicating missing or unknown values across all six domains were excluded from the analysis.

Control Variables

Based on existing literature on disability and labour market outcomes, the following sociodemographic variables were included as controls: age, educational attainment, marital status, area of residence, and administrative region. Age was treated as a continuous variable measured in completed years. Given the well-established non-linear relationship between age and labour force participation, an age-squared (age^2) term was included to capture the hump-shaped career profile typically observed across the working-age life course. Educational attainment was classified into four categories no formal education, primary education, secondary education, and higher (university/tertiary) education derived from responses on school attendance and the highest level of education completed. Marital status was categorized into three groups: married, never married, and divorced/widowed/separated (the latter two combined due to small cell sizes in some categories). Area of residence was classified into three categories: urban, rural, and nomadic, reflecting the distinct livelihood and labour market structures associated with each settlement type. Region was included as a categorical variable representing all 17 out of 18 regions of Somalia, Middle Jubba was excluded due to security constraints and is not represented in this analysis: Awdal, Bakool, Banadir, Bari, Bay, Galgaduud, Gedo, Hiraan, Lower Juba,

Lower Shabelle, Middle Shabelle, Mudug, Nugaal, Sanaag, Sool, Togdheer, and Waqooyi Galbeed, with Banadir the capital region specified as the reference category given its status as the largest urban labour market.

2.5 Data Analysis

Women aged 15 years and older with complete information on employment status, disability status, and all study covariates were included in the analysis. To account for the complex sampling design of the Somali Integrated Household Budget Survey (SIHBS) 2022, survey weights, regional stratification, and household-level clustering were incorporated using the survey and srvyr packages in R. Singleton strata were adjusted using the survey.lonely.psu = "adjust" option to ensure valid variance estimation. Descriptive analyses were conducted to summarize participant characteristics, disability prevalence, and employment rates using weighted estimates with corresponding standard errors and 95% confidence intervals (CIs). The association between disability status and employment was examined using survey-weighted logistic regression models. An unadjusted model estimated the crude association between disability and employment, while an adjusted model controlled for age, age squared, educational attainment, area of residence, marital status, and region. Results are presented as odds ratios (ORs) with 95% CIs and p-values, with statistical significance set at $p < 0.05$. Model performance was assessed using Akaike Information Criterion (AIC), null and residual deviance, and McFadden's pseudo-R^2. In addition, the Average Partial Effect (APE) was calculated to estimate the marginal impact of disability on the probability of employment. All analyses were performed in R version 4.x using the haven, survey, srvyr, dplyr, and ggplot2 packages.

2.6 Model Specification

The relationship between disability status and employment was analyzed employing survey-weighted binary logistic regression (svyglm(), quasibinomial family, logit link), while appropriately addressing the intricacies of the survey design (PSU = household, strata = region, weights = sampling weight). The logit transformation of the probability of employment (p) was expressed as follows:

$$logit(p) = ln[p / (1 - p)] = \beta_0 + \beta_1(Disability) + \ldots + \beta_k(X_k)$$

Exponentiating each coefficient (e^{β_k}) yields the odds ratio (OR), the multiplicative change in the odds of employment per unit change in the predictor.

Model 1 (Unadjusted): estimated the crude association between disability and employment, $logit(p) = \beta_0 + \beta_1(Disability)$, where Disability = 1 (with disability) vs. 0 (reference, without disability). e^{β_1} yields the Crude Odds Ratio (COR).

Model 2 (Adjusted): extended Model 1 with covariates: $logit(p) = \beta_0 + \beta_1(Disability) + \beta_2(Age) + \beta_3(Age^2) + \beta_4(Education) + \beta_5(Area) + \beta_6(Marital) + \beta_7(Region)$. Age and Age² capture the linear and hump-shaped relationship between age and employment; Education (No education [ref], Primary, Secondary, Higher), Area (Urban [ref], Rural, Nomadic), Marital status (Married [ref], Never married,

Divorced/Widowed/Separated), and Region (Banadir [ref] plus 16 other regions) are categorical. e^{β_1} yields the Adjusted Odds Ratio (AOR) for disability, net of these covariates.

Model assessment: Models were compared using the Akaike Information Criterion ($AIC = 2k - 2\ln(L)$, lower = better fit), and McFadden's pseudo-R^2:

$$\text{McFadden's pseudo-}R^2 = 1 - (\text{Residual Deviance} / \text{Null Deviance})$$

The Average Partial Effect (APE) of disability on employment probability was computed as the mean predicted-probability difference between the “with” and “without disability” counterfactual scenarios for each woman, holding other covariates at their observed values:

$$APE = (1/n)\ \Sigma\ [\hat{p}_i(\text{Disability} = 1) - \hat{p}_i(\text{Disability} = 0)]$$

The APE offers a directly interpretable percentage-point estimate of the effect of disability, thereby complementing the interpretation of odds ratios derived from the logistic regression coefficients.

3. Findings

Table 1 describes the variables used in the analysis. Employment status was the dependent variable, coded as employed or not employed. Disability status, measured using the Washington Group Short Set (WG-SS) inclusive threshold, was the main independent variable. Control variables included age, educational attainment, marital status, area of residence, and administrative region.

Table 1
Description of Variables used in the Analysis

Level	Variable	Options/Coding
Dependent variable	Employment status	1 = Employed; 0 = Not employed
Main independent variable	Disability status (WG-SS)	1 = With disability (any domain ≥ 2); 0 = Without disability
Demographic background	Sex	Female (analytic sample restricted to women aged 15+)
	Age	Continuous (years); age² included to capture non-linear career profile
Socioeconomic	Educational attainment	0 = No education; 1 = Primary; 2 = Secondary; 3 = Higher
Geographic	Area type	1 = Urban (ref); 2 = Rural; 3 = Nomadic
	Region	17 regions of Somalia; Banadir = reference category
Socioeconomic	Marital status	1 = Married (ref); 2 = Never married; 3 = Divorced/Widowed/Separated

Note: WG-SS = Washington Group Short Set on Functioning. Disability classified using the inclusive threshold (any domain score ≥ 2). Source: SIHBS 2022.

Table 2
Overall Employment Rate among Women Aged 15 + in Somalia The Table 2 presents the overall employment rate among women aged 15 years and above in Somalia (SIHBS 2022). Of 12,162 women analyzed, only 1,461 (12.20%; 95% CI: 11.46–12.94%) were employed and 10,701 (87.80%) were not employed, indicating extremely low female labour force participation in Somalia.

Employment Status	n	Magnitude (%)	Std. Err.	95% CI
Employed	1,461	12.20	0.38	[11.46–12.94]
Not employed	10,701	87.80	0.38	[87.06–88.54]
Total	12,162	100.00	—	—

Note: n = unweighted count. Magnitude (%) = survey-weighted employment rate. Std. Err. = standard error of the weighted estimate. 95% CI = 95% confidence interval. Source: SIHBS 2022.

Table 3. Magnitude of Disability among Women Aged 15+

Table 3 presents the magnitude of disability among women aged 15 years and above in Somalia. A total of 12,162 women were included in the analysis. The majority, 10,740 (88.3%), had no reported disability, while 1,422 (11.7%) were identified as living with a disability based on the Washington Group Short Set inclusive threshold.

Table 3
Magnitude of Disability among Women Aged 15 + in Somalia, SIHBS 2022

Disability Status	n	Magnitude (%)	Std. Err.	95% CI
Without disability	10,740	88.30	0.0039	[0.879, 0.895]
With disability	1,422	11.70	0.0039	[0.105, 0.121]
Total	**12,162**	**100.00**	—	—

Note: Survey-weighted estimates. WG-SS inclusive threshold (any functional domain ≥ 2). Source: SIHBS 2022.

Table 4 presents the sample characteristics of women aged 15 years and above by disability status. Women with disabilities were considerably older than those without disabilities, with a mean age of 47.2 years (SE: 0.61) compared to 29.8 years (SE: 0.14). With regard to employment status, the majority of both groups were not employed, 88.8% (SE: 1.04) among women with disabilities and 87.7% (SE: 0.41) among those without disabilities, while employed women accounted for 11.2% (SE: 1.04) and 12.3% (SE: 0.41) respectively, indicating a marginal employment gap of 1.1 percentage points between the two groups.

Regarding educational attainment, women with disabilities had substantially lower education levels compared to their counterparts. Most women with disabilities had no formal education (85.2%; SE: 1.19), compared to 66.0% (SE: 0.69) among women without disabilities. Higher education was notably rare among women with disabilities (1.0%; SE: 0.29) relative to those without (4.4%; SE: 0.31). In terms of area of residence, the distribution was broadly similar across both groups, with the majority residing in urban areas (65.2% with disability vs 66.9% without disability). However, women with disabilities were slightly more likely to reside in rural areas (26.7% vs 22.5%). Marital status differed markedly between the two groups. Among women with disabilities, 44.6% (SE: 1.76) were divorced, widowed, or separated, more than three times the proportion observed among women without disabilities (14.6%; SE: 0.45). Women without disabilities were more likely to have never been married (35.1% vs 15.1%), which is consistent with the younger mean age of this group. Married women accounted for 50.2% of those without disabilities compared to 40.3% among those with disabilities.

Table 4. Sample Characteristics by Disability Status of Women Aged 15+

Table 4
Sample Characteristics by Disability Status of Women Aged 15 + in Somalia

[a]		Without Disability		With Disability	
Variable	**Category**	**n**	**% (SE)**	**n**	**% (SE)**
Age (years)	Mean (SE)		29.8 (0.14)		47.2 (0.61)
Employment status					
	Not employed	9,450	87.7 (0.41)	1,251	88.8 (1.04)
	Employed	1,290	12.3 (0.41)	171	11.2 (1.04)
Education					
	No education	6,978	66.0 (0.69)	1,182	85.2 (1.19)
	Primary	2,076	18.5 (0.50)	140	8.5 (0.89)
	Secondary	1,219	11.1 (0.46)	84	5.3 (0.71)
	Higher	467	4.4 (0.31)	16	1.0 (0.29)
Area type					
	Rural	2,468	22.5 (0.74)	398	26.7 (1.60)
	Urban	7,120	66.9 (0.84)	914	65.2 (1.79)
	Nomadic	1,152	10.6 (0.57)	110	8.1 (1.11)
Marital status					
	Married	5,410	50.2 (0.66)	588	40.3 (1.74)
	Never married	3,717	35.1 (0.61)	195	15.1 (1.46)
	Divorced/Widowed/Sep	1,613	14.6 (0.45)	639	44.6 (1.76)

[a]% (SE) = weighted percentage (standard error). Age reported as mean (SE).

Note n = unweighted count. % (SE) = weighted percentage (standard error). Age reported as mean (SE).

3.1 Logistic Regression Analysis

Table 5 presents the results of the logistic regression analysis examining the association between disability status and employment among women aged 15 years and above in Somalia. In the unadjusted model (COR), women with disabilities had slightly lower odds of employment compared to women without disabilities (COR = 0.896; 95% CI: 0.719–1.116), though this association was not statistically significant. After adjusting for age, education, area type, marital status, and region, the odds of employment among women with disabilities remained lower and became statistically significant (AOR = 0.678; 95% CI: 0.521–0.880; p = 0.004), indicating that women with disabilities had approximately 32% lower odds of employment compared to women without disabilities, after controlling for other factors.

Among the control variables, age was a statistically significant predictor of employment. Each additional year of age was associated with increased odds of employment (AOR = 1.337; 95% CI: 1.284–1.392; p < 0.001), while the quadratic term confirmed a non-linear, hump-shaped career profile (AOR = 0.997; 95% CI: 0.996–0.997; p < 0.001), indicating that employment probability rises with age through prime working years before declining at older ages. About education, women with secondary education had significantly lower odds of employment compared to those with no education (AOR = 0.721; 95% CI: 0.525–0.989; p = 0.042), while women with higher education had significantly greater odds of employment (AOR = 1.924; 95% CI: 1.346–2.751; p < 0.001). Residing in a nomadic area was associated with significantly lower odds of employment compared to urban residence (AOR = 0.721; 95% CI: 0.533–0.974; p = 0.033). Regarding marital status, never married women had significantly higher odds of employment compared to married women (AOR = 1.511; 95% CI: 1.147–1.992; p = 0.003), as did divorced, widowed, or separated women (AOR = 2.038; 95% CI: 1.693–2.453; p < 0.001). Notable regional variation was also observed, with Sool (AOR = 1.867; p = 0.001), Hiraan (AOR = 1.430; p = 0.030), and Lower Shabelle (AOR = 1.451; p = 0.021) showing significantly higher odds of employment compared to Banadir, while Awdal (AOR = 0.550; p = 0.004) and Sanaag (AOR = 0.538; p = 0.003) showed significantly lower odds.

Table 5. Logistic Regression Analysis of Employment of Women Aged 15+

Table 5
Logistic Regression Analysis of Employment among Women with Disabilities in Somalia

Variable[b]	COR [95% CI]	AOR [95% CI]	p-value
(Intercept)	0.141 [0.131–0.152]	0.001 [0.000-0.001]	< 0.001*
With disability (ref: Without)	*0.896 [0.719–1.116]*	*0.678 [0.521–0.880]*	*0.004**
Age (years, linear)	—	1.337 [1.284–1.392]	< 0.001*
Age2 (quadratic)	—	0.997 [0.996–0.997]	< 0.001*
Education: Primary	—	0.909 [0.728–1.134]	0.396
Education: Secondary	—	*0.721 [0.525–0.989]*	*0.042**
Education: Higher	—	1.924 [1.346–2.751]	< 0.001*
Area: Rural	—	0.952 [0.795–1.139]	0.590
Area: Nomadic	—	*0.721 [0.533–0.974]*	*0.033**
Marital: Never married	—	*1.511 [1.147–1.992]*	*0.003**
Marital: Divorced/Widowed/Sep	—	2.038 [1.693–2.453]	< 0.001*
Region: Awdal	—	*0.550 [0.368–0.824]*	*0.004**
Region: Bakool	—	0.701 [0.468–1.052]	0.086
Region: Bari	—	1.215 [0.890–1.658]	0.220
Region: Bay	—	1.150 [0.793–1.667]	0.461
Region: Galgaduud	—	0.663 [0.430–1.023]	0.064
Region: Gedo	—	1.061 [0.742–1.517]	0.745
Region: Hiraan	—	*1.430 [1.035–1.977]*	*0.030**

[b]COR = Crude Odds Ratio (unadjusted). AOR = Adjusted Odds Ratio (adjusted for age, education, area type, marital status, and region). Reference categories: Without disability; No education; Urban; Married; Banadir. * $p < 0.05$.

Variable[b]	COR [95% CI]	AOR [95% CI]	p-value
Region: Lower Juba	—	0.816 [0.578–1.152]	0.248
Region: Lower Shabelle	—	*1.451 [1.057–1.993]*	*0.021**
Region: Waqooyi Galbeed	—	0.752 [0.544–1.039]	0.084
Region: Middle Shabelle	—	0.250 [0.139–0.448]	< 0.001*
Region: Mudug	—	0.786 [0.550–1.124]	0.187
Region: Nugaal	—	0.761 [0.550–1.053]	0.100
Region: Sanaag	—	*0.538 [0.357–0.810]*	*0.003**
Region: Sool	—	*1.867 [1.286–2.709]*	*0.001**
Region: Togdheer	—	0.884 [0.617–1.267]	0.502

[b]COR = Crude Odds Ratio (unadjusted). AOR = Adjusted Odds Ratio (adjusted for age, education, area type, marital status, and region). Reference categories: Without disability; No education; Urban; Married; Banadir. * p < 0.05.

Note

COR = Crude Odds Ratio; AOR = Adjusted Odds Ratio. Reference: Without disability, No education, Urban, Married, Banadir. Significant at * p < 0.05.

3.2 Goodness-of-Fit

Table 6 compares the two logistic regression models on fit and explanatory power. Model 1 (unadjusted, disability only) showed very poor fitness. the disability coefficient was non-significant (p = 0.258), AIC was 9,027.95, and McFadden pseudo-R^2 was near zero (0.0002), indicating that disability alone explains virtually none of the variation in women's employment. Model 2 (fully adjusted) demonstrated substantially better fit across all criteria: AIC dropped by 857 points (9,027.95 → 8,170.08), residual deviance fell from 9,024.88 to 8,090.78, and McFadden pseudo-R^2 rose to 0.1037 (10.4%) an acceptable level for survey-weighted logistic regression in low-income settings. In Model 2, disability became statistically significant (p = 0.004), confirming that the sociodemographic controls (age, education, area type, marital status, and region) are essential confounders.

Table 6
Model Comparison, Goodness-of-Fit and Assessment of Employment among Women with Disabilities in Somalia

Measure	Model 1 (Unadjusted COR)	Model 2 (Adjusted AOR)
Model Specification		
Dependent variable	Employment (0/1)	Employment (0/1)
Independent variable	Disability only	Disability + controls
Control variables	None	Age, Age², Education, Area, Marital, Region
Observations (n)	12,162	12,162
Disability Effect		
OR (disability)	0.896	0.678
95% CI	[0.719–1.116]	[0.521–0.880]
p-value	0.258	0.004*
Interpretation	Not significant	Significant (p < 0.05)
Goodness-of-Fit		
AIC (lower = better)	9,027.95	8,170.08
Null deviance	9,026.40	9,026.40
Residual deviance	9,024.88	8,090.78
McFadden pseudo-R^2	0.0002	0.1037
Model Assessment		
Singleton strata handled	Yes (adjust)	Yes (adjust)
Survey design applied	Yes	Yes

*Note: COR = Crude Odds Ratio (Model 1, unadjusted). AOR = Adjusted Odds Ratio (Model 2, adjusted for age, age², education, area type, marital status, and region). Survey-weighted logistic regression using svyglm (). Singleton strata handled using options (survey.lonely.psu = 'adjust'). * p < 0.05. AIC and deviance values to be extracted from R output.*

Figure 1 shows that employment patterns are similar for women with and without disabilities. Without disability, 12.3% were employed versus 11.2% with disability, a gap of just 1.1 percentage points. Both groups show that nearly 9 in 10 women are not employed, reflecting Somalia's overall low female employment rate rather than a disability-specific effect.

Figure 2 shows employment varies more by education and marital status than by area type. Urban (12.6%) and rural (12.3%) areas have similar rates, while nomadic areas are lowest (9.1%). Education

shows a U-shaped pattern, with higher education (17.1%) and no education (13.7%) having higher employment than primary (8.9%) and secondary (6.3%). Marital status shows the largest gap, divorced/widowed/separated women (20.4%) are far more likely to be employed than married (13.2%) or never married (6.2%) women.

4. Discussion

This study analyses employment among women aged 15 years and above in Somalia using the SIHBS 2022, providing nationally representative evidence on the intersection of disability and female labour force participation. The findings reveal a strikingly low overall employment rate of 12.20% (95% CI: 11.46–12.94%), with 10,701 out of 12,162 women not employed. Disability prevalence stood at 11.68% (95% CI: 10.5–12.1%), with seeing (6.0%) and mobility (5.9%) as the most prevalent functional limitations, domains with direct implications for travel to work and physical labour demands in Somalia's predominantly informal economy. At the descriptive level, the employment gap between women with disabilities (11.2%) and those without (12.3%) was narrow at just 1.1 percentage points, with overlapping confidence intervals suggesting no statistically significant raw difference. This near parity in raw employment rates, however, masks a deeper and more complex story revealed by the adjusted analysis.

After adjusting for age, education, area type, marital status, and region, women with disabilities had 32% significantly lower odds of employment compared to women without disabilities (AOR = 0.678; 95% CI: 0.521–0.880; p = 0.004). The attenuation of the disability coefficient from the unadjusted model (COR = 0.896; p = 0.258) to the adjusted model (AOR = 0.678; p = 0.004) demonstrates that sociodemographic factors particularly age, education, and marital status act as important confounders that partially mask the true employment disadvantage of disability. The sharp improvement in model fit from Model 1 to Model 2 further confirms this: AIC fell by 857 points (9,027.95 → 8,170.08) and McFadden pseudo-R^2 rose from a near-zero 0.0002 to 0.1037, indicating that the full model explains approximately 10.4% of employment variation an acceptable level for population-level survey data in fragile-state contexts. Taken together, these findings indicate that while structural barriers suppress employment for all Somali women, disability imposes an additional and statistically significant employment penalty once those structural factors are accounted for.

Age emerged as the most powerful predictor of employment. The significant linear term (AOR = 1.337; $p < 0.001$) and quadratic term (AOR = 0.997; $p < 0.001$) together confirmed a hump-shaped career profile rises through prime working years before declining at older ages. Critically, women with disabilities were on average 17.4 years older than women without disabilities (mean age 47.2 vs 29.8 years), meaning age confounds the raw disability employment gap substantially. The sharp decline in employment among women with disabilities after the 45–49 age group, visible in the descriptive age-employment profile, reflects the compound disadvantage of ageing and disability where physical limitations intensify with age precisely when labour market withdrawal accelerates.

Educational attainment revealed a complex, non-linear pattern. Women with higher education had significantly greater odds of employment (AOR = 1.924; p < 0.001), affirming education as a pathway to labour market access. Paradoxically, women with secondary education had lower employment odds than those with no education (AOR = 0.721; p = 0.042), likely reflecting higher reservation wages and aspirations for formal employment in a context where formal jobs are scarce. The severity of educational disadvantage among women with disabilities of whom 85.2% had no formal education compared to 66.0% among those without, underscores how limited access to education compounds the employment penalty of disability. Marital status was equally revealing divorced, widowed, or separated women had the highest employment odds (AOR = 2.038; p < 0.001), followed by never married women (AOR = 1.511; p = 0.003), compared to married women. Women with disabilities were more than three times as likely to be divorced, widowed, or separated (44.6% vs 14.6%), suggesting that marital dissolution both forces and enables labour market entry through economic necessity, a paradox of vulnerability and agency unique to this group.

Geographic context shaped employment outcomes significantly. Nomadic residence was associated with lower employment odds than urban areas (AOR = 0.721; p = 0.033), reflecting the mobility demands and subsistence nature of nomadic livelihoods that may be less accessible to women with physical or sensory limitations. Substantial regional heterogeneity was observed: Sool (AOR = 1.867; p = 0.001), Hiraan (AOR = 1.430; p = 0.030), and Lower Shabelle (AOR = 1.451; p = 0.021) showed significantly higher employment odds compared to Banadir, while Middle Shabelle (AOR = 0.250; p < 0.001), Sanaag (AOR = 0.538; p = 0.003), and Awdal (AOR = 0.550; p = 0.004) showed markedly lower odds. This regional disparity reflects the diverse security environments, livelihood structures, and cultural attitudes toward female employment across Somalia's 17 regions and highlights that disability interacts with geography to produce highly localized employment outcomes. Uniform national policies are therefore insufficient targeted, region-specific, disability-inclusive employment interventions are essential to close these gaps and ensure that no woman is left behind regardless of her disability status or region of residence.

4.1 Limitations

This study has several limitations. First, the cross-sectional design precludes causal inference the direction of the association between disability and employment cannot be established. Second, both disability (WG-SS) and employment (ICLS-19) were self-reported, which may introduce reporting bias and does not capture disability severity, type combinations, or duration. Third, the smaller sample of women with disabilities (n = 1,422 vs. 10,740) reduced precision for some subgroup estimates, particularly by education level and region, resulting in wider confidence intervals. Fourth, singleton PSUs in some strata required a standard variance adjustment (survey.lonely.psu = "adjust"), which may slightly affect estimate precision. Fifth, household surveys may underrepresent severely disabled or institutionalized women. Finally, important unmeasured confounders household wealth, access to assistive devices, conflict exposure, and caregiving responsibilities were unavailable, consistent with the adjusted model explaining only 10.4% of employment variation (McFadden pseudo-R^2 = 0.1037). Despite

these limitations, the use of nationally representative data and internationally validated disability measurement provides robust, policy-relevant evidence on a severely under-researched population.

5. Conclusion

This study provides nationally representative evidence on employment among women with disabilities in Somalia, using data from the SIHBS 2022. The findings show that disability prevalence among women aged 15 and above stands at 11.7%, with seeing and mobility limitations the most common functional difficulties. Overall female employment is strikingly low at 12.2%, and although the raw employment gap between women with and without disabilities appears modest (1.1 percentage points), the adjusted analysis reveals that women with disabilities face 32% significantly lower odds of employment (AOR = 0.678; 95% CI: 0.521–0.880; p = 0.004) once age, education, marital status, area type, and region are accounted for.

Age, education, marital status, and region emerged as the strongest determinants of employment, indicating that female labour force participation in Somalia is shaped primarily by structural and life-course factors rather than disability status alone. Nonetheless, the significant adjusted disability effect confirms that women with disabilities experience an additional, independent employment disadvantage once these structural barriers are held constant a disadvantage that is masked, but not eliminated, by Somalia's universally low female employment rate.

These findings underscore the need for disability-inclusive employment policies that are integrated within not separate from broader efforts to improve female labour force participation in Somalia. Priority actions should include expanding access to inclusive education for girls and women with disabilities, particularly given that 85.2% of women with disabilities have no formal education; strengthening vocational training and livelihood programmes tailored to women with mobility and sensory impairments; and designing region-specific interventions that respond to the substantial geographic variation in employment outcomes observed across Somalia's 17 regions.

Future research should employ longitudinal designs to establish causal pathways between disability and employment, incorporate measures of disability severity and household wealth, and explore qualitative dimensions of how Somali women with disabilities navigate labour market participation. As Somalia continues its post-conflict recovery and pursues its commitments under the UN Convention on the Rights of Persons with Disabilities, ensuring that women with disabilities are not left behind in employment and economic empowerment efforts will be essential to achieving inclusive and sustainable development.

Declarations

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Ethical Approval

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Consent to Participate

Not applicable.

Consent to Publish

Not applicable.

Clinical Trial Number

Not applicable.

Author Contribution

A.B. and C.D. jointly conceived and designed the study, conducted the data analysis, interpreted the findings, drafted the manuscript, and critically revised the manuscript for important intellectual content. Both authors read and approved the final manuscript and agree to be accountable for all aspects of the work.

Data Availability

The datasets analyzed during the current study are publicly available from the National Bureau of Statistics (NBS) Somalia and can be accessed through the official data repository. All data used in this study are available from the corresponding author upon reasonable request.

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Figures

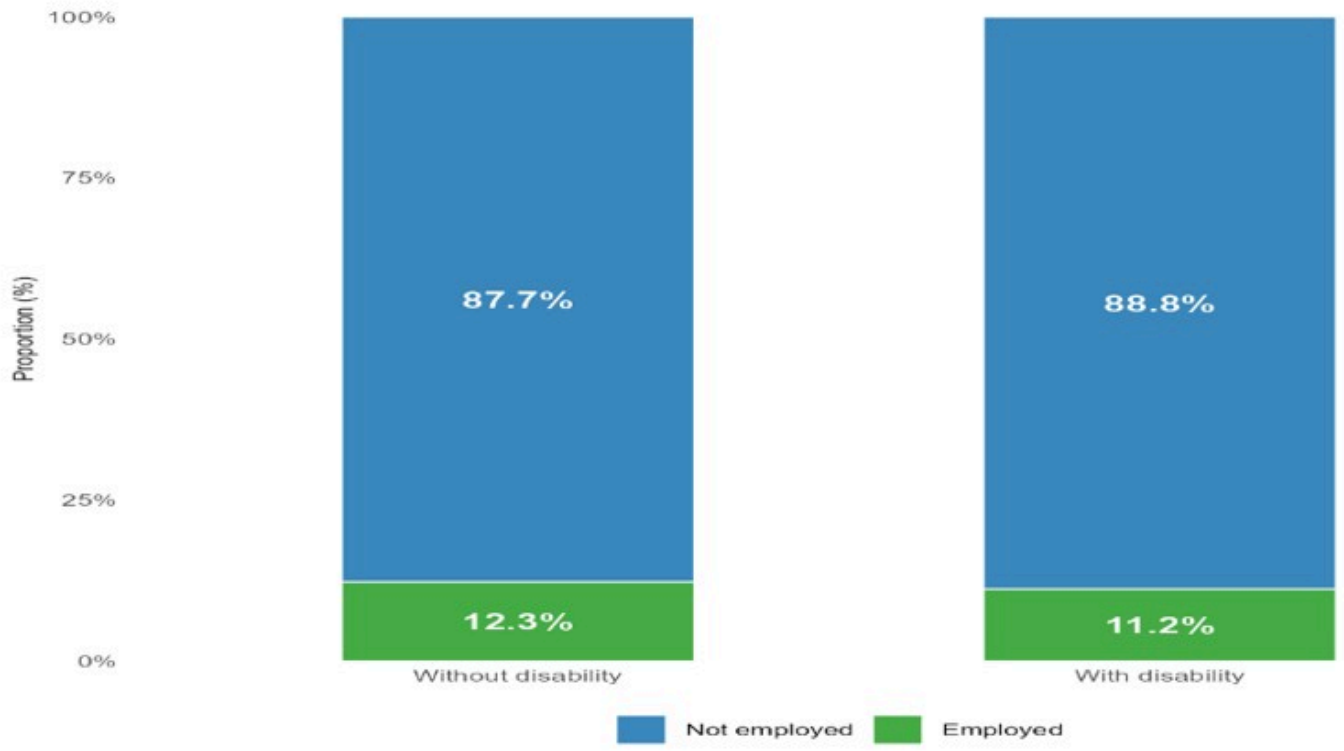


Figure 1

Employment Status by Disability Status among Women Aged 15+ in Somalia

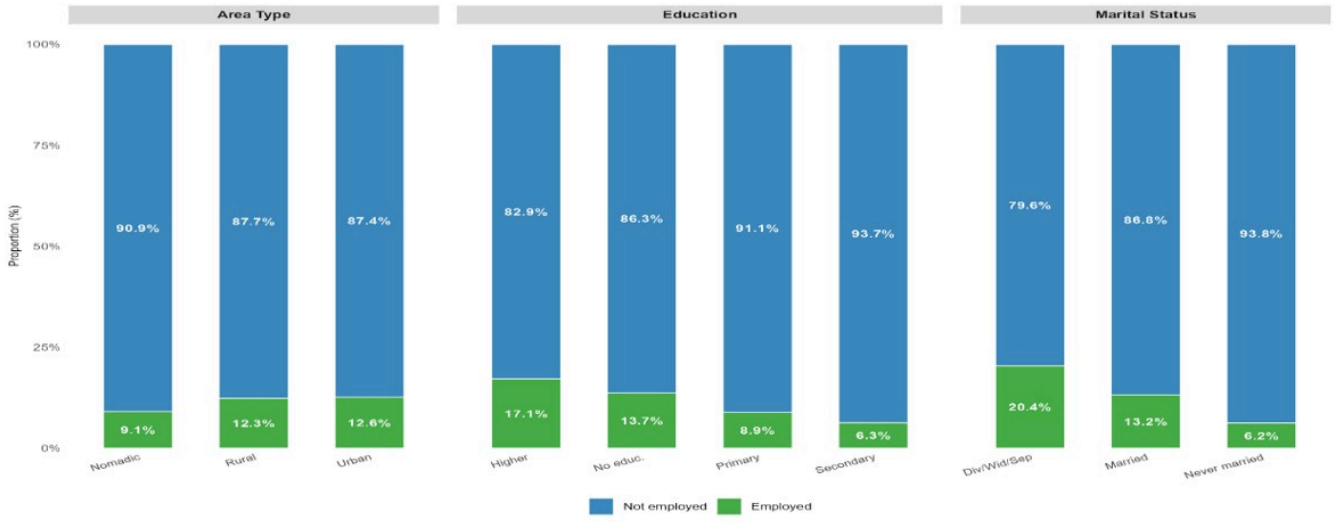


Figure 2

Employment Status by Control Variables among Women Aged 15+ in Somalia